THE WORLD OF INFORMATION: OPPORTUNITIES AND CHALLENGES FOR THE GIFTED AND TALENTED

The 14th Biennial Conference
of the World Council for Gifted and Talented Children

BARCELONA 2001

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CENTRO "HUERTA DEL REY"
WORLD COUNCIL FOR GIFTED AND TALENTED CHILDREN

The World of Information: Opportunities and Challenges for the gifted and talented

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Published in 2003

MESSAGE FROM THE LOCAL ORGANIZING COMMITTEE CHAIR OF THE 14TH WORLD CONFERENCE ON GIFTED AND TALENTED CHILDREN

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On behalf of the scientific and organizing committee of the 14th World Conference on Gifted and Talented Children, we would like to express our sincere satisfaction of the obtained results: the 14th World Conference implied an important advance on the knowledge about giftedness and talent; for some countries, it implied an approximation to the reality of these students; in many countries, it implied the starting of an absent legislation or, in other cases, the revision of that legislation.

Plenary, Featured Speakers, Symposia, Individual, Posters, made a great Scientific Program with the participation of 54 countries that take part in the world of Education, Psychology, Paediatrics and related Sciences: Training Centres, Universities, Official Organisms, different National and International Educative Administrations, Associations, Parents, etc.

The Queen of Spain, S.M. Dª. Sofía, agreed to be the Honorary President of this important Conference, that got the institutional support from the following organizations: Ministry of Education and Culture of Spain, Ministry of Labour and Social Affairs of Spain, Teaching Department of the Generalitat of Cataluña, Barcelona Town Hall, Education Department of the Community of Madrid, Deputation of Girona, The British Council of Spain, Spanish Centre for the helping to the gifted development, Barcelona Convention Bureau, Iberia and Airtel.

The World Conference had an Honorary Committee formed by the following personalities: Jose María Aznar, President of the Government of Spain; Jordi Pujol, President of the Generalitat of Cataluña; Pilar del Castillo, Minister of Education, Culture and Sport of Spain; Ana Birulés, Minister of Science and Technology of Spain; Joan Clos, Mayor of Barcelona; Juan A. Gómez-Angulo, State Secretary for the Sport, President of the CSD; Carme-Laura Gil i Miró, Consellera of Education of the Generalitat of Cataluña; Concepción Dancausa, General Secretary for Social Affairs; Manuel Royes Vila, President of the Deputation of Barcelona; Mª Pilar Dávila, Director of the Woman Institute; Peter Sandiford O.B.E., Director of the British Council in Spain and Prof. Dr. Santiago Grisolía.

The Spanish Scientific Committee was composed by: Carmen García Colmenares, Professor, University of Valladolid, Spain; Yolanda Benito, Professor, University of Valladolid and Director of Huerta del Rey Center, Spain; Emilio Sánchez Miguel, Professor, University of Salamanca, Spain; Jesús Moro, Ministry of Health, Spain; Juan A. Alonso, Local Organizing Committee Chair of the 14th World Conference and President of Ficomundyt; David de Prado, Professor, University of Santiago de Compostela, Spain; Jose Muñiz, Professor, University of Oviedo, Spain and María Ascensión Fernández, Professor, University of Valladolid, Spain.

We wish the readers that this Publication, result of the XIV World Conference, means an advance in the future research lines of gifted and talented children.

Juan A. Alonso
Valladolid, Spain

THE PRESIDENT OF THE GOVERNMENT

Madrid. 25 July 2001

Dr. Juan A. Alonso
Member of the Executive Committee
World Council for Gifted and Talented Children
Centro "Huerta del Rey"
Pio del Rio Hortega, 10
47014 Valladolid

Dear Friend,

I am writing in reply to your letter on the occasion of the XIV World Council of the World for Gifted and Talented Children to be held this summer in Barcelona.

I wish you every success for the events that will be taking place during the course of the conference and I would like to offer my support for the work being carried out at your centre for the education of these children.

Kind Regards

(Signature of the President)

_____

José María Aznar

THE PRESIDENT OF THE GOVERNMENT

ADDRESS BY THE PRESIDENT OF THE GOVERNMENT TO THE PARTICIPANTS IN THE XIV WORLD COUNCIL FOR GIFTED AND TALENTED CHILDREN

It is a pleasure for me to be given the opportunity by the organisers of the **XIV** *World Council for Gifted and Talented Children,* being held in Barcelona, to greet all those taking part, to congratulate them on their work and to encourage them in their efforts to develop the talent of the most gifted and talented for the benefit of society.

Although it may seem somewhat contradictory, gifted children require close attention from parents and educators if they are to reach their potential, a fact well appreciated by the organising committee of this conference, which has introduced two areas of research: 1. a programme aimed at parents and 2. a programme for new technologies.

The first of these two areas, dealing with parents, offers an educational programme for gifted children, thus making it easier for parents to cope with the special needs of their children, both in the personal and family environment as well as in the academic and social environment. Parents can share their knowledge and experiences at this conference and can also find answers to many of the problems encountered.

The second area, which incorporates the advantages of new technologies, offers a "cybercorner", specifically designed to explore the Internet under the guidance of expert supervision.

These innovations are aimed at integrating gifted children into society as well as avoiding the frustration and alienation these children may suffer.

With regard to new technologies, I feel it important to point out that these will play a key role in this conference, which has proposed the study of **"The World of Information, opportunities and challenges for the gifted and talented"** as a key issue.

During the working sessions, debates and lectures, experts will have the opportunity to share the results of their work, exchange scientific opinions and gain an insight into the changes that this crucial area of education has undergone in recent years.

The use of computer technology will enable the spread of what has come to be known as "education without frontiers", overcoming localised prejudices in favour of a more global and caring approach to problems shared by all civilised societies.

The *XIV Barcelona Conference* will run at two levels, which differ and yet coincide as regards content, time and place. The first level, which was previously mentioned, deals with the debate amongst the experts, and the second will involve meetings between children and young people during the conference under the title "Together, building a new world".

This will be an excellent opportunity for people of different ages, opinions and viewpoints to come together so that gifted children's abilities are not wasted as a result of inadequate or insufficient teaching.

I feel sure that the warm atmosphere of Barcelona, a city always open to productive debate, will serve as an ideal setting for the working sessions and will offer participants its traditional cordial welcome for the time devoted to rest and relaxation.

(Signature of the President)

L'Alcalde de Barcelona

June, 15, 2001

I am glad to welcome all attendee the XIV World Conference for Gifted and Talented Children in Barcelona.

Our city is proud of receiving this Conference. Barcelona is a city committed to Education, an essential and basic right that not only allows the social integration but helps and promotes the diversity and the equality of opportunities. Barcelona works over this base to introduce constantly, incorporating as the ideas that appear from the own school and civic community through spaces like The City Educational Plan, as the contributions from other cities through the International Association of Educator Cities.

This Conference allows us to confirm again the essence of Barcelona, a place for the meeting and the argument. With this spirit Barcelona will hold The Universal Forum of the Culture in 2004, an event in which culture, education and life together will be key elements that will allow to share experiences and to analyze the challenges raised by the XXI century.

I hope you to find this space for the argument and the consensus in Barcelona, and you to enjoy yourself in this city that receive you with open arms.

Joan Clos
Major of Barcelona

UNESCO	United Nations Educational, Scientific and Cultural Organization
	Organisation des Nations Unies pour l'éducation, la science et la culture

Message from the Assistant Director-General for Education of UNESCO to the 14th World Conference of the World Council for Gifted and Talented Children 31 July - 4 August 2001, Barcelona

lt is a great pleasure to address my warmest greetings to you.

The World Council for the Gifted and Talented Children and its member organizations have carried out important work over the past ten years in undertaking research and disseminating information. It is indeed encouraging to us to note that non-governmental organizations are playing an increasingly active role in forming alliances for education together with governments and other partners for it is through these alliances that education systems can become more responsive to the diversity of learner populations. UNESCO is proud of its association with you.

In the light of UNESCO's own action in the fields of inclusive education and communication, the pertinence to us of the theme "The world of information: opportunities and challenges for the gifted and talented" to be discussed at your Conference need hardly be stressed. Our mission is to contribute to a better and more equitable life for all, where human rights are respecten and diversity celebrated. Information, its content and equitable dissemination is a challenge in our contemporary world. Education has a major role to play both in promoting the opportunities of information but also in pointing out and addressing the challenges.

The Salamanca Statement and Framework for Action, adopted at the World Conference on Special Needs Education in Salamanca, Spain 1994, states *"that schools should accommodate **all children** regardless of their physical, intellectual, social, emotional, linguistic or other conditions. This should include disabled and gifted children, street and working children, children form remote or nomadic populations, children from linguistic, ethnic or cultural minorities and children from other disadvantaged or marginalized areas or groups"*. lt is evident that the challenge of developing more inclusive schools is enormous but not impossible. More efforts are needed to develop a rich and stimulating environment to meet the aspirations and dreams of all learners and to develop their untapped resources.

UNESCO takes an interest in your Conference and I will follow closely its outcome and proposals for creating a more sensitised, informed and welcoming society where diversity is accepted as a fact of life and where living together in harmony will be the goal of education in the twenty-first century.

I wish you well in your endeavours.

John Daniel

NATIONAL & INTERNATIONAL SUPPORT

Spanish Royal Family

Queen Sofia of Spain, Honorary President of 14th World Conference. The organizers of the 14th World Conference are grateful for the Queen's support of this most important event on gifted and talented children, celebrated every 2 years and being held for the first time in Spain.

Council of Europe

Walter Schwimmer, Secretary General of the Council of Europe. Mr. Walter Schwimmer is pleased to be a member of the Honorary Committee of the World Conference and grants his patronage. He sends his wishes for every success with the organization of the 14th World Conference.

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Jose María Aznar, President of the Government of Spain
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Pilar del Castillo, Minister of Education, Culture and Sport of Spain
Ana Birulés, Minister of Science and Technology of Spain
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WELCOME

On behalf of the Executive Committee of the World Council for Gifted and Talented Children, I want to welcome you to the 14th World conference. The theme of this world conference is "The World of Information: Opportunities and challenges for the Gifted and Talented". Together we will enjoy 4 days of professional sharing and the excitement of ideas brought to us from all over the world. You will have the opportunity to participate in a rich and full schedule of presentations, panels, workshops, and other events all focused on enriching your knowledge and experience of the world of gifted learners.

More than the planned program is available to you for you can become a part of a community of educators who have accepted the challenge of finding solutions to the problems of nurturing our brightest learners and supporting their intellectual and educational development. Here are the professors, researchers, teachers, parents, and other interested colleagues who, like you, want to minimize the waste of talent in our world, and optimize the unique abilities of the world's children and youth. Separately we bring a vast array of knowledge that will help us together discover a wider range of alternatives, strategies, theories, and practices to help us meet our individual goals.

Thank you for your presence here and for the part of your knowledge and experiences you will share with all of us. The success of this conference depends on your contributions, and your interactions. The experience we will all take with us will reflect your good will, your inquiring intellect, and your finest vision of what can be.

Welcome to the 14th World Conference of the World Council for Gifted and Talented Children.

Barbara Clark, President, World Council for Gifted and Talented Children.

It is not the first time that I have been involved in the preparation of a conference, however each time it is most exciting not knowing in advance exactly what the outcomes will be. In spite of all the long-term planning, the competent people working diligently and even in spite of an excellent host city, only half of a guarantee for a successful conference can be provided.

You, the participants; your expertise, your spirit, your good mood, and your communication must provide the other half. You can importantly contribute to a prosperous and productive international get-together that inspires all of us both academically as well as personally.

Welcome to Barcelona at the beginning of a new millennium. All of our mutual and shared "Responsible Createlligence" is needed to provide a peaceful and liveable future for all children in the world.

Warm regards,

Klaus K. Urban, President-Elect, World Council Conference Committee Chair.

Welcome to the 14th World Conference for Gifted and Talented Children.

As chair of the Local Committee for the 14th World Conference and as President of the Iberoamerican Federation of the WCGTC, it is a pleasure and honour for me to welcome you in the name of Organizer and Scientific Committee of this conference.

It seems to us like only yesterday when we presented our proposal for the local site of this 2001 World Conference. Four years have passed since we gave the first message: BARCELONA 2001 MOVES FORWARD. During these past 4 years, we have noted a great interest in this important event, evidenced by the high number of proposals submitted to the Call for Papers received from all continents. And in particular I want to emphasize the attendance of many and good Iberoamerican friends.

With this conference an important and productive relationship with notable institutions such as UNESCO and The European Council is being opened.

So, we are all present at one of the most important events for the education of gifted and talented children, held every two years, and for the first time in 24 years celebrated in Spain.

It is our hope that each of you feel at home and among friends while you are with us.

Welcome!

Juan A. Alonso, Chair, Local Organizing Committee, Member of the Executive Committee of the WCGTC

This publication includes the most relevant information of the XIV World Conference: "*The world of information: opportunities and challenges for the gifted and talented*" organized by the Huerta del Rey Center and the World Council for Gifted and Talented Children.

After a difficult selection of the papers presented in the Conference, 50 contributions by distinguished authors from nearly 30 countries offer a global vision on the topic in this publication, being an obligatory reading for all professionals, researchers in the psychology and education field.

This publication is organized in three big parts:

The **first part** presents **the definition and identification of gifted children**. This part contains 9 papers about topics such as Neuroimaging the gifted brain; Concept, Identification and Selection; Screening test for the early identification; Giftedness and TS; Metacognition and Expanding the conception of giftedness, among many others.

The **second part** is about **the emotional and social development of gifted and talented children**. This part contains 14 papers about topics such as Aptitudes; Cognition, emotion, and achievement; Social stands; Gifts emerge from prison; Gifted children with learning disabilities; Social myths; Moral reasoning; Family-professional relationships; Gifted women and Parent of gifted children, among other many topics.

The **third part** is about **the educational interventions for gifted children**, and it is divided into 5 different parts. The first one is titled Educational Policy, and it is about the international educational policy for gifted children, examining in detail, as an example, the Korean Presidential Decree. The second one is about Educative Programs and deals with topics such as Acceleration, Enrichment programs, Mentoring, Logical thinking, Mathematically gifted and some experiences in different countries: Brazil, Spain, USA, Australia, Switzerland, Kazakhstan, Mexico and Denmark. The third part is about Education and creativity development and presents topics such as Fostering creativity at different teaching levels, until at university level. The fourth part, with the heading of Teacher Training, presents Essential characteristics of the gifted teacher and Teacher teams, curriculum and assessment from pre-school levels to Secondary school level. And the fifth and last part deals with the Present and Future of the gifted and talent education with a range of papers from a humanistic position to a critical overview of international research, ending up with the topic Who will be the gifted of the future?

Juan A. Alonso & Yolanda Benito

Valladolid, Spain
February, 2003

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Bloc III: Education and creativity development

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Bloc IV: Teacher Training

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Bloc V: Present and Future of giftedness and talent Education

NEUROIMAGING THE GIFTED BRAIN

John Geake
Research Centre for Able Pupils
Westminster Institute of Education
Oxford Brookes University
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ABSTRACT

This paper considers some of the recent developments in cognitive neuroscience and human genetics concerned with human learning, memory and intellectual development which have implications for curriculum and pedagogy in gifted education. Neuroimaging and EEG data reveal qualitative differences in the cerebral organisation of gifted children compared with normals. Other neuroimaging studies show that the human brain has dedicated areas for high-level intellectual functioning. If gifted children are those who have enhanced functioning in these areas of the brain, then the optimal pedagogy for gifted children should be one of intense high-quality teaching rather than being left alone to 'learn for themselves'.

Presentation note

The colour neuroimaging and other slides will be viewable on the ReCAP website http://www.brookes.ac.uk/schools/education/ablepupils/research.html.

Introduction

In this session I would like to review some data from two types of studies that have relevance to the cognitive functioning of gifted children: first, studies that compare the brain functioning of gifted subjects with normal age peers; second, studies which compare responses of unselected subjects to high-level intellectual tasks with responses to low-level intellectual tasks.

The main part of the brain that we shall consider is the cerebral cortex, that layer of tissue, only 3 mm thin, which lies directly beneath the skull and covers the brain [SLIDE 1]. If you were to remove your skull, peel off the cortex and iron it flat (not a highly recommended procedure!), it would cover a card table-cloth, about a square metre in area. It fits inside our skulls by being massively convoluted, a fractal topology for the mathematicians. The areas of the cortex that we'll be most interested in are the parietal and temporal lobes, and especially the pre-frontal cortex.

There are, however, several important constraints to our endeavour. Brain functioning can be described at several levels:

functional	molecular, e.g., neurotransmitters
	cellular, e.g., neural pathways
Functional	structural, e.g., cortical architecture
	systemic, e.g., adaptive plasticity
Psychological	e.g., memory
Cultural	e.g., school

But, although each level informs the others bottom up AND top down, the mappings between levels are not one-to-one, or simple.

The last point is illustrated by the following "maps of the female and male brain" from a university in Australia [SLIDE 2]. Without wanting to spoil the humour with too much deconstruction, the cartoon works because of the erroneous phrenological assumption of fit between psychological function and brain architecture. Not only do the structures of the functional modules of the brain not necessarily reflect our perceived psychological modularity, the seamless nature of conscious cognition masks the immense complexity of the inter-module neural interactions involved. Whereas the data to be reviewed here are mainly at the Functional systemic level, we have to take some care in extrapolating them to predict cognitive behaviour. By way of illustration, we perceive the characteristics of an object such as a pen easily and all at once, but as this system diagram of a primate (Macaque) visual cortex, based mainly on single cell recordings (Felleman & Van Essen, 1991), shows, every aspect of our visual image - colour, edges, reflectance, shape, motion, orientation and so on - is processed by a separate neuronal group within visual cortex [SLIDE 3]. These neuronal groups interact through processes of activation and suppression, and are fairly task specific. To flag an important point for later, this is in some contrast to the functioning of the neuronal groups in the frontal cortex when engaged in high intellectual functioning.

As another example but from a familiar educational context, how does the brain do arithmetic? This has been studied with several neuroimaging techniques, including functional magnetic resonance imaging (fMRI). An fMRI scanner, such as the one at the fMRIB research facility in Oxford, pictured here [SLIDE 4], consists of a large and very strong magnet, in the centre of which the subject's head is located. While undertaking the criterion task, the subject's brain is bombarded with tuned radio waves which stimulate a quantum spin resonance emission of the protons in the hydrogen nuclei of the water of the blood in the brain. This emission varies with chemical context, so a mapping of the more metabolically active parts of the brain can be made. When compared with the activity shown during a baseline task (e.g., looking a blank screen), a mapping can be made of those areas of the brain involved in the critical aspects of the criterion task.

The Belgian researcher Stanislaw Dehaene put himself in an fMRI scanner while doing repeated subtraction (Dehaene, 1997). Start with 100, subtract 7, subtract 7, subtract 7, what is the answer? (It's a standard psychiatric

test for normality following a head trauma, so I hope everyone got to 79.) Here is an image of Dehaene's brain while doing that subtraction [SLIDE 5]. Note the many areas of activation, at least half a dozen. Clearly there is no one area dedicated to doing subtraction. Dehaene has modelled the possible functional relationships involved, based on what is known from other experiments about the functioning of these brain modules [SLIDE 6]. What is important to note is the amount of synchronised inter-module communication, and the mediating role of the frontal areas in directing and evaluating this neural information processing. From the next few studies we will see that efficacious inter-module communication is a characteristic of the gifted brain.

A few years ago a group at the University of Iowa who included Camilla Benbow (who is also presenting at this conference) and Michael O'Boyle (a former colleague at the University of Melbourne) used positron emission tomography (PET) and electroencephalography (EEG) to compare the brain functioning of a group of highly mathematically gifted adolescents (11-14 years) with some of their normal age peers. In PET, the scanning device consists of a circularly symmetric radiation detector. Subjects are injected with a short-lived radioactive tracer which emits enhanced radiation (positrons which produce gamma rays from their interaction with electrons) from sites in the brain of elevated levels of metabolism [SLIDE 7]. Similar to fMRI, some very clever computer graphical analyses can create maps of these sites of brain activity associated with some criterion task compared with baseline. Here the gifted group were students attending the Iowa Summer School; they were selected by scoring at near ceiling level on the SAT-M, the American university entrance test in mathematical reasoning. High school mathematics does not hold much in store for these kids! So they are a very special group, with a mathematical ability similar to the 20 year old undergraduates who are majoring in mathematics. Their age peers, unsurprisingly, score near basement on the SAT-M. With test items from the SAT-M as criterion tasks, PET images were made in which we can see marked differences in the active areas of the brains of these two groups [SLIDE 8]. In particular, the frontal areas of the gifted boys and girls are more active than in normals, while the right parietal area in the gifted boys is more active than in the gifted girls or in the normals.

Another study using EEG with a spatial chimeric faces task as criterion yielded very similar images. EEG records electrical leakage through the skull. Being non-invasive, it is well suited to use with young subjects [SLIDE 9]. As EEG is spatially insensitive (the signal being distorted by the skull) but temporally acute, and PET is spatially sensitive but requires a relatively long time to image, these two techniques provide a complementary triangulation. That these EEG images of alpha wave suppression power (= neural activation) are similar to the PET images is noteworthy, especially the enhanced lateralisation of the gifted boys with their activation of right parietal cortex [SLIDE 10]. Also with these boys, the active suppression of the left temporal area, the language area in most people, is particularly interesting. The parietal area processes spatial, or quasi-

spatial information, that is, how things inter-relate. This image is suggestive of those gifted boys in our classrooms who can quickly get the solution to a problem, but may not be able to report all of the steps. They are poor at algorithmic processes (like long division by estimation), but good at geometric methods. (The eminent Oxford mathematician Sir Roger Penrose is a case in point.) Moreover, these boys don't care to discuss their working out. Put them together for group work and they'll proceed on their own, unlike the girls who are more likely to articulate and discuss their thinking. Perhaps this suggests that the usual forms of assessment, including awarding marks for showing the working, may be inappropriate for these highly gifted boys?

These researchers summarise their findings thus:
precocious individuals were more active in the frontal lobes, suggesting the frontal lobes mediate high-level intelligence.

a characteristic of the male gifted brain is the ability to selectively inhibit-activate relevant cortical regions necessary for special processing (O'Boyle, Benbow & Alexander, 1995).

gifted subjects may have an unusually rapid and high level development of interhemispheric interactions.

the area where structural and functional development are most closely related are the frontal lobes - gifted adolescents and college students have a similar level of brain maturation in these regions.
(Alexander, O'Boyle & Benbow, 1996)

Note the support for the theme of strong interaction between relevant functional modules, mediated by frontal processes, as a characteristic of the gifted brain.

O'Boyle is continuing this line of work in Melbourne, using fMRI to image the working brains of young gifted subjects doing mathematics. Here are some unpublished images of a boy calculating number sentences such as:
$$4 + (6 \times 10) + (7 \times 100) = \ ?$$

Note the enhanced right frontal and right parietal activations [SLIDE 11].

Although these studies have all focused on mathematical thinking, frontal involvement is by no means limited to mathematics; in fact, frontal cortex seems to be involved in all cognitive functioning. By way of example, my earlier research on the information processing abilities of young gifted musicians, today's Mozarts, showed that it was in their frontal functioning that these children stood out most from their age peers.

children with high musical abilities have particularly high abilities on executive synthesis, the information processing dimension responsible for higher order processing [which is mediated by the frontal lobes].

although such children perceive and encode musical information more accurately than others, it is what they do with the information that makes most of the difference.

(Geake, 1996)

If the functioning of the frontal cortex is so critical for the highly intelligent behaviour of gifted children, then we might well enquire some more into the nature of the frontal functioning. To this end, the work of a group led by John Duncan at the University of Cambridge is most informative (Duncan et al, 2000). PET imaging was used to compare responses of a large group of subjects to two sets of items from a standard IQ test. The more difficult an item is on a standard test, the higher the correlation between that item score and the total test score. In this case, as IQ can be designated by the general intelligence factor g, some difficult items can be chosen to form a high-g correlation set, whereas some easier items can be chosen to form a low-g correlation set. Two pairs (high-g and low-g) of spatial item sets and one pair of verbal sets were presented to subjects in the PET scanner [SLIDE 12]. Using the high-g sets as criterion, and the low-g tests as base-line, the hypothesis being tested was that there were dedicated areas in the frontal cortex for high intellectual functioning. If not, then the high-g and low-g images would coincide; if there are dedicated high intelligence areas, then subtracting the low-g images from the high-g images should reveal where these are. The results were unequivocal [SLIDE 13]. High intelligence spatial tasks result in bilateral frontal activations, and high intelligence language tasks result in left frontal activations.

To put this prosaically, there is a distinction between 'rocket science' and everyday thinking. This could be explained in evolutionary terms with the suggestion that survival intelligence is well evolved and represented with little variance across all members of the human species, but, in contrast, high level abstract intelligence has not been subject to such stringent selection pressures, and so has a large variance in the population, with only a small percentage of the population endowed with very high intellectual abilities. This, of course, is just what we observe, and why giftedness is a real and observable difference. There is evidence from genetic studies to support this contention, but unfortunately the truncated presentation time does not permit presentation of these data today.

However, there is just time to refer to a meta-analysis Duncan and Miller (2001) have undertaken of the literature on frontal functioning. Plotting the centres of activation of a wide range of neuroimaging studies including spatial reasoning, language, memory, planning tasks and so on, the resulting 'confetti' suggests that frontal cortex does not function in the task-dedicated manner of the visual cortex we looked at earlier [SLIDE 14]. Duncan's explanation is that

neuronal groups in the frontal cortex may be much more flexible in their functioning, being able to execute monitoring, memory retrieval, comparison or logic as the tasks at hand demand. If so, then this could explain the high level of creativity observed in gifted children along side their prodigious intelligence.

Finally, it would be a travesty if all of this were to be interpreted educationally as justifying a 'leave them alone' approach. Quite the opposite is the case: these neuroimaging and other data support the long observed differences of gifted children, and thus support a differentiated educational provision. As a case in point, consider 'The School of Love' by the Italian Renaissance painter Correggio (also entitled 'Cupid Learns to Read and Write') [SLIDE 15]. Although Cupid is clearly a most gifted child, a child who can fly around the world making the most improbable people fall in love, his single mother, Venus, has engaged the best teacher of communications, Mercury (Hermes), for Cupid's education. Why? Because a predisposition for high intellectual functioning through frontal cortical processes requires the highest quality inputs, that is, the highest quality teaching.

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CONCEPTION AND APPRAISAL OF PERSONAL INTELLIGENCE

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ABSTRACT

An integrated model of intelligence is proposed based on Thorndike's classical social intelligence, Gardner's conception of personal intelligence in his MI theory, Goleman's EQ, and Chinese cultural point of view. The Personal Intelligence Inventory (PII) was developed and based on three dimensions: intrapersonal (self-awareness, self-retrospection, self-reward, and self-adaptation); interpersonal (empathy, respect, amiability, and guiding); interactive (humor, tolerance, appropriate role-playing, and conflict solving). The PII items are situation-oriented with three forms: Form A (multiple choice questions), Form B (open-ended questions), Form C (individual experience-based questions). The test-retest reliability of PII is satisfactory. Some PI differences between males and females and between gifted and regular pupils were found.

New Frontier of intelligence

Recently, there have been many new insights on the research of intelligence. Not only has the concept of intelligence been extended but also the traditional assessment of intelligence has been challenged tremendously. Among these studies, two models are specially valued. One is Harvard University Professor Howard Gardner's (1983, 1993) Theory of Multiple Intelligences. The other is Yale University Professor Robert J. Sternberg's (1985, 1988) Triarchic Theory of Intelligence and his concept of Successful Intelligence (Sternberg, 1996) which has been presented lately. They both claimed that the intelligence assessed by traditional IQ tests can not portray the complete intelligence itself and is only related to the ability of academic achievement. It cannot predict the achievement of future career and the fulfillment of life. Gardner and Sternberg both have been seeking the useful intelligence in daily life. Gardner(1983) constructed seven components of intelligence, including linguistic ability, musical ability, logical-mathematical ability, bodily-kinesthetic ability, spatial ability, interpersonal ability, and intrapersonal ability (the last two are called personal intelligence). Sternberg (1985, 1988) defined intelligence from three aspects--componential, contextual, and experiential. In the book, *Successful Intelligence*, Sternberg (1996) indicated that successful intelligence is combined with academic intelligence, creative intelligence, and practical intelligence. People cannot succeed in their real life only through academic intelligence (analytical intelligence).

Among Gardner's seven abilities, the linguistic, logical-mathematical, and spatial ones are commonplaces (linguistic, mathematical, and spatial abilities are common components of various intelligence tests, especially the group ones). The new insight he brought to intelligence is that he included the musical, bodily-kinesthetic and personal (including interpersonal and intrapersonal intelligence) as components of intelligence, which can be developed individually and merged with the other intelligence. The most special one among these intelligences is personal intelligence which, in the Western society, usually belongs to how to be a person (personality) instead of how to handle things (ability). I appreciate this excellent idea that knowing oneself and the others and loving oneself and the others are not only a virtue but also an ability. I also think that this idea contains very much "Chinese flavor". It seems to have existed in the Chinese philosophy, Confucianism and Taoism in particular, for a very long time. There is a wonderful saying in our ancient book, *Tsai Ken Tan*, "Being perspicacious to things around makes knowledge everywhere; being adept in human relationship makes a good writing." So, what is knowledge? What is a good writing? They are simply "handling personal affairs reasonably and sensibly"! Doesn't "handling personal affairs reasonably and sensibly" mean "personal intelligence"? Knowledge can be advanced to be wisdom by means of personal intelligence which helps people handle things reasonably and sensibly (Wu, 1994). I really think that the focus of gifted education should not be on imparting knowledge but should be on promoting wisdom. If we want to advance knowledge to wisdom, we have to do 'extra work" on it. On this aspect, Gardner's perspective gives us good direction. Recently, Emotional Intelligence (Goleman, 1995; Salovey & Mayer, 1990) has attracted very much public attention. The concept of Emotional Intelligence is closely related to Gardner's theory of personal intelligence. They are very much in common. But these thoughts and skills originated from the classical Chinese culture appear to be neglected in current Chinese societies (Preface of Chinese version of EQ, forwarded by Goleman and translated by Chang, 1996; Wei, 1991).

Sternberg's (1985; 1988) Triarchic Theory of Intelligence took into account both sides of an individual's capacity and his/her surrounding environment, and their interaction as well. Furthermore, it analyzed the components of intelligence from the viewpoint of metacognition and information processing, which gave emphasis on "process" and "practicality". From his conception stated in *Successful Intelligence,* Sternberg (1996) stressed that an individual with a successful career knows his/her own strengths and weaknesses and, therefore, can continue his/her self-enhancement; his/her success does not have much to do with his/her academic achievement. This conception was like a stunning blow to the traditional conception of intelligence of which the validity criterion used to be academic achievement. So, it is a very insightful viewpoint and very meaningful for guiding our educational process to the right track.

Gardner and Sternberg both view the development of intelligence as dynamic but not static. This dynamics of intelligence was also highlighted in another Harvard psychologist David Perkins' (1995) book, in which he described as "learnable intelligence". In fact, there are some experimental research on Gardner's (1993) and Sternberg's (1996) constructs of intelligence, which has made initial steps on promotion of their constructs of intelligence. However, on the aspect of personal intelligence, though some discussions have been made, the

empirical studies are limited.

The Implications of Non-academic Intelligence

Social intelligence, practical intelligence, and personal intelligence are non-academic intelligence in nature and are very much interrelated but still different in some ways.

The term and the concept of social intelligence was initiated by eminent educational psychologist E.L. Thorndike (1920). According to Sternberg (1985), social intelligence is a cognitive ability of social learning, independent from academic intelligence. Although many researchers, including Thorndike (1920), Strang (1930), Sternberg (1985), and Gardner (1983), define intelligence differently in some way, they all basically think that social intelligence is an ability of adaptation in social life and interpersonal relationship, which includes:

(a)   Ability of being aware of the other person's thoughts through observing their behaviours.

(b)   Ability of establishing friendly relationship with others.

(c)   Understanding the social norm and behaving appropriately in a social setting.

(d)   Ability of adjusting to a new environment.

(e)   Ability of getting involved in social activities.

(f)   Ability of adapting to society for survival.

(g)   Ability of self-understanding and retrospection.

Sternberg (1988) divided ability of social cognition into social intelligence and practical intelligence. Although he admitted that social intelligence, which includes abilities in adaptability, sociability, and establishing relationship with others, can be part of practical intelligence, he still insisted that these two types of intelligence are different. Social intelligence emphasises ability of social involvement and cognition of social morality, which are related to "human beings". Practical intelligence stresses more on ability of doing jobs and making decisions, which are more related to "things." In other words, social intelligence is the ability of dealing with "personal" relationship, and practical intelligence is the ability of managing "things".

Practical intelligence is a cognitive/learning ability different from academic ability. It is an ability of dealing with trivial things happening in daily life. The problems that we encounter every day are unorganised and chaotic. To solve these problems, you have to use the information you have at hand and make a subjective judgement or decision. Usually there is not only one way to solve the problems. Unlike academic intelligence, there is no single or standard right answer in this case.

As to personal intelligence, one component of Gardner's (1983) multiple intelligences, it consists of intrapersonal intelligence and interpersonal intelligence. The multiple intelligences include:

(a)   **Linguistic Intelligence**: This is an ability to use languages to transmit information, facilitate, and entertain others. Poets, novelists, editors, and journalists all need this ability.

(b)   **Musical Intelligence**: It is an ability to enjoy musical rhythm, performance, and composition. Music performers and composers usually possess this talent.

(c)   **Logical-Mathematical Intelligence**: This is an ability to operate symbols orderly or the relationship within sentences. Individuals who have this intelligence could properly be mathematicians and scientists.

(d)   **Spatial Intelligence**: This is an ability to sense, create and balance on visual arts and spatial performance. Artists and engineers usually have this predisposition.

(e)   **Bodily-Kinesthetic Intelligence**: This is an ability to perform in sports and performing arts. Sportsmen, actors, and dancers tend to have this intelligence.

(f)   **Intrapersonal Intelligence**: This is an ability to understand one's own feelings, dreams, and ideas, and to self-retrospect and self-control, as well. Novelists and religious usually have this predisposition.

(g)   **Interpersonal Intelligence**: This is an ability to know other persons and get along with them. Individuals with this intelligence fit in the career of teaching, social work, and salesmen.

Recently, Gardner has proposed the 8th intelligence - the naturist intelligence (Glock, Wertz, & Meyer, 1999), which is an ability to understand, appreciate, and enjoy the natural world. Persons who exhibit strength in this intelligence are likely to be a biologist, gardener, and national park guide. The traditional intelligence tests mainly assess linguistic, logical-mathematical, and spatial intelligence. Those tests don't usually value bodily-kinesthetic intelligence, intrapersonal intelligence, and interpersonal intelligence, which exist in our right hemisphere of brain. Therefore, people should not get frustrated if the results of traditional intelligence tests show that their intelligence is not high. His or her potentials related to creative arts and practical intelligence probably are the treasures that have not yet been dug out.

As a matter of fact, Gardner's intrapersonal intelligence and interpersonal intelligence are much the same as the social intelligence or emotional intelligence advocated by many scholars in the field of intelligence. For example, Emotional Intelligence (EQ) is also an intelligence dealing with personal affairs, but not the intelligence to deal with things. Individuals with this kind of intelligence are more capable of self-examination and self-assertiveness. They are more likely to establish good relationship with others, accustom to social life, and have excellent performance in society.

Personal Intelligence as the Core Part of Successful Intelligence

Integrating Gardner (1983, 1993) and Sternberg's (1985, 1988, 1996) constructs of intelligence, the writer has proposed an integrated construct to illustrate the relationship between a successful career and a successful intelligence, in which personal intelligence is the core component (Figure 1).

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                    ┌─────────────────────┐
                    │  Successful  Career │
                    ├──────────┬──────────┤
                    │ Vocation │  Living  │
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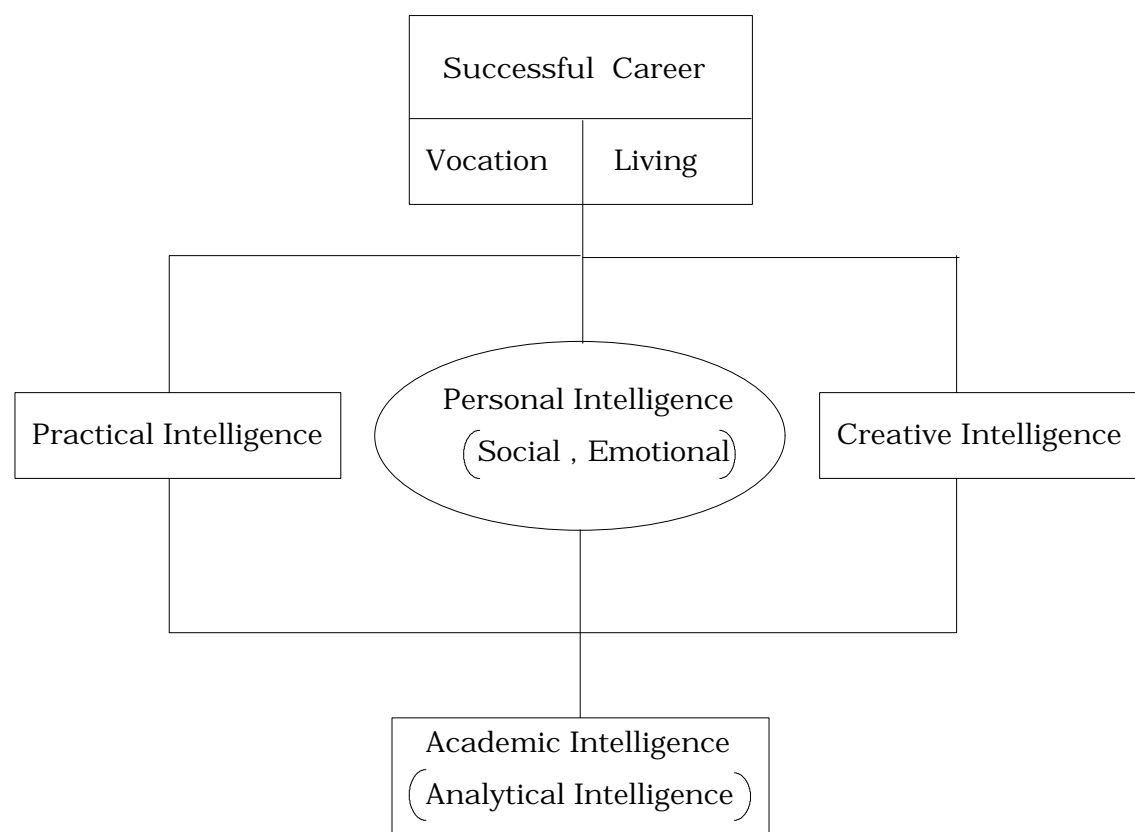
Figure 2.   The Relationship Successful Life and Successful Intellogenc

According to Figure 1, there are four types of intelligence that lead to a successful career (a successful job and content life): The traditional intelligence (or named academic intelligence or analytic intelligence) and the other three non-academic intelligence—personal intelligence, practical intelligence, and creative intelligence. A balanced development among these four types of intelligence can make a successful career and fulfillment of life.

There is a close relationship between academic intelligence and achievement on different academic subjects. Different kinds of academic intelligence can influence achievement on different subjects, such as linguistic intelligence for literature, logical-mathematical intelligence for math and science, musical intelligence for music, spatial intelligence for fine arts, and bodily-kinesthetic intelligence for sports, dancing, and drama. Academic intelligence is the basic requirement of a successful career, but it is not sufficient.

Practical intelligence belongs to the field of cognition. It is an ability to apply knowledge to daily life.

Creative intelligence is "what produces products in the first place and keeps them coming out," (Sternberg, 1996, p.141) which includes creative thinking (cognition) and creative attitude (feeling). Sternberg (1996) believes that creative intelligence and practical intelligence have more impact on career achievement than does academic intelligence (traditional intelligence). The importance of the creative intelligence is that it is not only different from the other three types of intelligence but can also be integrated to produce stronger power or concrete effect, such as being integrated with the executive ability of practical intelligence to make a creative problem-solving.

Personal intelligence may refer to as social intelligence or emotional intelligence which involves intrapersonal intelligence (self-awareness, self-retrospection, self-regard, and self-adaptation), interpersonal intelligence (empathy, respecting, amiability, and guiding), and interactive intelligence (humorous, tolerance, appropriate role-playing, and conflict-solving). Personal intelligence can be described as core of requirements of a successful career and analyst of the other constructs of intelligence.

Gifted education in Taiwan, similar to regular education, also emphasises more on assessment of academic intelligence and promotion of academic achievement than on cultivation and promotion of the non-academic intelligence (e.g., social, emotional, and creative abilities). This is not only because of the traditional values on intellectualism and academic achievement but because of the difficulty in the assessment and the lack of knowledge in cultivating and promoting non-academic intelligence. Gardner (1983; 1993) and Sternberg (1985; 1996) indicated that individuals who have outstanding academic achievement and high IQ (traditional IQ) are not necessarily outstanding in their future careers. On the other hand, non-academic intelligence can predict the future more validly. So, why should we continue to do our educational investment solely with this way (although it is hard to say that this is a mistake in investment)? Personal intelligence, creative intelligence and practical intelligence, which are more influential to a successful career, should be valued as much as academic intelligence. Because personal intelligence has its root in classical Chinese philosophy, Confucianism in particular, its importance is increasing day by day in our society. However, the empirical studies on personal intelligence are very few. There is really a need to start empirical exploration on such a fruitless garden,

establish assessment models and methods, and design an educational project in order to promote personal intelligence.

The assumptions on this kind of research are:

1. Personal intelligence is a highly valuable characteristic of individuals. It is crucial to gifted students' career development.

2. Personal intelligence is assessable, but the methods of assessment are different from traditional intelligence tests.

3. Personal intelligence can be changed and promoted, but requires a solid educational design.

According to Confucius, knowledge is a key to achieving benevolence. To be benevolent requires one to control oneself so as to behave in accordance with a knowledge of rightness. For Confucians, intelligence is a matter of the ability to make the right moral judgement and to defend the validity of that judgement. It therefore comes as no surprise that Confucius said that "the intelligent man is a person without perplexity" (The Analects, IX.29, XIV.28), meaning that an intelligent person ought not to be perplexed in his or her judgement about right and wrong. He or she also has to know and improve him/her self first in order to understand and help others. The crucial way of understanding and improving one's self is by means of "retrospection" – self-examination on daily basis. Furthermore, one should be always open to knowledge and enjoy learning so as to be an actualized person. Being humble and honest is important to an intelligent person. According to *Mencius*, "Say what you know and don't pretend that you know, then you will be more and more knowledgeable". Therefore, from the Confucian perspective, the image of an intelligent person is one who know him/her self well and devotes his/her life to personality cultivation and social service. The true intelligence is thus an wisdom, which is beyond knowledge.

Appraisal of Personal Intelligence

Although many scholars suspect the reliability and validity of scales assessing social intelligence, some studies have showed their validity in assessing people's social adaptability. For example, although the purpose of Tennessee Self-concept Scale is to assess an individual's personality characteristics, self-assertiveness, and self-concept, but not to assess an individual's personal intelligence, Ford & Miura (1983) found that self-assertiveness is apparently correlated to personal intelligence. An individual with positive self-concept has strong involvement and adaptability to society. A student with negative self-concept tends to become the one who needs school counselors to pay more attention to (Wei, 1996).

Generally speaking, there are major directions to assess social intelligence. One is to assess the characteristics of social maturity (e.g., assessing the characteristics of social behaviours on self-assertiveness, self-identity, social morality, gregarious ability, and sympathy). Many personality tests can predict an individual's social intelligence effectively, and so can Tennessee Self-concept Scale. According F. Erikson's theory, Ochse & Plug (1986) developed the "A Sense of Personal Identity" scale. This self-rating scale which includes items such as "I think my life style fits me," "I change my life plan constantly," "When I leave

the people I am acquainted with, I feel I can own better my real self," is primarily to assess self-identity (Wei, 1996).

The other direction of appraisal of social intelligence focuses more on assessment of an individual's exterior behaviour, but not on assessment of the characteristics of interior maturity. Its basic assumption is—What an individual is doing is more important than what he or she is thinking about, which is more valid for personal intelligence assessment (Sternberg, 1985).

There are many tests to assess social intelligence. For example, George Washington Social Intelligence Test (Moss, Hunt, Omwake, & Woodward, 1949) primarily contains ability of judging different social situations, awareness of the real meaning of a person's words, ability of remembering different names and their faces, and ability of observation and humor. Another example is Social Insight Test (Chapin, 1967). After the examinee describes a difficult situation, examinee has to put himself or herself in the situation and then try to apply different strategies to solve the problems.

Gardner (1993) thought that traditional methods of intelligence assessment should be improved. The methods of improvement he indicated were (1) emphasizing assessment, but not testing; (2) administrating assessment under simple, natural and daily circumstances; (3) focusing on ecological validity; (4) free from the impact of traditional intelligence (i.e., verbal, logical-mathematical); (5) applying various assessment instruments. (not only IQ tests); (6) considering about students' individual differences, development, and specialty; (7) adopting materials that can motivate students' interest; (8) being able to use the results of assessment to help students.

Gardner (1993) attempted to develop a battery of instrument to assess different aspects of intelligence. Under the "Project Spectrum", he and D.H. Feldman explored preschool children's intelligence (Feldman & Gardner, 1989). They believed that children have their individual differences and their own potentials in different dimensions. The assessment instruments they adopted were teaching tools or toys that children could often get in touch in daily life. What made the assessment method different from the traditional assessment is that, in the whole process of assessment administration, the examiners tried their best to provide children a nourishing learning environment to cultivate their interior potentials and then assess their performance of intelligence from different angles. The whole process of assessment took one year. The assessment primarily comprised fifteen different assessment activities. Some of the activities were more structured, such as the assessment on mathematical and musical domains. Some were more observation-oriented, such as the assessment on scientific and social ones. The program design was based on Gardner's perceptions of multiple intelligence. There were two important things in these assessment activities. The first thing was to assess children's cognitive learning abilities in seven types of intelligence through these fifteen activities. The second is to assess the children's learning attitude and ways of finding solutions. In other words, they tried to understand whether or not children could use different strategies to solve various problems.

From the social aspect, there are two ways of assessment (Gardner, 1993):
1. The activities in a classroom: It was to assess children's observation and

analytical ability in a classroom.
2.   Peers Interaction Inventory: They designed a checklist to assess how children interacted with their peers.

From what has been mentioned above, the assessment of personal intelligence should be different from the traditional ways of assessment. It should be multiple, dynamic, nature, and interesting, and free from the influence of academic intelligence (verbal, logical-mathematical, etc.). The cultural differences and individual reaction styles should be taken into account.

Construction of the Personal Intelligence Inventory and Related Empirical Studies

An integrated model of Personal Intelligence is proposed based on Thorndike's classical social intelligence, Gardner's conception of personal intelligence in his theory of multiple intelligences, Goleman's emotional intelligence, and Chinese cultural point of view. Wu & Chien (2000) have redefined the conception of personal intelligence as the "intrapersonal, interpersonal and interactive abilities":
A.   Intrapersonal abilitys is an ability to self-aware, self-examine, self-regard and self-adapt.
B.   Interpersonal ability is an ability to be empathic to, respectful to, amiable to, and guiding others.
C.   Interactive ability is an ability to be humorous, tolerate, appropriate role-playing, and conflict-solving.

Personal intelligence can be described as core of requirements of a successful career and analyst of the other constructs of intelligence.

Based on the renovated conception of personal intelligence, the "Personal Intelligence Inventory" (PII) was developed. The 72 items of PII are all situation-oriented. There are three forms of PII: Form A is in the form of multiple choice, Form B is an open-ended questionnaire, Form C is a very individual experience-based questionnaire. All forms measure the same construct of personal intelligence (three domains, with 4 sub-scales for each domain) with the same criteria, using a 4-point rating scale. Based on the sample of 620 grade 5 and 6 pupils in the Taipei area, the reliability of the PII was satisfactory. The inter-domain and the inter-subscale correlation coefficients were high and significant. The test-retest reliabilities of the total scale for Form A was .80, whiles the three domains were .61, .61, and .75, respectively. The inter-rater reliabilities for the total scale and domain scales of Forms B and C were also around .80. However, it is somewhat affected by "social desirability". The correlation coefficients between the PII and the Social Desirability Scale were .29 ($p<.05$) for the total PII score and .36 ($p<.01$), .15 ($p>.05$), and .28 ($p<.05$) for the three PII domain scores (Intrapersonal, Interpersonal, and Interactive), respectively.

Using the PII, Wu & Chien (2000) found some personal intelligence differences between gifted and regular pupils. However, gifted group is not as superior as on academic performance to the regular one. Details are as the

following:

Wu & Chien (2000) used the PII to assess the 5th and 6th elementary school gifted and regular pupils (total N=620) in the Taipei area. It was found that intelligence and gender did have significant effects on personal intelligence. The multivariate analysis showed significant Wilk's Lambda values (Λs), .946 (p<.01) and .932 (p<.01), respectively, for both intelligence and gender variables; there were no significant interactions. In terms of intelligence group, the gifted students' interpersonal ability ("guiding others", in particular) was better than regular ones (Table 1); in terms of gender factor, girls' intrapersonal abilities ("self-retrospection", in particular) and interpersonal abilities ("being respectful" and "being amiable to", in particular) surpassed boys', while boys only showed better than girls in "being humorous" in the interactive dimension (Table 2). It is interesting to note that it seems that gifted group, although in general is in a better position, is not as superior as on academic performance to the regular one.

Table 1
Means and SDs of Gifted and Regular Groups on Personal Intelligence Inventory Scales and Summary of ANOVA

		Gifted Students		Regular Students		
		M	SD	M	SD	ANOVA (F)
Intrapersonal	Self-Awareness	18.75	3.00	18.72	2.75	.01
	Self-Retrospection	18.86	3.48	19.11	3.00	.86
	Self-Regard	19.42	2.83	19.39	2.77	.03
	Self-Adaptation	19.24	3.04	18.99	3.36	.98
	Intrapers. Total	76.24	12.35	76.71	11.88	.06
Interpersonal	Empathic	17.93	3.74	17.71	3.55	.21
	Respectful	20.27	3.20	19.85	3.25	.11
	Amiable	19.08	3.07	19.16	3.07	2.67
	Guiding	17.75	3.07	16.72	2.76	19.10**
	Interpers. Total	75.03	13.08	73.44	12.63	7.62*
Interactive	Humorous	15.88	3.39	15.38	3.13	3.65
	Tolerate	18.06	3.42	17.99	3.33	.00
	Appropriate Role-Playing	19.16	3.04	19.04	2.93	.24
	Conflict-solving	17.45	3.94	17.85	3.88	1.67
	Interactive Total	70.50	13.79	70.26	13.27	.02
Total Scale		221.80	39.22	220.41	37.78	5.12*

*p<.05   **p<.01

Table 2
Means and SDs of Boy and Girl Groups on Personal Intelligence Inventory (PII) Scales and Summary of ANOVA

		Boys		Girls		
		M	SD	M	SD	F
Intrapersonal	Self-Awareness	18.71	2.89	18.77	2.85	.07
	Self-Retrospection	18.66	3.28	19.61	3.11	12.05**
	Self-Regard	19.32	2.64	19.58	3.06	1.34
	Self-Adaptation	19.01	3.15	19.31	3.29	1.61
	Intrapers. Total	75.69	11.96	77.27	12.31	6.48*
Interpersonal	Empathic	17.64	3.56	18.17	3.78	2.86
	Respectful	19.83	3.30	20.49	3.05	5.75*
	Amiable	18.94	3.15	19.48	2.88	4.36*
	Guiding	17.08	2.85	17.54	3.16	3.36
	Interpers. Total	73.49	12.86	75.68	12.87	4.15*
Interactive	Humorous	15.86	3.20	15.20	3.35	5.65*
	Tolerate	17.94	3.39	18.11	3.34	.34
	Appropriate Role-Playing	18.96	3.04	19.37	2.86	2.70
	Conflict-Solving	17.53	3.95	17.94	3.92	1.74
	Interactive Total	70.29	13.58	70.62	3.47	.78
Total Scale		219.47	38.40	223.57	38.65	6.54*

*$p<.05$ **$p<.01$

In another study, using PII and the School Life Inventory, devised by Wu (1997), to assess elementary school gifted and regular pupils, Tsai and Wu (2000) found that intelligence and gender also had significant effects on school adjustment. The multivariate analysis (N=620) showed significant Λs, .971 (p<.01) and .926 (p<.01), respectively, for both intelligence and gender variables; there was no significant interactions. In terms of school adjustment, gifted students were superior to the regular ones (studiousness and teacher-student relationship, in particular, see Table 3). In terms of gender factor, girls' studiousness and compliance were better than boys', while boys' self-acceptance was better than girls (see Table 4). There were significant relationships of personal intelligence and school adjustment in both gifted students (R=.46) and the regular ones (R=.40) (Tables 5 & 6).

Table 3
Means and SDs of Gifted and Regular Groups on School Life Inventory (SLI)
Scales and Summary of ANOVA

	Gifted Students		Regular Students		
	M	SD	M	SD	ANOVA (F)
Studiousness	29.01	3.09	28.20	3.47	9.49**
Compliance	33.48	3.89	33.40	3.94	.06
Teacher-student Relationship	30.76	3.98	29.55	4.20	13.55**
Peer Relationship	30.29	5.19	30.00	5.16	.48
Self-Acceptance	28.59	5.18	28.05	4.82	1.76

**p<.01

Table 4
Means and SDs of Boy and Girl Groups on School Life Inventory (SLI) Scales
And Summary of ANOVA

	Boys		Girls		
	M	SD	M	SD	ANOVA (F)
Studiousness	28.24	3.26	29.31	3.30	14.96**
Compliance	32.86	3.90	34.56	3.69	27.42**
Teacher-student Relationship	30.05	4.08	30.38	4.23	.89
Peer Relationship	29.95	5.02	30.52	5.43	1.71
Self-Acceptance	28.6	4.87	27.66	5.22	5.65*

* p<.05   **p<.01

Table 5
Correlation Matrix of Personal Intelligence Variables and School Adjustment Variables of
Gifted Students

	Intrapersonal				Interpersonal				Interactive			
	SAwa	SRet	SReg	Sada	Empa	Resp	Amia	Guid	Humo	Tole	ARPl	CSol
Studiousness	.26**	.24**	.23**	.30**	.24**	.21**	.29**	.22**	.16**	.22**	.30**	.34**
Compliance	.24**	.29**	.19**	.21**	.27**	.27**	.19**	.22**	.15**	.27**	.17**	.27**
T-S Relat.	.35**	.32**	.32**	.37**	.30**	.27**	.39**	.25**	.26**	.33**	.26**	.37**
Peer Relat.	.19**	.25**	.26**	.23**	.23**	.23**	.20**	.21**	.24**	.24**	.16**	.24**
Self-Accept.	.26**	.18**	.33**	.27**	.21**	.18**	.18**	.16**	.24*	.27**	.16**	.23**

R= .46**

N=310   * p<.05 **p<.01

Table 6
Correlation Matrix of Personal Intelligence Variables and School Adjustment Variables of Regular Students

	Intrapersonal				Interpersonal				Interactive			
	SAwa	SRet	SReg	Sada	Empa	Resp	Amia	Guid	Humo	Tole	ARPl	CSol
Studiousness	.23*	.21**	.21**	.27**	.14*	.27**	.19**	.16**	.15**	.20**	.25**	.13*
Compliance	.18**	.20**	.09	.20**	.19**	.23**	.21**	.11**	.16**	.16**	.20**	.14*
T-S Relat.	.34**	.29**	.34**	.35**	.30**	.29**	.36**	.23**	.26**	.27**	.29**	.27**
Peer Relat.	.17**	.19**	.22**	.24**	.12*	.21**	.19**	.11	.20**	.13*	.17**	.22**
Self-Accept.	.16**	.10	.25**	.26**	.16**	.16**	.19**	.09	.28*	.22**	.16**	.20**

R= .40**

N=310   * $p<.05$ **$p<.01$

Promotion of Personal Intelligence

Emotional Intelligence (EQ) can become exquisite by means of training. But how to train is the further step to be explored.

Nowadays, the conception of emotional education or social intelligence education has been developed in the United States. Self-Science workshops is the pioneer in this area and its main topic is the feelings happening in interpersonal interaction (Goleman, 1995). The other similar classes are increasingly developed under various names, such as Social Development, Life Skills, Social and Emotional Learning, and Personal Intelligence (Goleman, 1995).

Goleman (1995) has summarised related appraisals of effectiveness of social-development courses and found that these courses were very helpful to students' affections, social abilities, behaviour in and off campus, and learning ability.

All after all, the purpose of education is not only for potential development but also emotional education so as to promote a holistic development of a person. Gifted education should value these as well. The ideal of whole-person education can be implemented down to the earth only when the idea of personal intelligence is incorporated in it.

Conclusions

Lately, some theories have brought new insights to the construct of

intelligence. H. Gardner's (1993) theory of multiple intelligences and R. J. Sternberg's (1996) triarchic theory of intelligence are the most typical models among these theories. This paper attempts to integrate both viewpoints on the basis of the conceptualization of Successful Intelligence (Sternberg, 1996) to illustrate that a successful career requires balanced development on academic intelligence, personal (social) intelligence, and practical intelligence. Personal intelligence, which is very Chinese culture-related and rooted, is the core of the requirements and the catalyst of them. It should be viewed in terms of human wisdom beyond traditional cognitive ability. The current studies based on the new developed Personal Intelligence Inventory (Wu, 1997) proved to be a useful tool for assessment in this regard. The preliminary research findings regarding personal intelligence of gifted and regular pupils and its relationship with school adjustment indicate the importance of personal intelligence in educational process and career development. More researches are needed, of course. Though appraisal and promotion of personal intelligence is not easy, personal intelligence is highly valuable and worthy to further exploration. In the field of gifted education, there has been much attention on the social/emotional development of gifted students and it is evidenced in this study that there is a great need and a big room for gifted students in this regard.

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IDENTIFICATION AND SELECTION OF GIFTED CHILDREN

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I. The definition of gifted children

What kind of children is gifted children? This question attaches importance to the evaluation and education of gifted children.

For a long time, psychologists and scholars have been studying and discussing the question, and are gradually perfecting their understanding of gifted children.

As for our school, we relatively agree with some psychologists' opinions, namely, that the meaning of "gifted children" is beyond outstanding intelligence. "Talented" and "gifted " pertain to the interaction of excellent intelligence, creative ability, and personality. Considering the following aspects, we then agree on this definition. First, "gifted children" are defined relatively to common children, and there is no impassable chasm between them. Second, giftedness is a product of heredity and environment not only an innate factor. Third, giftedness may develop and change. Rational education is the most important factor that causes the changes. Fourthly, gifted children have not only outstanding intelligence and competence but also a high level of non-intellectual characteristics. In a word, the word "gift" includes intelligence, talents, creativity and non-intellectual characteristics. Generally speaking, "gift" means: high cognitive ability, imaginative creativity and high level of non-intellectual characteristics, especially a high level of motivation. We judge whether a child is a gifted child mainly by the above three criteria.

II. The characteristics of identifying and selecting gifted children

Our school has a history of fifteen years of conducting education for gifted children.

We have been exploring and considering how to identify and select gifted children more objectively and scientifically. Now, we have formed an effective and practical approach concerning the identification and selection of gifted children.

I) Set up a base. We have made Hua Luogeng School, named after a world-renowned mathematician, abbreviated as Hua School, the base of cultivating gifted children. The School embraces two sections, primary school and secondary school.

II) Our identification and judgment is a dynamic progress. Since children are developing and changing, we pay much attention to the dynamic investigation of gifted children, and the investigation begins as early as third grade in Hua School, continuing to the time they enter senior high school, ten years in all. We offer these children a comprehensive test every year including prompt way of thinking, logical competence and psychological questions. According to the test, we will assign some full-time teachers as class teacher for these children. We find that this dynamic and consistent investigation is scientific and effective.

III) We've adopted various methods to identify and select gifted children, such as testing, observing and interviews. Every year, we have each student educated according to the test. At the same time, we also evaluate each child's comprehensive ability based on his or her daily performance. These effective methods are very useful to judge and evaluate gifted children. We assign an experienced teacher for every class, who should observe every child's prompt way of thinking, desire for knowledge, and competitiveness. Meanwhile, quick response, mode of thinking, the firmness in facing problems, his or her attitude to fellow classmates and cooperative spirit as well are recorded by the class teacher. Thereafter, combining the immediate information from other teachers, their parents and other students, we finally estimate a level at which a child stands based on the supposed standards and criteria.

The record and observation given by the class teacher derives from a daily record, and that data plays a very important role in judging and evaluating gifted children, especially in the non-intellectual factor.

IV) Education and judgement are given equal stress. In the daily work, we intend to judge and choose gifted children from the educational program. We hold that "gift" is impacted by the environment in which he or she is brought up and education, which he or she received. In the meantime, it also includes natural qualities and acquired education. Those gifted children master knowledge and skills easier than regular students do.

V) Our school has employed various data in distinguishing gifted children. The gifted children are a special group, for they boast some unique characteristics. They have quick response to questions, excellent memory, and sharp ability in observation, and they are also eager to learn more and know more. In addition, they have various interests, outstanding confidence and independence. All the features above can result from their abilities of recognition, creativity and non-intellectual factors. Our research is mainly based on those three aspects. I will explain in detail in the following parts.

(I) One of the most outstanding characteristics of gifted children is that it is much easier for gifted children to recognize information, compared with common students. Many results have verified the great difference between gifted children and regular students in recognition. We choose level and structure as two targets in choosing gifted children.

In these processes, we use the famous system specially used in testing IQ quotas, such as "Waiwen Standard Test of Inference Ability". This system mainly tests children's intuition, imagination to the figure, and inference ability. And also the system named "80=8 Nerve Type List" invented by Suzhou university (tests the ability of observation, formation of concepts, analysis, taxology and calculation) are introduced. We divide those complicated tests into two parts: "function of brain test and ordinary ability test." The result of the test can explain the comprehensive ability and the development tendency of a child definitely and exactly. Unfortunately, some parents know our tests, so they prepare for their children to pass and get high mark in the examination to study in our school.

In order to give the definite result and make the test fair, we invite experts to write the exam papers every year. The principle of the assignment are: inspect the children's mode of thinking, instead of testing the range of their knowledge; the degree of difficulty is moderate but division must be obvious; and we change the final result of each student who takes the exam from practical points into standard points, and this change is meaningful, for it can show the position of the child in a whole group.

(II) The creative ability

The creative ability is quite a complicated concept, for different people mean different things. The creativity we mentioned is a child's ability to make new things in different fields.

Man's creativity varies. Our scholars have made tests to verify that gifted children are more excellent than the regular students are. In our interview, we utilize the system from the Psychology Institute of the Chinese Academy of Sciences --- "Test of Creative ability". We also use the method of divergent thinking by Geel Ford and the method by Tolounse. For example, we ask each child to list as many uses for an object as he or she can, by showing a picture of a figure and ask what the picture stands for.

(III) The non-intellectual factors. The gifted children are also excellent in non-intellectual factors. They are more eager for success than the ordinary students, and they always have more ambitious dreams. Our school makes use of " The Test Paper of Chinese Children's Non- intellectual Factor". The result of this test is also used as an important data.

III. Selecting process
The concrete process is as follows:

1. **Recommendation**. Parents and middles concerned recommend their child and excellent students to Hua Xiao.

2. **The first test**. Those students who want to study in Hua Xiao should take this chance, and they will be given an integrated examination about their thinking, inferring ability and their psychology and qualified candidates are allowed to study in Hua Xiao.

3. **Dynamic observation**. From the third grade of Hua Xiao, gifted students will be observed by the class teacher in the daily teaching program, and make a record to test the study result. The students take an examination each year.

4. **Interview**. In the last year of Hua Xiao, each child will take a face-to-face interview; the teacher will know their daily performance and their parents' education and career background.

5. **Final conclusion**. We form a special expert group and estimate each student's performance for the three years of work in Hua Xiao; the class teacher's record, the interview and marks of the tests of each year will decide the final evaluation of each student.

6. **Study in the experimental classes in the High School Affiliated to Renmin University of China** (**HSARUC**). We choose the best qualified gifted children to study at HSARUC. The choosing process is the same as we do with Hua Xiao.

During the long period of education work on gifted children, we have formed our system and our special view on this subject. Although we work very hard, there are still some limitations. For instance, class teacher's personal views of a child will affect the final result. How to obtain a more scientific result, there is a long way for us to go, we will work even harder to make a bright foresight for this great and meaningful cause.

SCREENING TEST FOR THE EARLY IDENTIFICATION OF GIFTED CHILDREN

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INTRODUCTION

The fourth provision of Recommendation 1248 of the Parliamentary Assembly of the Council of Europe (1994) on the education of gifted children highlights the importance of recognising these children's needs as early as possible and providing them with specific education appropriate to each individual from Infant School age upwards. The same recommendation also underlines the need to develop means of identifying these children.

To point out the crucial role played by educational opportunities in these pupils. Studies into intellectually advanced children in primary education reveal that, as a group, in adult life they remain significantly ahead of the rest and achieve tremendous success. However, what is true for the group is not so for the individual. School opportunities, guidance as well as economic and social conditions, in addition to changes in the role of women, have a significant effect on these results, as do social skills and individual determination (Robinson and Olszewski-Kubilius, 1997). All children deserve to love school and to enjoy the chance to benefit from the opportunities it affords.

There are few studies dealing with specific indicators of this capability and of these it is not easy to find empirical evidence.

This screening method facilitates and enables equal educational opportunities for all children, regardless of social class, simply and highly economically. The assessment of children evidencing signs of giftedness might be proposed to confirm the diagnosis.

1.- Creation of the screening test

1.a) Intellectual Definition of Gifted

In agreement with Gagné (1995), the term *gifted* would appear to be a satisfactory label for those who are naturally highly skilled, skills that are partially innate, which could be interpreted as 'gifts' of nature, and which are developed fairly naturally through the maturing processes, as well as through daily use and/or informal practice. According to this author, for a student achieving academic success, for

example, and having *talent* in any given subject, this *talent* might attributed both to the learning and practice maintained as well as to intellectual level. On the other hand, a student achieving low academic success and with an IQ of above 130 will be assessed as *gifted*, but not academically talented.

In our view there are three criteria for defining intellectual giftedness:

1.- Intellectual giftedness is characterised by an intellectual performance significantly above the average **(Criterion A)**.

2.- General intellectual capacity is defined with the intelligence quotient (IQ equivalent to or above 130, obtained from the assessment of one or more normalised intelligence tests) linked to greater maturity in information processes, a high degree of motivation towards learning, creativity, preciousness and development of talent **(Criterion B)**.

3.- Intellectual giftedness must manifest itself during the developmental stage, meaning that it should be apparent from birth to the age of 18 **(Criterion C)**.

Macotela states that (1994, normal distribution of scores in an intelligence test), children with special educational needs are those who show deviations in comparison to average children. Approximately 4% are between 2 and 3 standard deviations below the average (IQ between 55 & 70) and above the average (IQ between 130 and 145). The deviation is such that the subject requires modified or special school practices to reach maximum ability (Kirk and Gallagher, 1983) since the standard educational procedure applied to the majority is inadequate for them (Kaufmann, 1981).

1. b) Measures of intelligence

Although the most recent conceptions on gifted people or intelligence increasingly refer to multidimensional models, the tests generally used in the identification of gifted children refer to measurements of general intelligence.

According to Renzulli being gifted at school can also be termed as being gifted at learning lessons or doing tests. This is the type most easily measured by IQ or other cognitive skill tests, and for this reason is also the most frequently used in the selection of students for admittance into special programmes. Skills shown by people in IQ and skill tests are exactly the most commonly evaluated kinds of skills in school learning. In other words, the games that people play in skill tests are similar in nature to the games that teachers use in most classroom learning situations. Research has revealed that students who have a high score in IQ tests are usually those who get top marks in school. Research has also shown that these classroom learning skills or the ability to do tests normally remain stable over the years. The results of this research should lead us to some obvious conclusions on school giftedness: it exists to varying degrees; it may be identified through standardised assessment techniques. We should therefore do everything in our power to bring about the necessary changes aimed at students who have the ability to do their schoolwork with a high degree of success and comprehension.

As the regards the use of tests in the identification of intellectually gifted children (Benito, 1999), despite the criticism levelled at the predisposition and limitations of intelligence tests (Snyderman and Rothman, 1988) they are still amongst the most useful (Borland, 1989), they offer the best measure of intellectual skill (Gallagher, 1975; Snyderman and Rothman, 1988) as well as the most accurate identification of gifted

children (Sattler, 1982). Individual intelligence tests are also extremely useful for identifying children who are underachievers (Davis and Rimm, 1985; Whitmore, 1981), young gifted children at school age (Robinson and Chamrad, 1986), gifted children with associated traumas (Kauffman and Harrison, 1986) and in decision making as regards early admission and acceleration (Feldhusen and Baska, 1989).

1.c) Theoretical review to determine behaviour indicating intellectual giftedness

Robinson (1993) observed that the literature on early development has mainly focused on central tendencies or on children with developmental problems.

The Munich-Moscow study of giftedness, carried out between 1990 and 1993, was the first empirical study performed in Russia that dealt with different areas of giftedness and achievement (Averina, Scheblanova and Perleth, 1991). The German authors Stapf and Stapf (1988) or Urban (1992) do not offer the reader any evidence whatsoever of empirical data. However, evidence of this in gifted German children can be found in the longitudinal Munich study directed by Heller and associates, in the Marburg study on giftedness, directed by Rost and collaborators or in the Trost study. None of these studies deals with infant education (Heller, 1991; Perleth and Heller, 1993; Rost, 1993; Trost, 1993). A Chinese group from the Institute of Psychology at the Sinica Academy led a series of studies on gifted children that included children below compulsory school age. However, a Chinese review of this group (Zha, 1990) does not include statistical results on the quality of the early indicators of giftedness, apart from the fact that gifted children achieve better results than "normal" children in terms of the cognitive variables (Perleth and others, 1993).

It should be highlighted that the prevalence of academically gifted children differs enormously among socio-economic groups, with higher numbers of gifted children among middle class families than among lower class ones. Leaving aside possible genetic factors, time, and energy, the opportunities available and the expectations of middle class parents are more conducive towards obtaining academic skills than is the case with parents on a lower income who endure greater stress and whose own education has generally been more limited. It is therefore extremely important to discover and stimulate highly talented children from low-income families (Robinson and Olszewski-Kubilius, 1997).

1.d) Aim of the study

The goal was to develop a simple, efficient and cost effective screening method. To do this we took into account a series of prior considerations with reference to the literature on indicators of high levels of skills.

Among the indicators linked to specific areas of achievement there are reviews on the early development of language, reading, writing and numerical skills. The development of vocabulary has long been associated to intelligence, as has been pointed out by Terman (1925). Guilford, Scheuerle and Shonburn (1981), as well as

Lewis and Louis (1991), report that language skills are often considered a sign of giftedness. Early language skills should be considered as an indicator.

1.e) Sample used for the creation of test screening

Research began with observation of the progress of gifted children and non-gifted children over a ten-year period at the "Huerta del Rey" Centre. Over this period, children aged between two and a half and eighteen, from both state as well as private schools from all over Spain and from all social classes were assessed and diagnosed. Many techniques and tools such as interviews, observation, etc. were used in the evaluation.

138 children aged between 6 and 8, who had been seen and studied at the Centre between 1989 and 1997, were chosen for the test. This age was chosen as it was felt that the characteristics deemed useful in the selection process would already be apparent and that it would prove less of a problem for parents to remember having noticed such characteristics in their children. Children with an IQ of below 90 were left out, as the aim was to assess a selection method capable of adequately choosing within the group of children with good IQ scores.

The number of gifted children included in this research (85 of the 138 who were pre-selected) is a significant amount given the difficulty in obtaining samples of this size (an example will illustrate the problem: in a sample of between 100 and 300 subjects we would only find between 2 and 6 with a score of two typical deviations above the average. Just to find 10 subjects with an IQ above 132 (two typical deviations), a representative sample of 438 subjects would be necessary) Touron (1998). Obtaining the sample used is even more difficult since only children between 6 and 8 were chosen. The number in the sample was based on the idea that the sensitivity and specificity of the method needed to be around 80%, a fact that determined the size.

The imbalance between male (64) and female (21) is similar to that observed in parallel studies, since there are far more gifted males than females. It is common to find fewer girls in programmes for the gifted, especially in junior and secondary school. Gifted girls face more hurdles such as the prejudice of parents and teachers, which can lead to a lack of motivation or discrimination, the competitive nature of their male counterparts and the lack of female role models (Robinson and Olszewski-Kubilius, 1997).

Once the data were recorded, it was hypothesised that they would provide a set of indicators on development and learning that could be used to distinguish gifted from non-gifted children (Benito, 1997).

Children who obtained an IQ score of 130 or above in the Stanford-Binet (Terman-Merrill, L-M form), considered as the most suitable tool for measuring high levels of intelligence (Benito, 1997) were classified as gifted. Moreover, they were also hoped to be more precocious than other children in areas of social development, motor functions, language and learning.

1.f) Means of creating the screening test

Contrary to popular belief we know that parents are usually surprisingly accurate when noticing their children's progress. Parents were given a questionnaire during the psychological visits made by their children to the "Huerta del Rey" Centre. This enabled us to determine the presence of the following behaviour variable that formed the basis for the study of the 138 children:

- Crawling at six months.
- Identification of a minimum of 6 colours at age one and a half.
- Ability to maintain a conversation at age two.
- Ability to do a 20-piece jigsaw puzzle at age two and a half.
- Knowledge of 18 letters of the alphabet at age two and a half.
- Ability to count up to 10 at age two and a half.
- Starting to read at three and a half.
- Ability to read 52 wpm at age four.
- Awareness of and use of time in hours at age five.
- Displaying leadership qualities at age six.

Two well-trained examiners, before seeing the parents' questionnaires, carried out the test assessment and correction process separately. That data from the questionnaires was later given to them. The parents did not have access to their children's assessment report until the questionnaires were handed in.

The data from the variables mentioned, together with age, sex and IQ score (Stanford-Binet, Terman-Merrill, L-M form), was fed into the SPSS statistical program for mathematical analysis. A multivariate study by means of logistic regression was then carried out, considering the presence of an IQ above 129 as a dependent variable. The aim of the data analysis was to discover what variables were significant in the selection of gifted children. The "Forward conditional", method was used to introduce variables for performing the multiple lineal regression, the inclusion criterion being a significance level of "p" < 0.05, and the exclusion criterion a significance level of "p" > 0.10.

1.g) Results of the Research

The age and sex distribution of the children studied is shown in table 1, with a total of 104 boys and 34 girls.

Table 1.
Distribution by age and sex, 138 interviews in all

Of the 85 children identified as gifted, 64 were boys and 21 girls, with a representation in each case of 61% of their respective samples. Distribution of giftedness based on IQ levels in terms of age and sex is shown in table 2.

Table 2.
Gifted children by age and sex

Regression analysis revealed the five following to be significant variables:
- Identification of a minimum of 6 colours at age one and a half.
- Ability to do a jigsaw puzzle of at least 20 pieces at age two and a half.
- Knowledge of at least 18 letters of the alphabet at age two and a half.
- Ability to count up to at least ten at age two and a half.
- Reading without syllabication at age four.

The statistical data from the regression analysis of these variables is shown in table 3. Table 4 shows the results of screening.

Table 3.
Analysis of logistic regression by the Forward Method using IQ score as a dependent variable

Table 4.
Results of Screening (N = 138)

The consideration of these variables enabled us to obtain a screening method with the following validity characteristics:
- ➢ **Sensitivity =** 83.5%   (IQ 75.65%-91.42%)
- ➢ **Specificity =** 79.25%   (IQ 68.33%-90.17%)
- ➢ **Likelihood =** 4.02

This method of screening identified 83.5% of gifted children (of every 100 children observed, the test gave a positive result in almost 84). The confidence interval calculated to 95% ranged from 75.65% to 91.42%.

The specificity or ability to detect non-gifted children is 79.25% (of every 100 non-gifted children, the test would give a negative result in almost 80). The confidence interval calculated to 95% ranges from 68.33% to 90.17%.

The likelihood or relation between true positive children (gifted children identified as positive in the screening) and false positive children (non-gifted children identified as positive in screening) is 4.02. For each normal child classified by screening as gifted (false positive) there are over 6 gifted children classified as such (true positive).

The most significant variable in our study is the ability to read a book easily at age four, to the point that 100% of the sample who displayed this ability (n = 31) were gifted, although 64% of the gifted children (n = 55) did not do so. These reading skills had not previously been empirically identified as an indicator of giftedness (Perleth et al., 1993). Terman (1925) found that one of the few variables in which the exceptionally gifted children in his study (with an IQ above 170) differed from average gifted children was the very early establishment of reading. Hollingworth (1926) also highlighted the early development of reading as one of the variables that most clearly distinguished gifted children from children with average abilities (as is cited in Gross, 1998).

Another significant variable in our study is learning the alphabet at an early age. This variable would appear to mark the difference between children with an IQ score of 130 and those who achieved over 145. According to Gross (1998) the

reason why advanced reading skills in many gifted children to do not develop might be that although these children show a tremendous desire to learn to read, many parents do not encourage this behaviour as their friends or Infant School teachers have advised them against helping in the development of their children's reading skills. It is important to underline that children who show early reading, oral and motor function skills are unlikely to have been encouraged by their parents. It is much more likely that they are exhibiting natural precocity, which should be linked to intellectual giftedness (Gross, 1998).

Marjoran and Nelson (1985) pointed out some early indicators of mathematical talent, such as the preference for logical linking elements in the use of language, an interest in geometric patterns and organisational systems, as well as enormous satisfaction when doing puzzles and construction games. However, there is no empirical evidence to support the validity of these indicators (Perleth et al., 1993). Doing puzzles, however, has proved to be a significant variable in our research.

Variables related to the child's language did not prove to be significant, especially given the data recorded in the parents' comments. This result coincides with the findings of Browder (1994). According to this author, there were no major differences between the parents' reports on the development of the child's speech, regardless of whether their children belonged to the group of above average intelligence (IQ > 125) or below (IQ < 95) (as is cited in Perleth et al., 1993).

If the prevalence of giftedness among the general population is around 2.2%, and considering a group of 1000 children, the application of this system of screening would offer the following results:
- ➢ **Example of 1000 children**
- ➢ **Prevalence of giftedness = 2.2%**
  - − Positive screenings = 221
  - − Confirmed diagnosis of giftedness = 18
  - − Gifted children not selected = 4

1.h) Correction criteria in the screening test
Children who, according to the response of parents, teachers or paediatricians to the test meet one of the following requirements are selected for evaluation:
- One skill from section A.
- Or both skills from section B.

- A: The child displays **at least one** of the following skills:
  - Identification of a minimum of 6 colours at age one and a half.
  - Ability to do a jigsaw puzzle of at least 20 pieces at age two and a half.
  - Reading a book at age four.

- B: The child displays **both the following** skills:
  - Knowledge of at least 18 letters of the alphabet at age two and a half.
  - Ability to count up to 10 at age two and a half.

Application of the Test in Different Countries

2.a) Aims
- For validation.
- To check whether gifted children have a different development to normal children and whether this development is similar in different countries.

2.b) Plan for applying the Test
- Drawing up a questionnaire to be answered by the parents of 4, 5 and 6 year-olds in schools.
- The screening test was offered to different countries through universities and/or ministries of education through a signed research co-operation agreement.
- Time span: 1997-2001.

The following countries accepted the research: Spain, Yugoslavia, Ecuador, Rumania, Brazil, Argentina, India, Colombia, Mexico, Russia and Portugal although some have been unable to implement or complete the research for financial or political reasons.

2.c) Countries that completed the research and people in charge
To date the following countries have completed the research: Spain, Yugoslavia, Rumania, Brazil, Colombia and Mexico.

Table 5.
Institutions and people in charge.

2.d) Results obtained from research into the validation of the screening test

RESULTS:
Table 6
Application of the Screening Test: Questionnaires completed and children selected. Results by countries.

Table 7
Application of the Screening Test: Sample selected and evaluated. Results in each country.

Table 8
Application of the Screening Test: Sample assessed and identified. Results in each country.

Table 9
Application of the Screening Test: Questionnaires completed and children identified. Results in each country.

Table 10
Application of the Screening Test: Children selected and children who might have been identified. Results in each country.

Table 11
Application of the Screening Test: Distribution of those assessed and identified in terms of IQ in each country.

The 6 countries who have given their results to date have meant the participation in the application of the screening test of a total of 3439 children, enabling the selection of 253 children presumably with intellectual giftedness. The screening test thus enabled the selection of 7.36% of those surveyed (values that fluctuate between 4.62% to 14.23% depending on countries). This allowed us to establish that the group requiring further diagnosis is quite small, leading to a fairly manageable workload.

Psychological evaluation could not be performed in the 253 children and only 180 (71.15% of those selected) were seen and studied for confirmation.

49 cases of intellectual giftedness were confirmed. Thus, the percentage of confirmed giftedness offers an average value of 27.22%. In global terms, for each four (actually 3.6) children satisfying one of the screening test requirements, one is confirmed and diagnosed as gifted, offering a high degree of viability of the screening test.

With regard to the initial group who did the screening test, these results mean the identification of 1.42% of the group as gifted. It should be pointed out that psychological evaluation could not be performed in 73 children who had been selected by the screening test. If the evaluation of these 73 children who passed the screening test had been possible, 2.06% of the initial group could have been identified.

Data to be obtained:
- **Group of 1000 children.**
- **Prevalence of giftedness = 2.2%**
  - Positive to screening = 221
  - Would confirm the diagnosis of gifted = 18
  - Gifted children not selected = 4

Real validity of the screening test considering the whole of the research data from the 6 countries:
- **Group of 1000 children.**
- **Prevalence of giftedness = 2.2%**
  - Positive to screening = 74
  - Children actually evaluated = 53
    - ❖ **Confirmed as gifted = 15**
    - ❖ **Gifted children not selected = 7**
  - If the 74 had been evaluated:
    - ❖ **Could have been confirmed = 22**
    - ❖ **Would not have been selected = 1**

With regard to the conditions in which the work was carried out, it should be pointed out that each country was independent when it came to putting the screening test into practice. This meant that the research was performed in very similar conditions to those in which each country or group normally work. Also relevant is the fact that in some of these countries (Yugoslavia and Colombia), the screening test was seen to be efficient in the selection of children even in unfavourable and far from ideal social and economic circumstances.

The screening enables children with a high degree of intelligence to be detected.

In most countries the groups selected for the work covered a wide range of social and economic classes.

When assessing the children who underwent the screening test some countries decided of their own accord to use the Stanford-Binnet Test (Terman-Merrill, L-M form) or the Wechsler scale to measure intelligence.

Comparison with other screening methods

There are few screening methods that can be applied to children under 6 and those that are available lack any solid empirical base. Identification studies of gifted children on the part of teachers indicate little reliability with this approach (Pegnato and Birch, 1959). Postlethwaite et al. (1995) cited a sensitivity index of 45% and a specificity level of 73%. This might be partly put down to a lack of training on the part of the teachers in this field (Fatourus, 1986) and/or a general reticence amongst teachers towards identifying gifted children (Rost, 1993).

Postlethwaite et al. (1995) found that if intelligence tests and academic achievement were used jointly, the sensitivity level rose to 97%, concluding that this

combination was the appropriate means of identifying these children. However, this method is not applied in the identification of children at such an early age nor do the authors provide any data on the specificity of the method. Neither self-nomination nor peer nomination approaches have proved to be successful in identifying gifted children in Primary School (Gagné, 1989).

Robinson and Olszewski-Kubilius (1997) feel that screening in schools, in general, is performed together with a selection of special services, when these are available. Requirements vary greatly although most include a mental ability group test or academic aptitude test together with a group achievement test. In some areas these tests are used as screening methods and fewer children are assessed individually. On some occasions they include behaviour scales applied by teachers and parents and/or creativity criteria (generally originality or fluency of ideas), but these are given less weight.

These methods are obviously much more costly and although the sensitivity level is high (as much 97%) as we pointed out earlier, they lack specificity value and are not suitable for small children.

It is equally important to consider that establishing the cut-off point from which it is considered advisable or not to perform diagnosis should not mean we ignore evidence from other sources.

CONCLUSIONS

In the light of the results we may conclude the following:

- Intellectually gifted children undergo development different to normal children.
- The development of gifted children is similar in different countries.
- The screening test enables detection of gifted children from underprivileged classes.
- The screening test can be performed whenever it is deemed appropriate, since no special conditions are required. No strict application conditions are necessary.
- The screening enables children with a high degree of intelligence to be detected.
- There is a high degree of viability since of each 3.6 children who passed the screening test at least one will be gifted.
- When children with low levels of intellectual ability occasionally pass the test possible traumas need to be ruled out (for example, hyperlexia of psychotic children).
- The theory that on the extreme right of the curve, the percentage of the population satisfying the requirements for intellectual giftedness is 2.2 % is partially confirmed.

The value and efficiency of this method of screening might be considered valid given the results of the research carried out. The simplicity, clarity, objectivity and cost-effectiveness of the variables increase the viability of this method. The screening test might be introduced as a survey in schools by trained teachers and in primary schools by paediatricians holding strategic positions from which to administer such tests or verify a child's progress and learning. Moreover, the test enables the detection of intellectually gifted children from underprivileged classes.

One surprising aspect is the differing progress in intellectually gifted children who, at a specific age, learn basic concepts and skills to which any child can have access regardless of background. This refers to the learning of colours, numbers, letters, reading and ability to do a puzzle of a certain number of pieces, all at a very concrete age.

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TABLES

Table 1.
Distribution by age and sex, 138 interviews in all

Age	Boys		Girls		Total
	N	%	N	%	
6	40	38,46	14	41,18	54
7	30	28,85	12	35,29	42
8	34	32,69	8	23,53	42
Total	104	100	34	100	138

Table 2.
Gifted children by age and sex

Age	Boys		Girls		Total
	N	%	N	%	
6	31	48,44	12	57,14	43
7	13	20,31	4	19,05	17
8	20	31,25	5	23,81	25
Total	64	100	34	100	85

Table 3.
Analysis of logistic regression by the Forward Method using IQ score as a dependent variable

Variable	B	S.E.	Wald	Sig
V1	3,3416	1,4021	5,6801	0,0006
V2	12,0357	25,5031	0,2227	0
V3	1,577	0,5545	8,0885	0,0025
V4	1,0414	0,5099	4,171	0,0368
V5	2,9537	1,3208	5,0011	0,0089
Constant	0,8128	0,2958	7,5495	

Table 4.
Results of Screening (N = 138)

	Gifted	Non-gifted
Screening +	71	11
Screening -	14	42
TOTAL	85	53

Table 5.
Institutions and people in charge:

➢ Brazil, University Paulista and UNIP/aim. Person in charge, Prof. Dr. Marilia Ancona, Pro-rector of doctorate curses. Coordinator, Professor Christina Cupertino. Initial date: January 1998. Ending date: 2001.

➢ Colombia, University Antioquia. Person in charge, Prof. Dr. Queipo Franco, Dean of Faculty of Pedagogy. Coordinator, Dr. Santiago Correa, Chair Professor of Pedagogy, and Professors Ana Elsy Diaz and Ruth Elena Quiros. Initial date: January 1998. Ending date: June 2000.

➢ Spain, Ministry of Education and Culture. Person in charge, Mª Antonia Casanovas, General Subdirector of special education and attention to diversity. Initial date: September 1997. Ending date: May 1999.

➢ Mexico, University Guadalajara. Person in charge, Silvia Valencia Abundiz, Department Chair of Applied Psychology. Coordinator, Professor Dolores Valadez. Initial date: January 1998. Ending date: 2000.

➢ Rumania. University AL.I. Cuza. Person in charge, Prof. Dr. Teodor Cozma, Dean of Faculty of Psychology and Education Sciences. Coordinator Dr. Carmen Cretu, Director Gral. of Teacher Training of Ministry of Education in Bucarest (Rumania). Initial date: January 1998. Ending date: February de 2001.

➢ Yugoslavia, Visa Skola za Obrazovanje Vaspistaca Vrsac (Teacher´s College in Vrsac). Coordinators Dr. S. Maksic, Dr. S. Gasic-Pavisic & Dr. Grozdanka Gojkov, Director of Teacher´s College. Initial date: 1998. Ending date: July 2000.

Table 6.
Application of the screening test: questionnaires completed and children selected. Results by countries.

COUNTRIES	QUESTIONNAIRES COMPLETED	SELECTED CHILDREN	% SELECTION
MEXICO	**702**	**46**	**6,55**
BRAZIL	**393**	**33**	**8,40**
COLOMBIA	**650**	**30**	**4,62**
RUMANIA	**281**	**40**	**14,23**
SPAIN	**738**	**63**	**8,54**
YUGOSLAVIA	**675**	**41**	**6,07**
TOTAL	3439	253	7,36

Table 7
Application of the screening test: selected and evaluated sample. Results in each country.

COUNTRY	SAMPLE SELECTED	EVALUATED CHILDREN	% SELECTION
MEXICO	**46**	**37**	**80,43**
BRAZIL	**33**	**28**	**84,85**
COLOMBIA	**30**	**13**	**43,23**
RUMANIA	**40**	**16**	**40**
SPAIN	**63**	**63**	**100**
YUGOSLAVIA	**41**	**23**	**56,10**
TOTAL	253	180	71,15

Table 8
Application of the screening test: assessed and identified sample. Results in each country.

COUNTRY	SAMPLE ASSESSED	IDENTIFIED CHILDREN	% SELECTION
MEXICO	**37**	**9**	**24,32**
BRAZIL	**28**	**7**	**25**
COLOMBIA	**13**	**7**	**53,85**
RUMANIA	**16**	**7**	**43,75**
SPAIN	**63**	**16**	**25,40**
YUGOSLAVIA	**23**	**4**	**17,39**
TOTAL	180	50	27,78

Table 9
Application of the screening test: questionnaires completed and children identified. Results in each country.

COUNTRY	QUESTIONNAIRES COMPLETED	IDENTIFIED CHILDREN	% SELECTION
MEXICO	**702**	**9**	**1,28**
BRAZIL	**393**	**7**	**1,78**
COLOMBIA	**650**	**7**	**1,08**
RUMANIA	**281**	**7**	**2,49**
SPAIN	**738**	**16**	**2,17**
YUGOSLAVIA	**675**	**4**	**0,59**
TOTAL	3439	50	1,45

Table 10
Application of the screening test: children selected and children who might have been identified. Results in each country.

COUNTRY	SELECTED CHILDREN	SELECTED BUT NON EVALUATED	CHILDREN WHO MIGHT HAVE BEEN IDENTIFIED
MEXICO	**46**	**9**	**2**
BRAZIL	**33**	**5**	**1**
COLOMBIA	**30**	**17**	**9**
RUMANIA	**40**	**24**	**8**
SPAIN	**63**	**0**	**0**
YUGOSLAVIA	**41**	**18**	**2**
TOTAL	253	73	22

Table 11
Application of the screening test: distribution of those assessed and identified in terms of IQ in each country.

COUNTRY	TOTAL EVALUATED	I.Q. <100	I.Q. 100-124	I.Q. 125-129	I.Q.>129
MEXICO	**37**	**1**	**13**	**14**	**9**
BRAZIL	**28**	**3**	**12**	**6**	**7**
COLOMBIA	**13**	**1**	**1**	**4**	**7**
RUMANIA	**16**	**0**	**7**	**2**	**7**
SPAIN	**63**	**4**	**29**	**14**	**16**
YUGOSLAVIA	**23**	**2**	**9**	**8**	**4**
TOTAL	180	11	71	48	50
		6,11%	**39,44%**	**26,67%**	**27,78%**

EARLY IDENTIFICATION OF GIFTED CHILDREN: THE BRAZILIAN RESULTS

Project for early identification of gifted children: the Brazilian results

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This research is part of an international investigation, coordinated by the Ministry of Education of Spain and by Centro Huerta Del Rey, in Valladolid. It was developed, in São Paulo, Brazil, by the Objetivo Program for Fostering Talent (Programa Objetivo de Incentivo ao Talento - POIT). POIT can be described concisely as a program involving university-school collaboration, designed to provide for gifted or talented individuals by identifying and assisting them through specially developed extracurricular programs (Cupertino, 1996).

The main purpose of the research was to verify the possibility of using, with Brazilian children, an inventory for the early identification of gifted 4 to 6 year old children.

Many reasons justify the Brazilian participation in this research:

- Brazil is a country of continental proportions, with very few programs for gifted students (Cupertino, 1997 & 1998). Just a few school districts can count on psychologists to use standardized evaluation material for the identification of gifted children. An instrument like this inventory could be very useful in these schools, since it could be used by any professional available.

- The early identification of high abilities is an important step for further proper education (MEC,1995a; MEC,1995b; Freeman, 1998).

- To be involved in an international research enriches the interchange between coutries, allowing important comparisons.

METHOD

1. **Subjects**:

The subjects of this research were 393 children, 4 to 6 years old, from three different private schools in São Paulo, Brazil. The selection was based in the will to participate shown by the parents.

2. **Procedure**:

⇒ *Translation of the inventory into Portuguese.*
⇒ *Contact with the schools to establish the best course of action and schedules.*
⇒ *Application of the inventory:*

The inventory has questions about identification, motor, language and cognitive development, sociability and independence. It was sent to the parents to be filled and returned to the researchers through the schools' direction. If a form was returned incomplete, the researchers scheduled an interview with the parents to complete it. When contact was impossible, the forms were not considered.

⇒ *Correction of the material and selection of the children who should take the Wechsler Scale of Intelligence for Children - WISC.*

The criteria to select children who should take the WISC were the ones determined by the authors, as follows:

1. The presence of **at least one** of the following items:
- To identify at least 6 colors at 18 months;
- To be able to read a book at 48 months;
- To solve a 20 piece puzzle at 30 months.

2. The presence of **both of these two** items:
- To be able to count to 10 at 30 months;
- To know the letters of the alphabet 30 months.
⇒ *Individual application of the Wechsler Scale of Intelligence for Children - WISC to the selected children.*

RESULTS AND DISCUSSION

Comparison between the questionnaires and the WISC

	School 1	School 2	School 3	Total
Questionnaires completed	199	46	148	393
Children selected Inventory	13	11	09	33
Children who done the WISC	11	09	08	28
Children selected WISC	03	00	04	07

Table 1: General results - questionnaire and WISC application

In the three schools, from a total of **393** children whose parents filled the questionnaires, **33** were selected for the next phase. **5** of them refused to finish the test.

The results obtained with the WISC are presented in Table 2:

I.Q. WISC	90	91	96	101	104	109	111	112	115	117	118	120	121	123	124
#children	1	1	1	1	2	2	1	1	2	2	1	1	2	2	1
I.Q.WISC	**130**	**131**	**135**	**138**	**139**	**142**									
#children	**1**	**1**	**1**	**1**	**2**	**1**									

Table 2 –WISC results

The results were compared with the projection made by the authors of the inventory, according to the Manual (p. 25), that predicts the following:

> Population evaluated = 1.000
>
> Selected through the screening = 208 (**20,8%**)
>
> Confirmed by assessment = 24 (**2,4%**)

Still according to an actualization table provided by the authors in 1999, we have:

> Population evaluated = 738
>
> Selected through the screening = 63 (**8,53%**)
>
> Confirmed by assessment = 16 (**2,1%**)

Both results obtained by the Spanish researchers are within the acceptable range of 2% to 5% of gifted people in the general population.

The results from our evaluation were inferior to that:

> Population evaluated = 393
>
> Selected through the screening = 33 (**8,4%**)
>
> Confirmed by assessment = 7 (**1,8%**)

According to these results, the inicial conclusion should be that the inventory cannot be used with Brazilian children as it is. But there is an important thing to take into consideration: among the 33 children selected to take the test, only 28 actually did it, and 7 have been considered gifted, in a proportion of 1 to 4. It follows that, among the five children who refused to take the test, one could be gifted, fact that would bring the percentage to acceptable 2,03%. Considering these two possibilities, we could state that the research was inconclusive.

A factor that could explain the differences between Spanish and Brazilian results may be in the answers considered as criteria to selection to the test in the questionnaires of the 7 gifted children identified. Brazilian results show that:
2 children (**28.7**%) were able to read a book at 48 months
4 children (57.1%) could identify at least 6 colors at 18 months
2 children (28.7%) solved a 20 piece puzzle at 30 months
1 child (14.2%) was able to count to 10 and to know the alphabet at 30 months

The Spanish researches, on the other hand, found that **100%** of their gifted children were capable of reading a book at 48 months. This finding suggests that cultural differences between the two countries may have to be considered, and that some questions should be revised if we are to uso the inventory with Brazilian children.

CONCLUSION

Considering that the main purpose of the research was to verify the possibility of using, with Brazilian children, an inventory for the early identfication of gifted 4 to 6 year old children, the results show that the inventory cannot be used as it is, probably due to cultural differences between the two countries that may have to be considered. Some questions should be revised if we are to uso the inventory with Brazilian children.

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ADAPTATION OF AN INSTRUMENT TO HIGH ABILITY IDENTIFICATION

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ABSTRACT

In the Community of Basque Country, we will use the Differential and General Aptitudes Test (Yuste, 1987) to identification. The process to validate was: we selected the representative sample in both public and private schools and taking into account the different linguistic Models (A, B, and D). The sample was evaluated according to the original test as well as to the translated test. We are certain about the equivalence of these two tests according to the obtained punctuation. We did an analysis reflecting that the results can be generalised to the different monolingual areas.

Due to our intention to identify gifted children in the Community of the Basque Country, we must adapt first of all the chosen instrument (BADYG, Yuste, 1987) to the specific idiomatic and cultural characteristics. In order to avoid mistakes and have equivalent punctuations in the same test obtain from different linguistic and cultural groups, we decided to follow in this case the International Commission Test (Hamblenton y Muñiz, 1996). The adaptation of the instrument is a crucial key to the identification of gifted children and to later researches and evaluations of different variables (familiar, personal...).

INSTRUMENT DESCRIPTION

The Differential and General Aptitudes Test (Yuste, 1987) is an instrument to diagnose aptitudes collectively. The part of the test to be adapted is: the Elemental Form of test (Form E). This Form permits evaluate subjects from 9 to 12 years old. Form E is also used to evaluate elements of the concrete and formal logic through the following parameters: Verbal Mental Ability, Non Verbal Mental Ability, Numerical Aptitude, Verbal Comprehension, Memory, Logic Reasoning, Spatial Aptitude. By measuring these parameters we obtain: General Intelligence Ratio, the ratio of Verbal General Intelligence and Non Verbal General Intelligence.

DEFINITIONS

GENERAL INTELLIGENCE, this type of intelligence shows the ability to abstract and the use of complex information, numerical, verbal or figurative contexts. It indicates also the ability to solve different problems by facing new challenges or by applying new strategies to solve them.

VERBAL GENERAL INTELLIGENCE, it has to do with the verbal capacity, the ability to relate and abstract linguistic codes, to understand vocabulary and to use concepts in order to solve problems.

NO VERBAL GENERAL INTELLIGENCE, this one shows the ability to relate complex geometrical stimulus and to include rules and solve different geometric problems. The ability to face new problems.

VERBAL MENTAL ABILITY:
- It is formed by 40 elements, including 6 alternative answers.
- What it shows: the ability to classify, deduce, analyse, transform concepts, solve verbal-numerical problems.
- General ability to relate concepts and group them significantly.

NUMERICAL APTITUDE:
- It is formed by 25 elements, including 5 alternative answer.
- What it measures: The ability and rapidity to solve numerical problems as well as the agility to solve numerical problems.
- The fact of having a good punctuation means a basically good capacity to mathematics.

VERBAL COMPREHENSION:
- It is formed by 30 elements with 5 alternative answers
- What it measures: verbal comprehension, the knowledge of the mother tongue vocabulary and its use in analogical and metaphorical relationships and linguistic contexts.
- A good punctuation in this case indicates good probabilities to linguistic tasks.

NO VERBAL MENTAL ABILITY:
- It is formed by 40 elements with 6 alternative answers.
- It measures: the ability to inductive reasoning and to relate complex groups of visually classified data in a logical way.

PROCEDURE

We selected the representative sample of children aged 10 and 11 in 5 Public Centres and 5 Private Centres from the Basque Community. The children belong to different linguistic models (A, B, D) and we formed a total sample of 745 subjects.

The sample was evaluated according to the model: in basque or in Spanish. The equivalence was evaluated (*Examples*) by comparing the different punctuation's in the two forms: The original and the adapted one. The samples were two competent monolinguals in the original and target language, so that the data obtained could be generalised to the monolingual areas, confirmed by the mean´s analysis (T proof).

In order to control the error due to the differences in the "subjects" aptitudes we will group the subjects according to the correlative characteristics with the evaluated aptitudes.

CONCLUSIONS

The statistical analysis of the data was done with the SPSS program: we proved that the samples (the adapted and the original one) was normally distributed from the Kolgomorov-Smirnov test. The result of the test was insignificant so the equivalence of the samples could be confirmed.

The data obtained in this first phase was developed and widen. We want to use this instrument as another element within an identification process and as a later study to other variables. Our team works basically on familiar context and psychological development. For this reason, we hope to widen knowledge in this field.

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NUMERICAL ABILITY

FREQUENCY

120
100
80
60
40
20
0

3-5   9-11   15-17   21-23

V.original
V.adaptada

INTERVALS

NON VERBAL MENTAL ABILITY

FREQUENCY

100

50

0

7-10   11-14   15-18   19-22   23-26   27-30   31-34   35-38

V.original
V.adapta.

INTERVALS
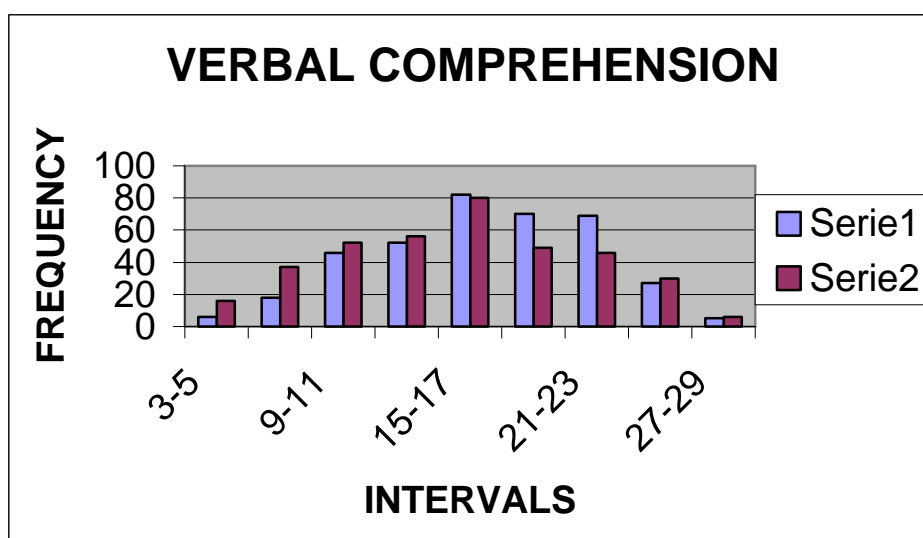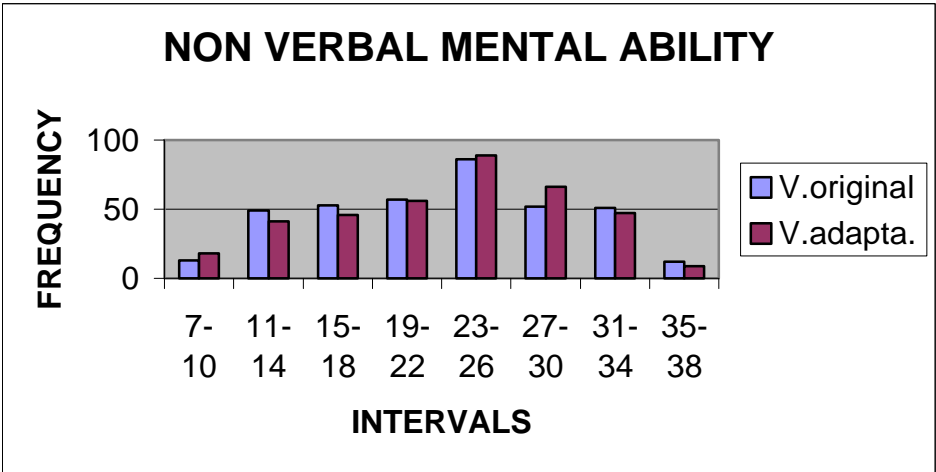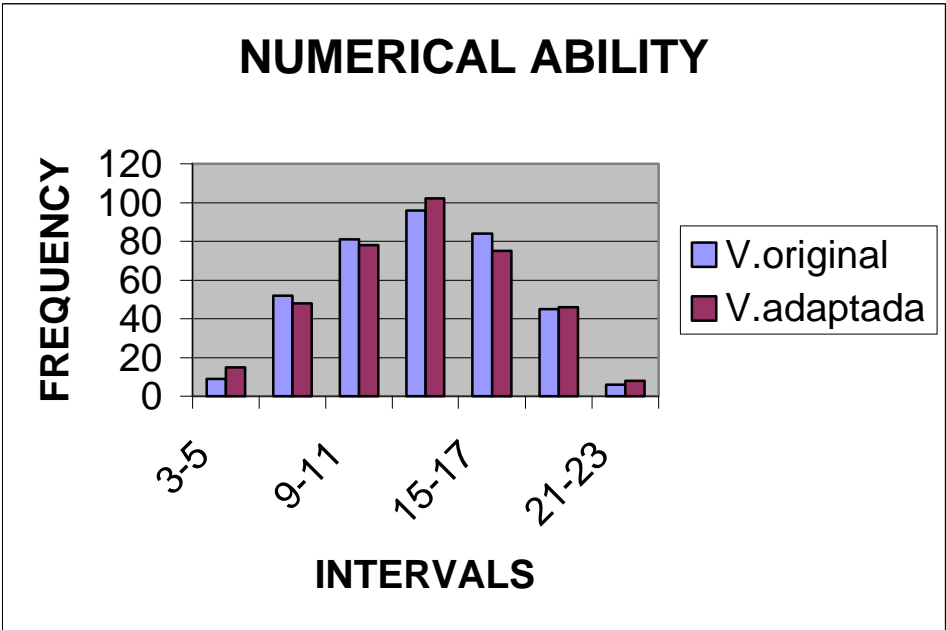
METACOGNITION, PERSONAL INTELLIGENCE AND VALUES IN GIFTED SECONDARY SCHOOL STUDENTS

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ABSTRACT

This research was designed from a general humanistic perspective, using a cognitive-evolutional approach which includes the measurement of metacognitive abilities and different types of intelligence, as well as aspects more closely related to the personality, such as values and the intrapersonal and interpersonal intelligence.

Attention is focussed on three points under the broad definition of gifted students who were dealt with. The first point was to measure the fluid intelligence of students in the fourth year of secondary education. The second point focussed on the analysis of choise/construction of values within that sample. Finally, different types of personal intelligence were measured.

In order to investigate the values, metacognitive abilities and types of intelligence predominant in intellectually gifted boys and girls in comparison with a reference group, the question was raised as to whether the results generated by the tests would allow us to maintain the following hypotheses:

- Intellectually gifted adolescents are significantly differentiated from those with average intelligence in the degree to which they achieve higher phases of moral evolution.
- They develop more and better metacognitive abilities than those in the control group, showing a statistically significant difference.
- They stand out significantly from the students in the control group in interpersonal and intrapersonal intelligence.

The first objective of the present work is to approach the study of values in the intellectually gifted. Therefore, we decided to place the subjects in our sample in situations in which they must elucidate moral dilemmas along Kohlberg's lines, in order to observe the type of reasoning which would drive their hypothetical moral action, and attempt to classify them within the moral phases. As we did not wish to exclude feelings, factual situations were selected to make them think, which posed a series of moral obligations towards others in a practical sense, to observe how they reasoned and what feelings accompanied the reasoning process.

We insist that the affective aspect cannot be excluded with reference to morality, since every situation must be understood not only in cognitive but also emotional terms with regard to the moral content of said situation. According to Kitwood, *true morality* is constructed on the basis of sensitivity, empathy and concern for others. Therefore we wished to have knowledge of their sensitivities, which allow them to experience feelings towards others. This felt experience helps them form their primary moral perceptions on which they reflect and construct their own moral vision. It must be borne in mind that the study was carried out on young individuals with little experience, who had not yet suffered any great disillusionment.

It has already seen that, according to Kohlberg, subjects with above-average intelligence are also outstanding in moral development; there would also appear to be a certain relationship between an individual's level of moral reasoning and responsible action, and vice versa. The evidence indicates that moral judgements of fairness and responsibility form the basis of all moral action.

Though it is known that the will is an attribute associated with moral action and related to self-control, this information is not relevant to this age group, given that the subjects in our sample are in the process of maturation and self-determination which will eventually cause them to intelligently govern their own behaviour.

We agree with Kitwood (1997) that psychometric tests are of limited use when studying morality, for four reasons: first, subjects tend unconsciously to flatter themselves and distort their reality; second, these tests presuppose that all persons construct their scale of personal values in the same manner; third, the type of questions conditions and imposes a framework for the answers; fourth and perhaps most important, values evolve and are not established once and for all; they may be modified by experience. Though the classic psychometric tests for values, multiple types of intelligence, and metacognitive abilities were not applied, the application of a standardised intelligence test such as Raven's Progressive Matrices were included in the investigation to evaluate and differentiate levels and compose groups of intellectually gifted, average and below average subjects.

It has already been said that the research was focused on three points. First, in order to investigate what type of morality prevails, or their phase of moral development, and what arguments are used to construct ethics which cause them to reflect on a series of situations with underlying moral dilemmas such as the death penalty, abortion, suicide, euthanasia and rape. We attempted to find out if they made clearly defined judgements on values such as life, justice, freedom, truth, keeping promises, autonomy and personal independence, as well as the impact of cultural conditioning on their reasoning.

The second objective was to investigate the possible relationship between intelligence and metacognitive abilities. It was supposed that intellectually gifted students use more and better metacognitive strategies than those with normal intelligence.

Mönks (1992) affirms that although there is no biological difference between gifted and average adolescents, great differences can be found at the cognitive level. Mönks maintains that pre-adolescents are already capable of producing formal operations and thinking on an abstract level. Gifted adolescents are cognitively more advanced than average ones, but, Mönks adds, "not necessarily in their social behaviour".

Differences between these groups are also shown in superior thought processes such as metacognition. Paris, Jacobs & Cross (1987) have defined metacognition as "knowledge of mental states and abilities which may be distributed, described or explicitly demonstrated", and Flavell says it is "knowledge born of reflection on our own cognitive processes or meta-knowledge". Persons having these metacognitive abilities are able to self-regulate their own learning, selecting and applying these abilities in order to think and learn better.

There is evidence of a certain metacognitive superiority between gifted and average students. Therefore Borkowski & Peck (1986) hold that gifted students obtain greater metacognitive advances over their average peers; in their view, "perceptive efficiency" is the most relevant indicator of giftedness, since it forms the basis of conscious and controlled processing.

Sternberg, with the notion of intelligence set out in the triarquical theory, helps us understand the difference not only in cognitive processes, but also in fundamental metacognitive processes between gifted and average students. In terms of superior processes or metacomponents, Sternberg (1981) holds that these metacognitive processes are used in planning, guiding and decision making; gifted students stand out in accessing these processes as well as in their application. Sternberg describes six metacomponents: 1) Deciding which problems must be solved; 2) Selection of components of a lesser order in problem solving; 3) Selection of problem solving strategies; 4) Selection of representations of information; 5) Resolving the designation of components in problem solving; 6) Guided solutions. Sternberg maintains that the gifted student is more efficient than his/her average peers at: recognising the nature of a problem, drawing out the necessary elements for its solution, applying appropriate principles, and representing information, as well as the capacity for global planning of problems and flexibility in modifying plans in accordance with reality.

This author establishes clear differences between the intelligent, the creative and the wise subject, affirming that what characterises the wise subject is precisely *the metacognitive posture,* that is, *he knows what he knows and what he doesn't know, as well as the limits of what is knowable. He applies the processes of the intellect in a way that avoids automation, recognising that the positions and procedures automatically employed by people are subject to inherent limitations as well as those imposed by the environment* (Sternberg, 1994). This author is quoted here because of the surprising treatment from a cognitive posture of the little-researched and specialised topic of wisdom. We agree with Sternberg in this respect, but believe that wisdom covers many more components such as the affective and those of the personality, as well as accumulated life experience, and therefore it cannot be reduced to the merely cognitive and metacognitive.

The model of multidimensional and systemic metacognition proposed by Mayor, Suengas & González (1995) was found useful; the authors point out that it facilitates the analysis of metacognitive activity and permits the construction of exhaustive instruments of evaluation. In their model of metacognitive activity, aside from incorporating two essential components in other models, they add a third component which they call *autopoiesis.* They have composed a questionnaire that permits the evaluation of metacognitive abilities, the results of which provide an orientation for intervention in the acquisition, development and application of the strategies required by each student, taking into account the activity or task to be carried out.

In our view, those who opine that training programmes in metacognitive abilities and strategies are only applicable to intellectually deficient or average students are mistaken. We propose that it is always possible to improve performance, excellent though it may be. Therefore we believe these programmes are appropriate for intellectually gifted students who have some gaps and deficient areas which may be improved by this sort of intervention.

The aforementioned questionnaire for metacognitive abilities may serve two ends: application for diagnosis and training in these abilities, especially for intellectually gifted students, and research to perfect this evaluative instrument.

In the third place, we wished to ascertain if there were any predominance of one of the seven types of intelligence described by Gardner in the gifted subjects which might differentiate them significantly from the members of the reference group, consisting of students with average intelligence. Special attention was paid to personal forms of intelligence, inter as well as intrapersonal, because it was presupposed that with greater development of this type of intelligence, the student will be in better personal condition to construct moral values. Also, the idea of a possible relationship between the student's fluid intelligence and metacognitive abilities, moral development and intrapersonal intelligence is basic to our hypothesis.

The results obtained from the Wechsler and Stanford Binet tests showed that important proportion of gifted students stand out in linguistic and logical/mathematical intelligence. Great debate has arisen over the possibility that this sort of student may be below average in interpersonal intelligence; a consensus has not yet been reached as some research exists which rejects this hypothesis (García Yagüe *et* al., 1986; García Artal, 1990; López Andrada, 1990; Hume Figueroa, 1989).

The intrapersonal intelligence of such subjects, and its possible significant differentiation with that of students of average intelligence, has not yet been studied. Therefore the personal questionnaire was used to detect if gifted students stood out especially in intrapersonal and interpersonal intelligence, as well as the other five types described by Gardner (1995).

We believe that research into a type of intelligence fundamental to the formation of a viable and efficient model of the self has been excluded. It is

usually expressed by different means such as language, music, painting, etc., and therefore perhaps is slightly confused with other types of intelligence. We understand it to be connected with three metacognitive abilities: conscience, control and self-regulation. Self-knowledge implies turning back on oneself in order to know one's own emotional life, the range of feelings, and the ability to discriminate between different emotions as well as detect them upon their appearance, which requires awareness. A second component is control of the emotions; not repression, but expression when there is positive response from the environment, or control of the emotions when possible negative repercussions are foreseen. The third component is self-regulation, which allows a balance of the proportion of negative to positive emotions, helping one to overcome negative states, gather strength, manage stress well and be self-motivated. Good self-knowledge or self-awareness may lead the subject to get the best from him/herself, maximising strengths and compensating for weaknesses.

Method

1. Participants

Thirty-nine students of 16 years of age, drawn from two classes in the fourth year of compulsory secondary education at Guadarrama Secondary School participated voluntarily in this research. According to the results of the collective intelligence test, three groups were formed: above-average, average and below-average intelligence. The data for three subjects was eliminated from statistical treatment as being incomplete.

2. Instruments employed

To compile data, the following tests were collectively applied:

1. To measure intelligence and the predominant type of intelligence:
   1.1 Raven's Progressive Matrices Test, general scale SPM.
   1.2 Gardner's questionnaire on multiple intelligence.

2. To measure cognitive abilities:
   2.1 Questionnaire on metacognitive abilities, extracted from Mayor, Suengas & González (1995) and slightly modified by Hume (1999).

3. To determine the phase and level of moral development:
   3.1 Values test composed by Hume (1998). Abbreviated version including five of the original ten dilemmas.

3. Design and procedure

A descriptive design was used. Three levels for the variable of general intelligence were measured: above-average, average and below-average, forming three groups. For the variable of morality, three levels were differentiated: pre-conventional, conventional and post-conventional. The variable for total metacognitive ability was considered and divided into thirteen variables: considering on the one hand awareness and control of metacognitive components in the processes of attention, memory, thought and language, as well as their functions; and on the other, the variables of subject, context and activity. Finally the variables of verbal, logical/mathematical, spatial, musical, body-kinaesthetic, interpersonal and intrapersonal intelligence were measured, and three levels were determined: above-average, average and below-average.

The group of below-average students according to the results of Raven's Progressive Matrices Test was eliminated after its use to better define the group of average students which served as a reference group.

The following aspects were controlled for: no students repeating the course; all students had finished the second-trimester exams; both courses were together when tests were applied, and tests were given during the first classes of the day. Tests were applied over three days, one hour per day, to avoid tiring the students.

Five dilemmas were presented, selected from the ten dilemmas drawn up by Hume (1998) in which relevant moral themes are dealt with. That is, *"concerning right action, wrong action and actions that must never be taken at any cost"* (Eco, 1998). They were accompanied by a series of questions meant to lead the student to analyse the behaviour of different protagonists in dramatic situations drawn from real life (moral judgement), study their capacity to put themselves in another's place (empathy) and express what they would have done in that situation (hypothetical moral action).

The structure of the questions was constantly repeated, with the third question divided into sub-questions. To avoid monosyllabic answers, and because the idea was to gain knowledge of the criteria or position of the subject through their reasoning and feelings, the first two questions were accompanied by a second part which asked why. The first part inquires about the moral action and its possible justification; the second, for the universality of the norm or law which, given its general character required greater detail.

In order to avoid the criteria being expressed in an exclusively rational manner and to connect it with feelings and moral action, the subject was asked how he/she would behave in each person's place. The third question was intended to determine the degree of the subject's flexibility of thought, their ability to reason from each person's point of view, the possible demonstration of empathy, and consideration of the moral aspects involved in each situation. A final question was included to discover the different or complementary rules and values to the general rule in the second question, in order to observe the

capacity to explain the implicit, bringing out all values, anti-values or tacit rules that govern the situation.

These dilemmas, on a gradual scale of difficulty, were applied to 16 year old adolescents who had supposedly reached the formal operational phase, as described by Piaget. They were previously given a collective intelligence test to measure fluid intelligence, and Gardner's questionnaire to determine the seven types of intelligence: logical/mathematical, linguistic, spatial, body/kinaesthetic, musical, intrapersonal and interpersonal.

The results helped to create two groups: one comprised of subjects with above-average intelligence, the other of subjects with average intelligence, which served as a control group.

4. Application

The different tests were applied collectively. For the values test, each student was given a packet with five of the ten dilemmas and their respective questions, as well as answer sheets. The heading included a series of instructions which the examiner read aloud with the students. The examiner gave no explanation of the stories nor of the significance of the values. All students were allowed to finish, without a time limit.

For the tests of metacognitive abilities and multiple intelligence, students were asked to respond honestly, as there were no "right" or "wrong" answers; they were instead asked to express their motivations. Confidentiality was guaranteed.

For the Progressive Matrices test, each student was given a test packet with the corresponding answer sheet. They were told how to mark their answers and, as an additional motivation, that the test results would give the school's educational psychologist knowledge of their intellectual capacity for the purposes of research and educational orientation.

5. Correction

The correction of the Progressive Matrices test was the simplest, given the self-correcting system of the answer sheets used. After obtaining the direct score, the instructions found in the manual were used to calculate discrepancies, percentile and equivalent grade, which was calculated in accordance with the five-point scale of intellectual capacity found in the manual.

In regard to the values questionnaire, the questions for each dilemma were evaluated according to the following score as they met the requirements for each answer. Special knowledge was not taken into account, but rather the

thoughts and feelings of each student. It goes without saying that agreement or disagreement with the examiner's ideas was not a factor.

The questionnaire on metacognitive abilities is multiple choice with four alternatives, three of which express the presence of metacognitive ability while the fourth does not. The presence of metacognitive ability is given one point, and its lack is given zero. Correction was made bearing in mind, on the one hand, the total number of metacognitive abilities in the group of gifted students compared with the control group; on the other, comparing the results for each of the answers to see if the difference were statistically significant.

Responses to the questionnaire on multiple intelligence that we have termed "personal" were on a scale of 1 to 5, where 1 showed low preference (rarely), 2 sometimes, 3 indifference, 4 almost always, and 5 high preference or always. The template was used in correction. The results for the 171 propositions were added up, and then divided by the quotient given for each type of intelligence, multiplied by 20 to obtain a profile for each student.

RESULTS

Statistic treatment was carried out using BMDP Statistical Software. A descriptive study and analysis of mean significance for each variable were made, and the level of significance was obtained. The margin of error for the data was 5%.

Student groups classified according to intelligence			
Above average	Average	Below average	Total subjects
Group 1: 8 subjects	Group 2: 23 subjects	Group 3: 5 subjects	36

Table 1

Total of statistically analysed variables					
Means			**Typical deviations**		
Variables	Gifted	Mean	Variables	Gifted	Mean
Progressive Matrices	56.3750	50.4783	MP	1.5980	2.5561
Values	2.5000	2.5217	VP	0.5345	0.7305
Metacognitive abilities	18.2500	18.3478	HM	3.1510	3.3386
Logical/mathematica Intelligence	64.1250	68.3478	LO	9.6279	13.0336
Body/kinaesthetic Intelligence	82.2500	88.3043	KI	15.3134	19.0914
Spatial Intelligence	54.0000	58.0435	ES	6.9488	10.5936
Linguistic Intelligence	75.5000	80.8696	LI	14.4478	17.0755
Intrapersonal Intelligence	85.7500	94.2609	IN	15.6730	15.3036
Musical Intelligence	56.5000	62.2174	MU	20.8189	18.6107
Interpersonal Intelligence	98.6250	105.4348	EX	16.8348	10.3125
Awareness: Attention	0.6250	0.5652	TCA	0.5175	0.5069
Awareness: Memory	1.0000	0.6957	TCR	0.0000	0.4705
Awareness: Thought	0.7500	0.9130	TCP	0.3536	0.2881
Awareness: Language	1.0000	0.8261	TCL	0.4629	0.3876
Awareness: Functions	0.8750	0.8696	TCF	0.5345	0.3444
Control: Attention	0.7500	0.5652	CTA	0.4629	0.5069
Control: Memory	0.5000	0.6087	CTR	0.5345	0.4990
Control: Thought	0.7500	0.7391	CTP	0.4629	0.4990
Control: Language	0.8750	0.7826	CTL	0.3536	0.4217
Control: Functions	0.6250	0.6957	CTF	0.5175	0.4705
Metacognitive subject variable	2.6250	2.4783	VMS	0.7440.	0.5931
Context variable	1.6250	1.6957	VMC	0.5175	0.6350
Activity or task variable	2.7500	2.7391	VMA	0. 4629	0.4990

Table 2

Hypotheses rejected and not rejected	
Variables	P
Intelligence	0.0284
Personal values	0.3149
Total metacognitive abilities	0.5835
Awareness: Attention	0.4408
Awareness: Memory	0.7896
Awareness: Thought	0.4096
Awareness: Language	0.8573
Awareness: Functions	0.6586
Control: Attention	0.9629
Control: Memory	0.1743
Control: Thought	0.5234
Control: Language	0.0000
Control: Functions	0.0338
Metacognitive variable: subject	0.0035
Metacognitive variable: Context	0.9394
Metacognitive variable: Activity or task	0.0339
Logical/mathematical intelligence	0.5471
Body/kinaesthetic Intelligence	0.9066
Spatial Intelligence	0.2369
Linguistic Intelligence	0.5272
Intrapersonal Intelligence	0.8759
Musical Intelligence	0.9593
Interpersonal Intelligence	0.9066

Tabla 3

DISCUSSION AND PROPOSALS

These results are congruent with only some of the hypotheses posed, which were maintained and the null hypotheses rejected. There are appreciable differences between the means in both groups, favouring the gifted subjects in the variable for intelligence measured with Raven's Progressive Matrices Test, as well as the following metacognitive variables: awareness: attention, awareness: memory, awareness: thought, awareness: language, awareness: functions, with a minimum level of confidence of 95% and 99%. The finding of significant differences in the two basic components of metacognitive activity measured here, seems important. Awareness of the processes of memory, thought, and language, and the control of the processes of attention indicate the presence of indispensable abilities and strategies for learning to learn and to think.

In the rest of the metacognitive components, and the metacognitive variables for subject, context and task or activity, as well as in the multiple intelligences, no statistically significant differences were found between the mean scores of the gifted group and the control group; therefore, contrary to expectations, the null hypothesis was not rejected.

Doubts remain in this respect, however, because the data were obtained via self-reports, in which the subject utilised the introspective method to access internal information; being private, there was no way to check if the student lied and therefore did not possess a given cognitive ability, or if the answer was

something s/he does not habitually do, but did for the first time upon taking the test. We agree with Mayor, Suengas & González (1995) in that the majority of persons, laity or experts, are unaware of how they do things because their choices are automatic.

With respect to values, at this age gifted and average students do not show significant differences, as both groups are in the pre-conventional moral phase, halfway to the conventional phase. On such slippery ground we dare not affirm anything, due to the fact that we were unable to truly verify the phase of development reached by the students, given such inconveniences as the paucity of answers given to the dilemmas posed, as well as the incompleteness of the questionnaires turned in.

Our expectation of finding significant differences in favour of the gifted subjects in any of the seven types of intelligence defined by Gardner also failed, particularly in intrapersonal and interpersonal intelligence.

We verified the difficulty of making a scientific study of morality and the students' personal intelligence; therefore we consider qualitative and field studies to be best in this area to observe the manifestations or moral actions and expression of intrapersonal and interpersonal intelligence in the daily life of gifted students within the context determined during the life cycle.

In spite of the lack confirmation of the original hypothesis regarding the relationship between gifted subjects and advanced phases of moral development which translates into successful and ethical behaviours, we do not despair of finding congruent data in another sample of gifted students via longitudinal studies of older students than those in this sample.

As the data for the gifted students have been filed in the Department of Orientation of the secondary school, the educational psychologist may continue the study of this small sample in coming years; there is evidence that in later vital stages some persons experience a strong moral development, while others regress to inferior moral phases. Some may evolve and become more integrated than others, but all people throughout their lives must assume responsibilities, commitments, successes and failures, joy and sorrow.

The sample studied was quite small and not at all representative; therefore the results cannot be extended or generalised for all gifted Spanish adolescents.

We do not wish to end the present paper without making a series of proposals for further research:

1. The perfecting of instruments to measure such intangible variables as affectivity and values.
2. The design and profile of instruments comprehensible for secondary students, to measure other metacognitive components such as autopoiesis.
3. The stimulation of the development of metacognitive abilities which gifted students have not been shown to manage well at this age.

4. The creation of different strategies to detect different types of intelligence in the classroom.
5. The study of the possible added effect caused by self-aware and self-controlled work, not only in the area of cognition, but also in the parallel field of affectivity in gifted and average students

Finally, we wish to add that, in our estimation, the psychometric path must not be used alone, but rather as one of the possible means of access to the study of important aspects of the human being; otherwise we find it to be limited and inadequate in every way. We believe that qualitative and field studies will provide the most information in this area.

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EXPANDING THE CONCEPTION OF GIFTEDNESS
TO NURTURE LEADERS FOR A GLOBAL COMMUNITY

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INTRODUCTION

The history and culture of mankind can be charted to a large extent by the creative contributions of the world's most gifted and talented men and women. Advocates for special services for the gifted regularly offer up the names of persons such as Mother Theresa, Thomas Edison, Isodora Duncan, Nelson Mandela, and Albert Einstein as a rationale for providing supplementary resources to improve the educational experience of potentially gifted young people. If we assume that it has, indeed, been these people who have created the science, culture, and wisdom of centuries past, then it is also safe to assume that persons who are the stewards and nurturers of today's potentially able young people can have a profound affect on shaping the values and directions toward which young gifted students devote their energies. Such stewardship is an awesome responsibility, and yet it has some intriguing overtones, because the names of persons who will be added to the lists of Edisons and Einsteins are in our homes and classrooms today.

One of the more fortunate new directions in the social sciences in recent years has been the development of the positive psychology movement. Championed by Martin E. P. Seligman, this movement focuses on enhancing what is good in life rather than fixing what is maladaptive behavior. The goal of positive psychology is to create a science of human strengths that will help us to understand and learn how to foster socially constructive virtues in young people. Although all of society's institutions need to be involved in helping to shape positive values and virtues, schools play an especially important part today because of changes in family structures and because people of all ages now spend more than a fifth of their lives in some kind of schooling. In a research study dealing with developing excellence in young people, Larson (2000) speculates that participation in civic and socially engaging activities might hold the key to overcoming some of the disengagement and disaffection that is rampant among segments of our youth population. Larson argues that components of positive development such as initiative, creativity, leadership, altruism, and civic engagement can result from early and continuous opportunities to participate in experiences that promote characteristics associated with the production of social capital.

WHAT IS SOCIAL CAPITAL AND HOW DOES IT RELATE TO GIFTEDNESS?

While what it represents is not new, the term "social capital" is relatively new. This capital, as with other types of capital such as economic and intellectual, refers to a region's gross resources. Labonte (1999) defines social capital as "something going on 'out there' in people's day-to-day relationships that is an important determinant to the quality of their lives, if not society's healthy functioning. It is the 'gluey stuff' that binds individuals to groups, groups to organizations, citizens to societies" (p. 431). This capital, then, relates to such notions as community interaction and involvement and is characterized in part by a citizenry whose actions follow a sense of civic duty and participation. Some countries of the world already have in place an index of gross national happiness, an interesting type of "commodity" that is gaining supportive attention among indicators of a country's success and quality of life. This notion of gross national happiness pertains to social capital through evidence that happiness and constructive social interaction are intimately related (Myers, 2000; Putnam, 1995).

Striking evidence indicates a marked decline in American social capital over the latter half of the last century. National surveys show declines over the last few decades in everything from voter turnout and political participation to membership in clubs, associations, and civic groups (Putnam, 1995). Putnam highlights a disturbing correlation between these declines in civic engagement and individual health, happiness, and contentment. In light of these correlations, we are reminded that our very health and happiness depend in part on our ability to perceive value in social capital and to live and act commensurate with such perceptions.

It seems logical that, given these trends and their implications, we have both the privilege and the responsibility to nurture behaviors and mindsets in all young people that will contribute to the development of social capital. This is particularly true for our gifted students for two reasons. First, if we can agree that tomorrow's leaders are the gifted young people in our classrooms today, then it would be in society's best interest to nurture socially constructive goals and attitudes within those potential leaders. Second, if we can agree that our gifted young people often carry with them others' generalized high expectations for performance and achievement (strictly for the sake of high performance and achievement if not monetary reward), then we as educators have the opportunity to introduce and explore with these young people socially constructive (and therefore inherently valuable) focal points or outlets for their gifts. Research supports that students who have clear and constructive goals (coupled with interest or curiosity – often taken together as intrinsic motivation) reflect increased achievement motivation, volition, and task commitment (Alderman, 1999; Csikszentmihalyi, 1990; Torrance, 1995). This is not to say that there is a simple solution to getting students engaged in meaningful, valuable work. In fact, it is far from simple. And the results cited above ultimately serve to pose additional questions, despite their encouraging nature.

WHAT MAKES ALL THE DIFFERENCE?

What causes some people to use their intellectual, motivational, and creative assets in ways that lead to outstanding manifestations of creative productivity, while others with similar or perhaps even more considerable assets fail to achieve high levels of accomplishment? And, perhaps even more important, what causes some people to mobilize their interpersonal, political, ethical, and moral realms of being in such ways that they place human concerns and the common good above materialism, ego enhancement, and self-indulgence? How can we understand the science of human strength that brings about the remarkable contributions of people such as Eleanor Roosevelt, Booker T. Washington, and others who have focused their talents on bringing about changes that improve others' lives?

The folk wisdom, research literature, and biographical and anecdotal accounts about creativity and giftedness are nothing short of mind boggling; and yet, we are still unable to answer fundamental questions about why certain gifted persons are inclined to devote their lives to improving the human condition. What is it that distinguishes such people from other gifted persons? What is it that makes a gifted or talented person eminent or so memorable that their names are being respectfully invoked decades or centuries later? Several writers (Tannenbaum, 1986; Mönks, 1985; Sternberg & Davidson, 1986; Renzulli, 1978, 1986) have speculated about the necessary traits and behaviors for creative productivity. These theories have called attention to important components and conditions for high level accomplishment, but they fail to explain how the confluence of desirable traits give rise to commitments for making the lives of all people more rewarding, environmentally safe, peaceful, or politically free. Attention to positive human concerns is especially important because it may help give direction to the educational experiences we might be able to provide to the gifted and talented young people who will shape both the values and the actions of the new century.

That certain ingredients are necessary for creative productivity is not debatable; however, the specific traits, the extent to which they exist, and the ways they interact with one another will continue to be the basis for future theorizing, research, and controversy. We need to learn more about all aspects of trait theory, but we also believe that new research must begin to focus on that elusive "thing" that is left over when everything explainable has been explained. This "thing" is the true mystery of our common interest in human potential, but it also might hold the key to both explaining and nurturing that kind of genius that has been applied to the betterment of mankind.

OPERATION HOUNDSTOOTH: ESTABLISHING A FRAMEWORK

In 1978 the first article was published on the Three-Ring Conception of Giftedness (Renzulli). This model broadened the conception of giftedness and helped raise several questions about the nature of giftedness, its development, and its value. Essentially, the Three-Ring Model suggested that giftedness arises from the interplay of three components – creativity, task commitment, and above-average ability. These three components were embedded in a hounds tooth background, whose interlocking graphic

represented intricately connected personality and environmental factors –including intuition, character, socioeconomic status, and zeitgeist, for example – that influence giftedness and gifted behaviors (Renzulli, 1986). It is from this hounds tooth background that Operation Houndstooth evolved.

Motivated by the zeitgeist of the new millennium, work began to further expand the Three-Ring conception of giftedness by elucidating the personality and environmental factors represented within the original hounds tooth background pattern. Six factors have emerged – Courage, Romance with a Topic or Discipline, Sensitivity to Human Concerns, Mental and/or Physical Energy, Vision and a Sense of Destiny – as a result of extensive literature reviews and synthesis of research from myriad domains. Figure 1 depicts the proposed factors, and the arrows connecting the factors highlight interconnections. The conceptual organization we are sharing remains malleable; new exploration, ongoing literature reviews, and original research into the meaning and connections among these factors may lead to modifications in our current conceptualization. Concepts as complex as these require information from many domains. Therefore, our literature reviews have drawn from research in clinical psychology, medicine, education, and behavior psychology as well as from fields as diverse as biological evolution, philosophy, spirituality, economics, and sociology. The following section presents summaries of the literature reviews on each co-cognitive factor.

Summaries of The Co-Cognitive Factors

Optimism.

Although difficult to define with absolute parameters, Peterson (2000) describes optimism as complex, resulting in an amoeba-like, "velcro" concept to which everything seems to stick for reasons that are not entirely obvious. He encourages conceptualizing optimism as a cognitive characteristic with strong emotional and motivational overtones. Culture appears pivotal in that social values influence individuals, and individual differences in the measurement of optimism are prominent within social science research.

Researchers have investigated the effects of optimism in a variety of contexts ranging from medicine and psychotherapy to the home, the office, and the classroom (Aspinwall & Richter, 1999; Chang, 2001; Fredrickson, 2000; George & Scheft, 1998; Peterson, 2000; Scheier & Carver, 1985; Seligman, 1991; Stipek, Lamb, & Zigler, 1981; Tiger, 1979). The best current understanding of optimism is that it is a mood or attitude associated with an expectation about a future that one regards as socially desirable – either to the individual's advantage or for the individual's pleasure (Tiger, 1979).

Optimism appears to have evolutionary benefits (Tiger, 1979) and is susceptible to alteration. It is something we all have to a certain degree; it is a personal, dispositional trait that appears to mediate between external events and individual interpretation of those events (Seligman & Csikszentmihalyi, 2000). Yet, work by Seligman and his colleagues (1991, 1995) has illustrated those optimistic behaviors or mindsets can be modified (learned) through reflective self-awareness and intervention strategies. Aspinwall and Brunhart (in press) note that while optimism may be based on one's sense of competence or learned ways of coping, it may also be rooted in a variety of beliefs in powers that transcend the individual, such as spiritual or religious beliefs.

Courage.

Courage has been described in various contexts: physical courage, facing physical danger; psychological courage, facing one's own irrational fear; and moral courage, maintaining moral integrity while overcoming the fear of being rejected (Putman, 1997). Moral courage correlates with empathy, altruism, and sensitivity to human concerns, which combines these concepts into action – through heartfelt feeling for another's plight, one will act courageously for the benefit of others, even in the face of societal disapproval.

Courage has also been discussed in connection with the emergence of creativity, so much so that MacKinnon (1978) recognized it as the most significant characteristic of a creative person. Berman (1997) agrees with MacKinnon, pointing out that the job of teachers is not so much to teach traits such as courage, but rather to model them. Berman's work, dealing with the development of prosocial behaviors inherent in the growth of moral courage, reflects a body of literature documenting the early, natural ability of children to feel empathic towards others (Gove & Keating, 1979; Zahn-Waxler & Radke-Yarrow, 1982).

Psychological courage is required for individuating from parents and developing healthy relationships that do not interfere with independent functioning. A strong basis of psychological courage is necessary for making good decisions -- decisions that establish positive conditions for the productive functioning of the individual rather than decisions based in denial of problems or for instant gratification (Putman, 2000). Education for moral and physical courage is more common in our culture than training in psychological courage. The growth of psychological courage lies more deeply in an understanding of positive human development, and is fundamental to the development of the other kinds of courage (Putman, 1997).

Romance With a Topic or Discipline.

The concept of romance with a topic can be explored through the notions of passion, peak experience, or flow, and relates to physical and mental energy in that intrinsic motivation exists with topics having appeal or arising from personal interest (Ryan & Deci, 2000). When all of these elements are present, the original meaning of the word passion becomes relevant. The Latin root of the word is *pati,* meaning to suffer. One is willing to suffer for that which one loves. The concept of suffering also implies the connection with effort, exertion, and intense action (Kaufman, 2000).

Flow, as described by Csikszentmihalyi (1990), occurs when one becomes thoroughly engaged in an activity which balances ability and challenge. The resulting experience is one of total absorption and self- actualization. Maslow (1954) places self-actualization as the highest among his hierarchy of basic needs. Human beings are motivated to reach the highest level of self-actualization finding a nearly spiritual satisfaction in activity.

In the study of creative and eminent adults, the love of a topic has usually begun at an early age and blossomed under nurturing circumstances. Talent, personality and ability are often not enough to succeed without the ingredient of the labor of love

(Amabile, 1983). Popular wisdom encourages counselors of young people to advise them to do what they love, yet we may need to go beyond this traditional advice. Without emphasis also on the difficulty and sometimes pain of achievement, and an acknowledgement of the darker emotions of fear, anxiety, disillusionment and rage that are part of real passions along with strategies to cope with this part of the passionate experience, the concept of romance with a topic becomes only a romantic fantasy (Kaufman, 2000).

Sensitivity to Human Concerns.

Sensitivity to human concerns deals with the concept of moral courage and its correlates, empathy and altruism. The roots of these words give a universal basis for their definition: empathy (Greek, *pathos* – feeling), altruism (Latin*, alter* – other).

Instruments to measure empathy have been developed (Chlopan, McCain, Carbonell & Hagen, 1985; Feshback, & Hoffman, 1978). A meta-analysis of studies in the relationship between empathy and prosocial behavior reveals inconsistencies, but generally finds the strength of the association to increase with age. These inconsistencies may result from assessment methods (Underwood & Moore, 1982). Implications lead to questions such as can these traits be influenced by environment, and can they be taught? Danish and Kagan (1971) found significant changes on the Scale of Affective Sensitivity in a control group after an intensive counseling intervention.

Other researchers have found a relationship between empathic or altruistic tendencies and helping behaviors (Mehrabian & Epstein, 1972; Eisenberg-Berg, 1979; Eisenberg & Miller, 1987; Reis, 1995). This appears particularly important in our current climate as a number of studies have pointed to a decrease in knowledge and caring about social concerns among young people (Fowler, 1990; Hart, 1989). Research suggests that the environment can influence the nurturing of these traits, (Battistich, Watson, Solomon, Schaps & Solomon, 1991; Berman, 1997; Danish & Kagan, 1971; Zahn-Waxler & Radke-Yarrow, 1982) and the indications are that as a society, this must become an imperative.

Physical and/or Mental Energy.

Physical and mental energy are more difficult to define, and are best understood in the context of several related factors discussed in the research literature. The nature of charisma, defined often as nonverbal emotional expressiveness and the ability to inspire followers with admiration (Lindholm, 1990), implies a high level of physical and mental energy.

The importance of this energy level to creative production has been identified and described by several different theorists. John-Steiner (1997) states: "Creativity requires a continuity of concern, an intense awareness of one's active inner life combined with sensitivity to the external world . . . intensity is then the one universal given in this account of creative thinking" (p. 219). Dabrowski (1977) identifies five specific areas of sensitivity that are described as over excitabilities. Some children exhibit intense energy levels in one or more of these five areas: psychomotor, intellectual, emotional, imaginational, and sensual. These traits can be challenging for adults dealing with young people, but such

traits when guided and nurtured, can lead to successful accomplishments, and when ignored can often lead to pathology.

The power of a charismatic leader is absolute and can be used for positive or negative ends. Examples are seen in Martin Luther King, and John F. Kennedy on one end of the spectrum, and Adolph Hitler and Charles Manson on the other. Instruments have been developed to measure charismatic tendencies based on self- report (Friedman, 1980), yet much work needs to be done not only in measuring and developing charismatic traits, but in developing moral courage and sensitivity to human concerns so that these abilities can be used for societal good and advancement rather than for personal power and even crimes against humanity.

Curiosity or inquisitiveness can be yet another component of physical and mental energy, fueling one's desire for learning even when the application of knowledge is not readily apparent. This suggests an investigation of self-determination theory and the concept of intrinsic motivation (Ryan & Deci, 2000). Findings show that these are related to three psychological needs: competence, autonomy, and relatedness. Finally, the first of the seven da Vincian principles representative of that energetic icon is "curiosita" – an insatiably curious approach to life and an unrelenting quest for continuous learning (Gelb, 1998).

Vision and a Sense of Destiny.

Vision/Sense of Destiny is the least researched Houndstooth factor, and yet we know from the history of civilization that persons with vision and a sense of destiny have truly made the modern world. Although there is a paucity of literature directly associated with destiny, the life histories of individuals eminent in their respective fields strongly suggest that vision and destiny are integral to the development of extraordinarily high levels of performance and success. Individuals possessing a sense of vision or destiny are apparent not only in retrospect but during early development (Silverman, Roeper, & Smith, 2000).

Possible components of this factor seem to be emerging from a few well-researched areas of psychology and education. These include achievement motivation, competence motivation, locus of control, intrinsic motivation, self-determination theory, and self-regulation theory (Ambrose, 2000; Rea, 2000; Rotter, 1966; Ryan & Deci, 2000; Schwartz, 2000; Wicker, Lambert, Richardson, & Kahler, 1984; Williams, 1998; Wong & Csikszentmihalyi, 1991). Almost all the research on gifted contributors points out that eminent individuals possess an urge not to settle, conform, or become complacent. This research consistently recognizes the task commitment of these individuals for continuing their efforts, sometimes under the most adverse circumstances. In research about gifted women Reis (1995, 1998) found that a sense of destiny characterized those who achieved eminence.

THE DEVELOPMENT OF SOCIALLY CONSTRUCTIVE GIFTEDNESS

The major hypothesis pertaining to this work is that the factors presented in Figure 1 and summarized above are potentially critical to the development of gifts or eminence, the nurturing of future leaders who will focus on improving the human condition, the increase of social capital, and the future success of our global community. Those gifted adults – creative producers – with thinking and behavior commensurate with these Houndstooth factors will be our most treasured leaders, with *human* interests transcending purely *selfish* interests. Literature reviews suggest that these factors must interact with cognitive development, establishing a link between high levels of cognition and potentially high levels of the Houndstooth factors. As a result of this interaction, we will operationally define these Houndstooth factors as *co-cognitive*; the term co-cognitive highlights the connections between intellectual development and the development of these factors. Furthermore, it makes logical sense to include these factors in a conception of giftedness given that research supports their interdependence with cognitive and creative development.[1]

EXPLORATORY RESEARCH: THE SEMANTIC DIFFERENTIAL

Researchers and philosophers alike have struggled to make clear the definitions of such concepts as optimism, courage, and a sense of destiny for centuries. Despite our facility for using such words in daily conversation, clear and definitive descriptions of these concepts remain elusive. Culture and personal experience mediate the meaning of these concepts, making clarification more difficult. Social issues descriptive of this point in history have primed the public and research communities for renewing their interest in values and the effect of environment on human development.

Semantic differentials (Osgood, Suci, & Tannenbaum, 1957) were designed for each co-cognitive factor for purposes of exploring people's perceptions or understanding of these factors. Use of the semantic differential has historically been somewhat controversial with respect to its effectiveness, but it has been a useful tool in the early stages of this research as we attempt to measure the meaning of the co-cognitive factors. It is our goal to use the semantic differential data in combination with research literature to refine the organization and conceptual structure of the co-cognitive factors. That is, the data from these analyses will shed light upon the distinctions between the factors and the relationships among them. The semantic differential will *not* provide a definition for the factors but will extend our understanding of how people – within and across cultures – perceive these factors. This is an essential first step upon which subsequent research studies will be based.

Principal components analyses were run on semantic differential data for each co-cognitive factor. Results are presented in Table 1. Initial findings suggest a similar component structure across co-cognitive factors. Reliabilities range from .52 to .74 (with

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[1] "Co-cognitive" has been operationally defined by other researchers in psychology as either the cooperative development of intellect or thinking about others' thoughts (Costa & O'Leary, 1992; Heal, 1998).

the exception of .3 for *Comfort* in Physical/Mental Energy) and are defensibly adequate given the complex nature of the concepts represented by the co-cognitive factors, the challenges inherent in semantic differential research, and the low number of stems per component. Additional analyses – discriminant function analysis and one-way manova – will clarify the relationships among the factors. Adjustments will be made to the factor organization if necessary, and quantitative research will proceed to the next stage – scaling adults and young people on instruments designed to further examine the significance of the co-cognitive factors in the development of socially constructive giftedness.

CONCLUSION

We will continue to delve into "those things left over after everything explainable has been explained" as a potential wellspring of insight into the development of giftedness as well as the development of a global citizenry attuned to the importance of positive human concerns. As stated at the onset, tomorrow's Rachel Carsons, YoYo Mas, and Maya Angelous *are* in our classrooms today. If we wish to optimize the impact of such individuals' lives upon the greater society, it is imperative that educators understand the psychology of positive human concerns and the potential such concerns have for maximizing our collective as well as individual futures.

Long ago, Plato said that what a country honors determines what is cultivated (Gardner, 1999). A disparity may exist between what we say we honor and what we hope to cultivate. When we place the greater good and socially constructive pursuits in a place of honor, we may cultivate the requisite thinking skills, attitudes, and mindsets that will perpetuate these honorable notions. And if as a society we cannot first garner the support for the changes we collectively honor, then perhaps we can work Plato's statement in reverse. We can cultivate those values in young people, and trust them to bring those values to places of honor.

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Table 1: **Summary of Principal Components Analysis and á-Reliabilities of Semantic Differentials on Six Co-Cognitive Factors**

Co-Cognitive Factor(s) Explained	N	Components	á-Reliability	Total Variance
All six analyzed together	448	Attitude	.74	
		Measurement	.59	
		Value	.72	
		Maintenance	.54	
				64.4%
Optimism	150	Attitude	.71	
		Value	.59	
		Measurement	.54	
				56.9%
Courage	59	Attitude	.74	
		Measurement	.59	
		Value	.72	
		Stability	.54	
				66.0%
Romance with a Topic/Discipline	61	Value	.72	
		Measurement	.52	
		Attitude	.71 *(negative loadings)*	
				65.7%

(Table 1 continued…)

Co-Cognitive Factor(s)	N	Components	á-Reliability	Total Variance Explained
Sensitivity to Human Concerns	56	Stability	.54	
		Attitude	.74	
		Value	.72	
		Measurement	.59	
				72.6%
Mental/Physical Energy	60	Attitude	.71	
		Measurement	.52	
		Value	.72	
		Comfort	.30	
				74.3%
Vision/Sense of Destiny	66	Attitude	.74	
		Measurement	.56	
		Value	.72	
				67.9%

Figure 1

OPERATIÓN   HOUNDSTOOTH
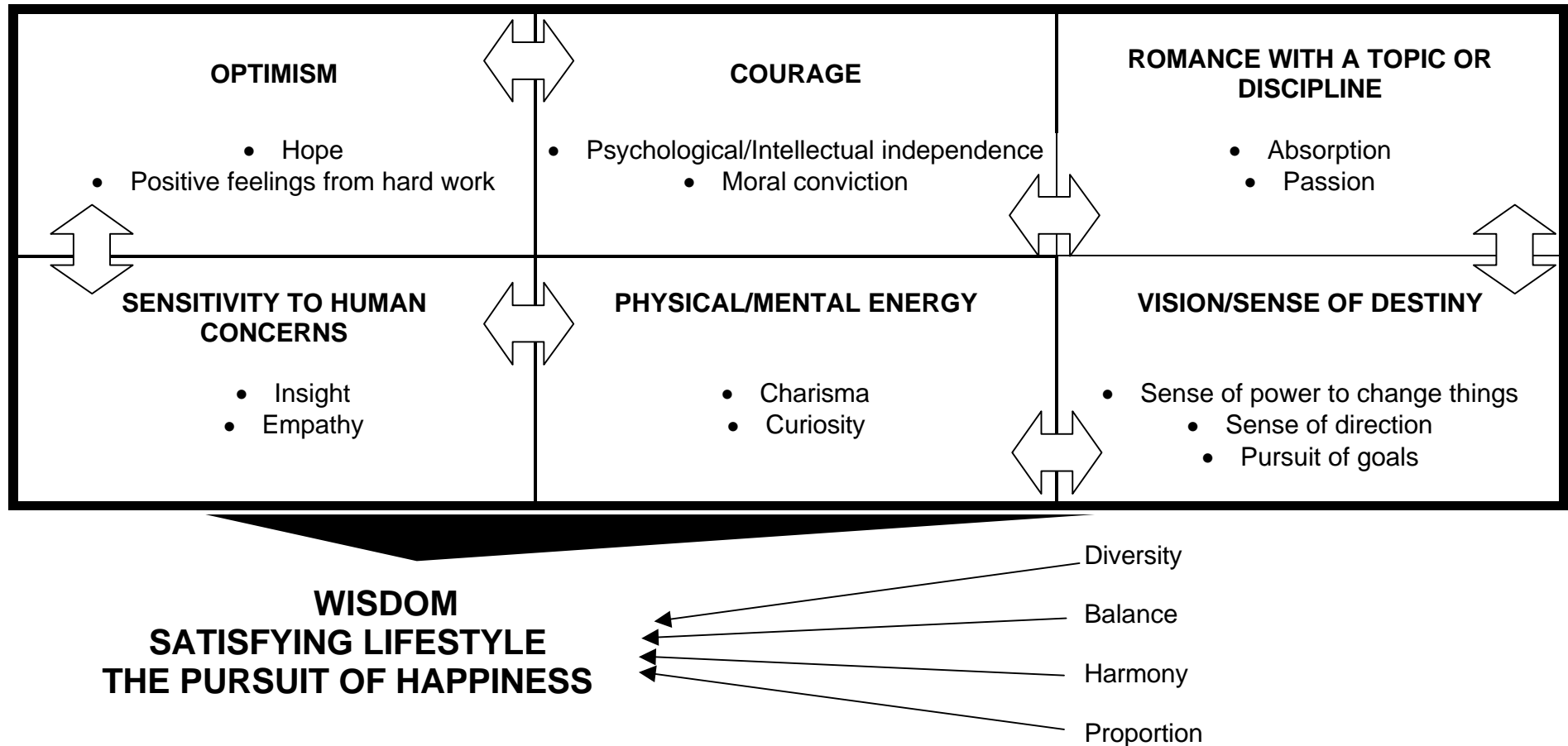
OPTIMISM • Hope • Positive feelings from hard work	**COURAGE** • Psychological/Intellectual independence • Moral conviction	**ROMANCE WITH A TOPIC OR DISCIPLINE** • Absorption • Passion
SENSITIVITY TO HUMAN CONCERNS • Insight • Empathy	**PHYSICAL/MENTAL ENERGY** • Charisma • Curiosity	**VISION/SENSE OF DESTINY** • Sense of power to change things • Sense of direction • Pursuit of goals

**WISDOM
SATISFYING LIFESTYLE
THE PURSUIT OF HAPPINESS**

Diversity

Balance

Harmony

Proportion

The World of Information: Opportunities and Challenges for the gifted and talented

GIFTEDNESS AND ASSOCIATED DISORDERS: GILLES TOURETTE SYNDROME

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ABSTRACT

Despite the abundant literature available concerning the education of gifted children, information dealing with gifted children suffering from associated disorders is less commonplace. This article deals with two cases of highly intelligent children suffering from Tourette's syndrome, the second of whom was intellectually gifted.

This work is the result of training, research and experience and every effort has been made in the descriptions of the cases discussed in this chapter to include all the available information that may prove necessary to make a diagnosis. In both cases only the most relevant results will be discussed to illustrate the cases dealt with. The chapter ends with the implications both in terms of education as well as treatment for these children and more specifically with the treatment applied in the case of the intellectually gifted child.

Key words: The case of Mozart, intellectual giftedness, associated disorders, Gilles Tourette's syndrome (TS) case analyses and educational implications.

INTRODUCTION

The case of Mozart

In May 1997's issue of Neurologic Clinics of North America, devoted entirely to Tourette's syndrome (TS), mention is made of significant historical figures such as doctor Samuel Johnson, Napoleon and Mozart who suffered from neurological disorders characterised by the presence of involuntary movements.

A thorough review of letters written by Mozart to family and friends carried out by doctor Benjamin Simkin has led to the belief that the musician suffered from Gilles de la Tourette's syndrome.

In his article 'Mozart's scatological disorder' published in the British Medical Journal in 1992, Simkin points out that 39 of the 371 letters written by Mozart reflect scatological references. Many of these letters are peculiar due to their obvious plays on words, repetition of words overheard or words written by others (echolalia) and the repetition of his own words (palilalia).

Evidence of tics emerges from the material available in his early biographies, in one of which Schlichtegroll writes of Mozart: *"his body was constantly rocking to and fro; he was always playing with his hands, and tapping his foot"*.

One direct testimony was given by the person who was in daily contact with him, his sister-in-law, Sophie Haibel, who offers the following description of him: *"Even when he was washing his hands in the morning, he would walk around the room..., he could never keep still..., often making strange grimaces with his mouth..., he would always be playing with something, with his hat, his pockets, with the table or the chairs, as if they were a keyboard".*

Joseph Lange, the famous actor, in his memoirs recalls: *"On many occasions Mozart would not only speak confusedly but would often make the most unexpected gestures and he deliberately neglected his behaviour. There was a gulf between his divinely inspirational musical ideas and his sudden outbursts of vulgar trivialities".*

According to Simkin, the evidence accumulated in his article supports the idea that the great composer had all the general hallmarks of TS. Yet, he maintains that in the case of Mozart and many others, the main interest lies in establishing the link between genius and such disorders (Menéndez, 2000).

THEORETICAL FRAMEWORK

Gilles de la Tourette's syndrome is a complex neuropsychiatric disorder of unknown aetiology characterised by motor alterations and vocal tics accompanied by a range of behaviour disorders such as obsessive-compulsive disorder (OCD), attention deficit and hyperactivity disorder (ADHD), anxiety, depression and self-injury (Müller-Vahl, Kolbe, Schneider & others, 1998).

In 1825 the first case of TS outlined in medical literature appeared with the description of the Marquise de Dampierre, a noblewoman, whose symptoms included involuntary movements in many parts of her body together with frequent exclamations including coprolalia and echolalia. She lived to be 86 and her case was described by Dr. George M. Gilles de la Tourette, the French neurologist who was to give his name to the disorder.

The Marquise de Dampierre: *"...at the age of seven was afflicted by convulsive movements in hands and arms... She felt that she was suffering from overexcitement and mischievous behaviour, and she was the object of reprimands and punishment. However, it was soon realised that these movements were indeed involuntary... they involved shoulders, neck and face, and led to contortions and extraordinary grimacing".*

As already pointed out, TS is a neurological disorder characterised by recurring involuntary movements. Symptoms include:

1. Multiple motor tics together with one or more vocal tics at some point during the illness although not necessarily concurrently.
2. The occurrence of tics many times a day (normally in bouts), almost every day or intermittently over the course of a year.
3. Periodic changes in the number, frequency, type, location, and intensity of tics. Symptoms may disappear for a period of several months.
4. Onset of the illness occurs before age 21.

In addition:

- Onset is usually in early childhood.
- It is hereditary.
- It is neurological and not psychological.
- More males than females are affected.
- It does not gradually worsen.

The most common initial symptom is a facial tic such as rapid blinking or grimacing. However, involuntary sounds such as throat clearing and sniffing, or tics in arms and legs might indicate onset. In certain patients, disorders appear suddenly with concurrent involuntary movements and sounds.

The two kinds of Tourette syndrome tics and some common examples are:

Simple:

- Motor: continual blinking, head turning, shoulder jerking and facial grimacing.
- Vocal: throat clearing, barking type noises, sniffing, tongue clicking.

Complex:

- Motor: jumping, touching other things or people, sniffing things, gyrating, and occasionally, although rarely, self-injury, such as hitting or biting oneself.
- Vocal: the use of words or phrases out of context, and coprolalia (obscene or socially unacceptable language used in public).

Other symptoms include: palilalia, echolalia, nail biting, coughing, whistling, humming, stuttering, sudden prosodic changes or variations in pace and volume of speech.

The range of tics or symptoms similar to those found in TS is extremely wide. The complexity of some symptoms often confuses family members, friends, teachers and employers, who may experience difficulty in believing the actions or words to be involuntary.

Obscene language, often the most widely known and dramatic aspect of the illness, is frequently perceived to be the most distressing and dramatic expression of TS, hence the medical term *coprolalia* (Latin via Greek: lips of dung). When TS drew the attention of the media in the past it was mainly due to this more sensationalist aspect of the disorder. Such striking headlines as 'Bloody illness' or 'The swearer's syndrome' were used. Sadly this is all too often the only side of illness that is known (and is the subject of mockery).

Tics can appear at any time of the day, without any apparent link to anything else. After months or years of frustration trying to 'get rid of them', they can unexpectedly disappear only to be replaced by others.

Tics are akin to an irresistible urge, such as sneezing or scratching a mosquito bite, an urge that the patient has to give in to. TS sufferers often have to find a place to discharge the symptoms after these have been building up at school or at work. Tics usually worsen as a result of anxiety or stress and can improve when the patient is relaxed or focused on some absorbing activity.

Some patients may either consciously or unconsciously control their tics for seconds, minutes, or even hours. Yet, the longer these are controlled, the greater is the internal anxiety and agitation that sooner or later leads to a reoccurrence" (Tourette Syndrome Association, TSA, 1997).

Onset of Tourette's syndrome may occur as early as at the age of around two. The average age of onset is seven. Incidence of TS is approximately 4-5 individuals/10 000 (DSM-IV). Lack of treatment usually leads to chronic illness, with sporadic improvements although many patients experience total recovery or significant improvement in late adolescence or around the age of twenty. Treatment is usually pharmacological and psychological. Psycho-motor therapy or relaxation and behaviour therapy may prove sufficient to deal with the psychological problem.

I consider it important to distinguish this disorder from other *dyskinetic syndromes* such as *transitory infancy tics,* which are extremely common. These are disorders that show the general symptoms of tics, but which do not persist beyond 12 months. 10-25 % of children of school age in the countries in our environment are believed to suffer from tics at some point. These are more common in males than in females and in general involve blinking, grimacing or neck jerking. Greatest incidence occurs around ages seven to eight, but may appear as early as from two to five, before disappearing at age fifteen to seventeen.

Onset of *motor or vocal tics* generally occurs during adolescence and can last for over a year or even a whole lifetime. They may be multiple although this is rare, and are usually limited to three or four. They may at times be vocal and at others motor (but not concurrent), simple, or more frequently, complex. Remissions are common as are variations from one period to another.

According to Kulisevsky and Grau-Vaciana, *Gilles de la Tourette's syndrome*, by contrast to others, is a movement disorder lasting over one year in which multiple as well as one or more vocal tics are present or have been detected. These need not have occurred concurrently for correct diagnosis to be made. Tics are often accompanied by other symptoms such as obsessive-compulsive disorder, hyperactivity, echolalia, palilalia, coprolalia or self-injury.

TS needs to be treated at an early age as in certain cases it can lead to ridicule and social rejection from neighbours, teachers and even from certain observers. Parents may feel overwhelmed by the strangeness of their child's behaviour, who may in turn feel threatened, excluded from family activities and thus unable to enjoy normal personal relationships. These difficulties may be accentuated in adolescence, in itself a kind of test for teenagers, and even more so for those suffering from a neurological disorder. Early diagnosis and treatment is thus crucial to avoid psychological damage.

Children suffering from TS are considered to have special educational needs, and many might indeed have learning difficulties. This condition, together with possible attention deficit combined with the problems arising from the continual tics, leads to the need for special educational support (Tourette Syndrome Association, 1997).

CASE STUDIES

I will now deal with two cases of children with this disorder. The first is the case of a highly intelligent child, although he was not diagnosed as gifted, and the second is the case of a gifted child.

First illustrative case:

Luis was seen by a specialist at the age of nine years and ten months old for dermatological reasons, evidencing trichotillomania (pulling his hair out). Luis's parents were concerned about the tics the child had been suffering from age three. When he as at the doctor's, Luis made sounds of varying intensity, jerked his neck, pulled some of his hair out... Tics occurred in all kinds of situations: playing, studying, and watching television... Luis's tics were annoying and created a tense atmosphere.

Just after birth the child displayed severe disorders: neonatal sepsis. He was transferred from the General Hospital in Palencia to the Neonatology Service of La Paz Hospital in Madrid. He was in hospital for 19 days and at age one month a hyperproteinorraquia was performed on him, which yielded the following data amongst other: "subsequent course: he is somewhat nervous, hyperkinetic but he sleeps well. Symmetric motility. He is aware of his surroundings, listens, vocalises, gurgles and smiles".

No natural weaning. According to his parents when he left hospital he would not keep still, was extremely nervous and was continually moving.

The child showed only a mild reaction to pain: "he didn't cry after falling over". His reaction to noise was intense: "he was agitated by noise".

He has always been a very lively child, observant and with a good memory: "at age two he began to recognise letters, could do twenty piece jigsaw puzzles, and by age three he could count to ten". Attention capacity was considered normal.

At age four he could read a book with ease. Since he learnt to read he has shown rapid reading skills and a normal interest in reading.

His parents describe him as not very tolerant to frustration: *"he cries and gets angry when things don't work out"*. He is rarely a perfectionist: *"he does things but does not pay too much attention to how they look"*. He is sensible, loving and very affectionate.

In addition to his parents, Luis has a younger sister, María, who is seven and with whom he generally gets on well.

His parents are coherent in their attitude towards his education, and Luis has a close and loving relationship with them.

Both his parents are well qualified and both work. His mother is a secondary school teacher and his father a chemist.

There is a lack of adaptation towards family behaviour in the opinion of the parents. He is clever and he knows it, and deliberately enrages those around him. He answers back, loses his temper easily, his feelings are easily hurt, and he is garrulous. He is excitable, impulsive, breaks things, is always asking things and is a demanding child. This type of behaviour is only apparent in his family circle. According to his parents, he even makes his patient grandmother lose her temper (he was her first grandchild).

Luis becomes nervous when faced with any situation: *"going to Eurodisney, coming here, watching a football match..."*.

His parents have often observed a lack of adaptation in his behaviour. Since the age of three he has been prone to pulling his hair out, and every day

a lock of hair can be found in his bed. He is currently undergoing dermatological treatment for trichotillomania. At age five he began to bite pencils, erasers and crayons in school and in fact still does so. However, over the last two years he has started to bite his forearms to such an extent that on occasions he has caused bleeding.

He has also suffered from vocal tics, such as normal speech suddenly being followed by an increase in tone. He sniffs everything, suffers from compulsive eating, does not chew his food but rather gulps it down. When he brings up his food it is completely unchewed and he eats very quickly.

He touches everything within reach and when he is watching television speaks incessantly even if he is alone. When he goes to bed he always checks the windows and is afraid at night, and needs one of his parents to stay in bed with him for a while.

He is very agile and displays tremendous vital energy but poor coordination, not walking but rather running and when he runs he moves his neck a lot.

This type of behaviour leads to a great deal of tension at home. Last year his parents visited the school psychologist who, they say, attached very little importance to the previously described behaviour.

Luis is an extremely sociable boy, and has a group of friends of his own age. He is loyal and very kind-hearted, never accuses other children, and is sensitive to other's opinions of him. He is currently concerned with his appearance.

He started school at age two years and eight months and adapted without problems. The teacher told his parents that he was a very bright nervous boy, who got on well with the other children in the class.

According to his last tutor, Luis has excessive motor concern, requires immediate satisfaction to his demands, and is always uneasy and moving around.

Behaviour during assessment at our centre: Luis adapted to the assessment environment. He agreed to do what was asked of him, was sociable and communicative. He maintained eye contact and was eager to please and gain affection. His tone of voice was high-pitched and explosive.

Numerous tics were observed, in the form of neck movements, facial tics, as well as nasal and eye tics, small body jerks, and the occasional guttural sound. Teeth-marks were also seen on his wrists and forearms.

He is very uneasy although he remained "seated" occasionally jumping slightly out of his chair or half standing up. At times he is not very reflective.

Summary of the results. Attention and sustained concentration capacity is average-high, corresponding to an equivalent age of approximately twelve (WISC-R Digital Span Subtest, Scaled Score = 12, equivalent to twelve and six months; Stanford equivalent age in the Digit test; 12 years old).

Visual memory and visual-constructive skills are average, corresponding to correct results obtained at an equivalent age of eight, and according to error assessment to an equivalent age of ten (Benton Visual Retention Test, PDA= 5, PDE= 4).

Associative speed is high, corresponding to an equivalent age of approximately sixteen years and two months (WISC-R Coding Subtest, Scaled Score = 18). This test is closely linked to school achievement as it reflects the ability to write quickly.

Visual-motor accuracy is average-high (Bender Test, no. of errors obtained one, expected 1.6, approximate equivalent age ten and a half). Emotional indicators were observed in the test such as going over figures and lines, signs of impulsiveness and shyness.

His results in the tests were not very homogeneous: "Higher" intelligence (Stanford-Binet: Form L-M, IQ= 112; WISC-R, IQ= 136; Cattell 'g', IQ= 111, Percentile 50, scale 11 years old). Mental age on the Stanford is eleven years and eight months.

Capacity for abstract reasoning is average-low (Raven General Test, Percentile 25 scale corresponding to eleven-year-olds). The test results seemed to be wrong as totally erratic scores were observed in the various subtests. This dispersal may have been due to certain impulsiveness and lack of thinking on the part of the child as there are significant mistakes in 'easy items' in the test.

In practical intelligence, which indicates an aptitude for technical studies, and a greater ability to learn following technical methods rather than traditional theoretical methods and reflects a skill for solving practical problems not strictly of an academic nature, Luis obtained a PIQ = 136, indicating an extremely high aptitude. In verbal comprehension he reached an age of approximately thirteen. (Peabody PPVT-R, confidence intervals of ages equivalent to twelve years and four months to thirteen years and six months; Stanford, Vocabulary = age equivalent to ten years; WISC-R Vocabulary Subtest, Scaled Score = 18, age equivalent to fifteen years and six months). Capacity for numerical reasoning and automatic symbol manipulation is high (WISC-R Arithmetic Subtest, Scaled Score = 13, age equivalent to eleven years and six months)

Based on the overall assessment, Luis is diagnosed as a highly intelligent child with a high capacity for learning and practical intelligence.

Oral comprehension, practical skills and learning ability are above what can be expected for his age thus enabling him to perform well at school.

In terms of personality, Luis is a child with normal anxiety and maturity adjustment, with a slight problem of personal and social adaptation. Slight family conflicts have been observed.

Our diagnosis of Luis based on DSM-IV is that he suffers from Tourette's syndrome with ADHD (attention deficit and hyperactivity disorder), with predominant hyperactivity. Obsessions and compulsions are not severe enough to warrant additional diagnosis of obsessive-compulsive disorder.

The **Gilles Tourette syndrome** is characterised as a neurological disorder, caused by a special kind of hyperactivity in the brain. Theories point to excess or over-activity of dopamine. It is characterised by tics as well as rapid and recurring involuntary movements.

In Luis's case the tics occurred frequently almost every day. The disorder has led to anxiety and a worsening of the family situation. His parents state that the tics are a cause of concern for them. For TS to be diagnosed the tics must remain for over a year and there should be no period of more than three consecutive months without tics. In Luis's case, the tics have not ceased since he was three years old.

TS is present in a wide range of differing forms. In Luis's case complex motor tics such as touching things, sniffing, self-injury (biting oneself) have been observed as have complex vocal tics such as sudden changes in voice pitch, an impulse to repeat other's words, as well as simple vocal tics such as throat clearing. The commonest initial symptom is a facial tic such as rapid blinking or grimacing. However, involuntary sounds such as throat clearing and sniffing as well as tics in limbs might be initial symptoms. Luis's initial tic appears to have been sniffing.

Genetic studies indicate that TS is hereditary or appears through a dominant gene. In certain cases, TS may not be hereditary and is identified as sporadic TS. In Luis's case it appears to be sporadic since no family history of tics, nor any similar related behaviour was reported.

As mentioned previously, children or people with TS may suffer from other related disorders, as is the case with Luis:

a) Obsessive-compulsive behaviour such as trichotillomania together with obsessive-compulsive behaviour observed during meal times and the need to close windows at night.

b) Attention-deficit/hyperactivity disorder (ADHD) is found in many TS sufferers and is Luis's case (predominant hyperactivity). Children often manifest hyperactivity before the onset of TS symptoms. A high degree of activity, unease, acting without thinking, difficulty concentrating, inability to control impulses leading to unsuitable acts has also been seen in Luis. As ADHD children grow up, the need to move around is expressed through restlessness and unsettled behaviour. Attention problems and poor control of impulses persist.

c) Sleep difficulties, which are also fairly common in TS sufferers, have also been observed in Luis's case.

d) In Luis's case no learning difficulties, such as dyslexia or arithmetic disorders have been observed, although perceptive difficulties have.

Second illustrative case:

Tomas's parents sought help for him when he was nine years and two months old as a result of behavioural difficulties in adapting to the school, social and family environment. Tomas had previously been diagnosed by the school guidance counsellor at age seven and five months as a child with special educational needs (intellectually gifted).

Pregnancy and birth were normal as was motor development. He could walk unaided at age one. Precocious visual-motor coordination: *"he spent hours tying and untying shoelaces before he was one".* Normal language development.

Normal sphincter control during the day. Secondary nocturnal enuresis from the birth of his sister to age seven. Nocturnal enuresis is currently sporadic.

The child's reaction to noise is normal, and to pain is slight: *"he cries little when he hurts himself"*.

He has always been seen as a very lively, attentive and observant child with a good memory: *"he has been able to grasp concepts very easily. Since he was a child he has been able to distinguish models of tractors and engines through observing small details. At age three he could count to ten and he began to recognise letters"*.

Since approximately age two and a half he has shown curiosity for things and has asked exploratory questions: *"when he asks about something he is not satisfied with one answer, as one question leads to another and so on… he has always been interested in complex issues: life, the existence of God, the Universe, the Cosmos, etc."*.

Tomas began to read at age four and a half and has always shown a keen interest in reading *"before he learnt to read he spent hours 'looking at' books or magazines and since learning to read has kept up this interest. When he starts a book that he likes he 'can't put it down'... he also reads articles, magazines, etc. that he finds lying around"*.

No ambidexterity has been observed during development although dyslalia has, and he currently has trouble pronouncing the phoneme /r/ correctly.

His parents describe him as a child with a sophisticated sense of humour *"he is able to understand the subtle humour of certain films and jokes with relative ease"*. He is not very tolerant towards frustration: *"he throws fits of rage when forbidden to do something... when he is trying to do something that doesn't work out he reacts by throwing it, and when things turn out badly he feels as though he has been unlucky and that everything bad has to happen to him"*. He does not tolerate criticism easily: *"he covers up his ears when we try to explain to him that he has done something wrong. In general he takes criticism badly"*. He is a perfectionist: *"he is not a perfectionist in everything but when he is, he always is… he is a perfectionist when it comes to arranging things. When he does something, he can't stand it when it doesn't work out well or as he had hoped. He has a very clear idea about what he wants and what he doesn't. He doesn't often change his mind and is hard to convince"*.

He has shown an appreciation for nature as well as an interest in morality and justice: *"he asks many questions to the effect 'Why is that right?' 'Who decided that?', etc. With regard to justice, more than an interest, he has his own very clear sense of what is fair and what is unfair"*.

He is extremely mature in the way he expresses himself and his thoughts: *"he often thinks about complex issues such as the deterioration of the environment, what the universe is like, illnesses, etc. displaying maturity in the way he expresses these thoughts. When he talks to adults and asks them about something he is interested in, he uses adult expressions and in general speaks like an adult"*.

In addition to his parents, Tomas has a younger brother Javier who is seven and who he generally gets on well with although at times feels jealous of:

"he sees him as a kind of competitor for the love and attention of his parents. Tomas treats his brother despotically and at times feels hatred towards him".

His parents have a coherent attitude towards education and display a balanced and loving attitude towards him, except at moments of conflict.

Both his parents have three-year university degrees and both work as civil servants. Financial resources cover the basic family needs and they enjoy a good standard of living accommodation.

Family behaviour is described by the parents as ill-adapted: *"since early childhood he has shown a constant lack of tolerance when confronted with an order, or when something is forbidden. At the age of around one, he threw whatever he had in his hand or kicked whatever was close by. This attitude has been maintained over the years although he has a tendency to hide it rather than openly show it. He was and still is rather disobedient."... "since he was three or four he has gone from being relatively quiet to being more active and nowadays can't sit still. He moves around a lot even when focused on doing something".*

Tomas answers back to adults, flies off the handle easily, refuses to obey rules, is always arguing, and is stubborn, irritable, nervous and "clingy".

His parents have often detected a lack of attention in Tomas: *"more than absent-minded, he finds it hard to concentrate on things"* and have observed nervous tics in him since he was practically a baby: *"before he was one, when he heard music or television commercials, etc., he would often move rhythmically on the sofa, in his cot or in his pushchair.*

At around the age of one, he used to fall asleep by performing a series of movements which involved the following: lying face down, he would lift himself up with the help of his hands and arms and would flop down sharply. These were repetitive movements which he would continue until he fell asleep (accompanied by sounds).

At age around three and mainly in the kindergarten he would rock backwards and forwards while sitting down (accompanied by sounds to the same rhythm). Around the age of five he began to bang his head on the table, or against the wall with his fists clenched, etc. Although these were normally not very violent, they sometimes led to bruises and bumps on his forehead. These movements were accompanied by guttural sounds (with his mouth closed and teeth clenched).

Since this summer (age nine) the tic has involved laboured breathing (deep and forced exhaling of breath), although his head-banging has become more sporadic".

According to his parents the tics have occurred continually and have simply intensified, being more common in situations of tension and anxiety. They have annoyed his parents, and made them edgy. The teacher commented to the parents that in school his head-banging had disrupted the class.

His parents also explained that: *"Since he was very young, maybe before he was even one and to this very, day he has shown an exaggerated interest in tractors, and will stop whatever he is doing to see one and especially to ride in one. He also prefers to be alone rather than be with other children. He gets on well with tractor owners in the villages as a result of which he obviously mixes little with children of his age".*

Tomas will only relate to other people who hold some interest for him, whether adult or child. It is as if those who do not interest him or whom he does not like, do not even exist.

In certain very specific cases, with people who are older than him, he shows a lack of will power and does what they tell him to do even when he knows it to be forbidden.

In the final year of infant school and above all in the first year of junior school at the age of six, he had virtually only one friend, their behaviour in class and in the dining-room proving disruptive. This friendship and behaviour continued until last year (third year junior school, age eight). Tomas became strongly dependent on the other boy and in class was often disruptive, especially in physical education class where he was frequently handed out punishments.

A similar situation occurred in the dining-room where the headmaster had to call his parents on more than one occasion due to his bad behaviour. In this particular case, it was not just with his friend but also with other classmates (as a result of shouting, throwing food, continually getting up to play). This behaviour worsened in first and second year and improved last year. This year his friend is not at the same school.

In class he gets on well with those children who are not accepted by others or who are the subject of ridicule.

He often prefers to stay at home rather than go out to the park. At his village, instead of playing with other children he rides around on his bicycle alone or with an adult.

According to his tutor, school guidance counsellor and other teachers, Tomas is accepted by the rest, may occasionally annoy the other children and although he does not mind taking part in group activities, usually cooperates little.

As regards his relations with others, there are people to whom he never speaks. He plays by the rules, if he is interested in playing, and at times is just one of the group whereas at others is the leader.

Tomas went to infant school from two to five years of age, adapted well and according to his school reports was well behaved.

He started in his current school in first year junior school. His teacher in the first two years of junior school indicated to his parents in the first year that he was probably gifted, his attention being drawn to the boy's drawings, his memory and ability to calculate.

During second year junior school, when his misbehaviour and lack of attention worsened, Tomas was assessed.

According to the school guidance counsellor's report to the parents, Tomas was diagnosed as a pupil with special educational needs due to his exceptional ability to learn. Syllabus adaptations were advised, although it was not thought necessary to advance the child a school year, as more importance was attached to improving his social relations.

In third year the situation improved, although his tutor in the third term report remarked: "Tomas has lacked concentration somewhat this last term and must improve his behaviour. His handwriting has improved".

According to his tutor, school guidance counsellor and other teachers, Tomas displays excessive motor concern, emits quality sounds at inappropriate moments and is at times disrespectful, impulsive and irritable.

Behaviour during assessment at our centre. Tomas adapted to the assessment situation, cooperated in what was asked of him, and managed to focus his attention but was restless, requiring supervision to carry out the tasks. It took him a long time to do the drawings and he was very meticulous, to the point of erasing the letter /A/ in his name. He was very exact and constantly seemed to need to add details and in fact had difficulty finishing the drawings. He was impatient and at times impolite and could not wait.

He had difficulty pronouncing the phoneme /r/ and evidenced vocal nose and throat tics. Basic behavioural factors for school learning were partially developed. He used eye contact, carried out orders and was able to work with an adult for a short period of time. Attention, concentration and motivation depended on the task to be performed. The boy's behaviour might have influenced the disperse test results.

Summary of the results. Predisposition functions: as previously pointed out, basic behavioural factors are sufficiently developed. The child's behaviour in school led to the belief that he lacked motivation, as according to his tutor he evidences excessive motor unrest, has his head in the clouds, is absent-minded, emits quality sounds at inappropriate moments and at times leaves tasks unfinished. Sustained attention and concentration are average-high, corresponding to an equivalent age of approximately nine and a half (WISC-R Digit Span Subtest, Scaled Score = 10, age equivalent to nine years and ten months; Stanford equivalent age in the digit test of ten years).

Visual memory and visual-constructive skill levels are high corresponding to an equivalent age of ten, according to the correct answers and according to the error score to an equivalent age of 12 (BVRT, PDA= 5, PDE= 6). Associate speed is average-high corresponding to an equivalent age of approximately ten years and two months (WISC-R Coding Subtest, Scaled Score = 12). This test is closely linked to school achievement as it indicates ability to write quickly.

Visual-motor ability is average-high (Bender Test, no. of errors obtained one, expected 1.5, age equivalent to approximately ten and a half). Emotional indicators were seen in the test: gradual increase in size, small drawings, going over figures and lines, second attempts and feeling of constriction. These signs are linked to low tolerance, frustration, explosiveness, anxiety, manifest aggressiveness, impulsiveness and shyness.

"Higher" intelligence (Stanford-Binet: Form L-M, IQ = 119; WISC-R, IQ = 138; Cattell "g", IQ = 130, Percentile 97). Stanford mental age is eleven years and six months.

The result of the WISC-R performed by the school guidance counsellor was IQ =132, in the Cattell "g"; Percentile = 98.

Abstract reasoning capacity is exceptional (Raven General Test, Percentile 90 scale corresponding to 12 year olds).

In practical intelligence, which indicates an aptitude for technical studies, and a greater ability to learn following technical methods rather than traditional theoretical methods and reflects a skill for solving practical problems that are not of a strictly academic nature, Tomas obtained a PIQ = 136, indicating an exceptional aptitude.

In verbal comprehension he reached an approximate age of 14 (Peabody PPVT-R, confidence intervals of ages equivalent to nine years and eight months to ten years and seven months; Stanford, Vocabulary= age equivalent to 14; WISC-R Vocabulary Subtest, Scaled Score = 19, age equivalent to fifteen years and two months).

Numerical reasoning ability and automatic symbol manipulation is high (WISC-R Arithmetic Subtest, Scaled Score = 14, age equivalent to eleven years and six months).

According to his parents he shows no interest in mathematical games but understands complex problems: *"since he was very young he has liked us to give him mental arithmetic 'problems' (it was a kind of game) which he worked out easily. He grasped the 'mechanics' of basic mathematical operations very well: adding, subtracting and multiplying"*.

Based on the assessment results, Tomas has been diagnosed as a highly intelligent boy; gifted (intellectually gifted) with an extremely high capacity for learning, abstract reasoning and practical intelligence.

In our judgement considering DSM-IV, Tomas suffers from Gilles Tourette syndrome with negativist disorder.

Tomas's tics occur many times almost every day, leading to anxiety and a worsening of the family environment. His tics are a source of concern for his parents and have persisted since he was practically a baby.

TS may manifest itself in a wide range of different forms. Tomas has shown complex motor tics such as hitting himself (self-injury) as well as simple vocal tics such as guttural sounds. The most common initial symptom is the facial tic such as rapid blinking or grimacing. Tomas's initial tics appear to have been simple motor tics and simple vocal tics, followed by complex motor such as banging his head in different ways. The first movements, which appeared at age around one, and which he made until falling asleep, consisting of rhythmical rocking may have been a ritual (head-banging), considered a normal phenomenon in child evolution, and present in approximately 15% of normal children in the first years of infancy (Polaino-Lorente, 1986).

TS is often linked to hyperactivity, absent-mindedness, impulsiveness and obsessive-compulsive symptoms. In Tomas's case the following associated behaviour can be observed:

a) Compulsiveness or ritualistic behaviour: he is a perfectionist when arranging things. He cannot bear things not working out properly when he does them. He has shown an interest in tractors since he was a child.

b) The most significant and worrying factor in Tomas's case is the lack of control over impulses with excessively aggressive behaviour or socially inappropriate acts: "when forbidden to do something he flies into a rage.., in general he cannot take criticism". Tomas answers back to adults, flies off the handle easily, refuses to obey rules, is always arguing, and is stubborn, irritable, nervous and "clingy". He is currently highly active: "since he was three or four he has gone from being relatively quiet to being more active and nowadays he can't sit still. He moves around a lot even when he is focused on doing something".

No sleep disorders or learning difficulties have been observed in Tomas's case.

In terms of personality, the most striking features show an open although slightly unstable and immature child, unable to control his feelings and to adapt to the reality around him. He is not very tolerant towards frustration. Restless, enthusiastic and dominant, he likes to impose his will on others, mainly through the art of persuasion. He is slightly shy, sociable and a realist although he is not very conscious of his obligations and of the norms around him, acting at times to suit himself.

According to the TAMAI Test, Tomas evidences a certain lack of personal adaptation in general. If analysed in terms of sub-areas, he scores high as regards lack of self-adjustment in general terms, mainly in the area of awareness of punishment, turning different tensions against himself. His high score in self-punishment and depression should be taken into account: "At times I feel useless", "I get angry with myself on occasions", etc.

As regards school he shows a severe lack of adaptation, and above all an aversion to learning: "I get bored in class", etc.

He is highly inadaptable socially and evidences a severe lack of social adjustment in terms of social aggressiveness: "I get angry, argue and fight easily" and dysnomia: "I am usually told that I am restless", "they tell me that I am a troublemaker", etc. He does not evidence serious problems of social restriction. In the TAMAI, he is dissatisfied with the family environment in terms of brothers and sisters.

Dissatisfaction with himself and interpersonal ambivalence is also evident. His tics are the result of failure to shed psychological anxiety. A highly active child, he finds it difficult to settle, displaying high motor activity, low self-esteem, emotional fragility, and low tolerance towards frustration. He frequently gets involved in conflicts with his parents, teachers and schoolmates.

Treatment

According to Kulisevsky and Grau-Vaciana, pharmacological intervention in tics is only necessary in cases that are severe or entail difficulties in the family, school or at work. Apart from pharmacological therapy, psychosocial intervention is also important both for the TS patient as well as for the family. An explanation about the nature, cause and course of the disorder often proves sufficient for light sufferers, and diagnostic confirmation can often prove beneficial to parents. It should be remembered that no medication is able to eliminate tics completely, and may jeopardise the patient's situation due to non-tolerated adverse side effects. However, when medication is used and when there is even a slight reduction in symptoms, this can often have a dramatic effect on self-esteem as well as on academic or social behaviour. Of equal if not greater importance than pharmacological treatment of patients is providing them and those around them with suitable information to demystify erroneous concepts that may exist.

Many people experience complete remission or noticeable improvement towards the end of adolescence or when they reach the age of twenty or just over. Most TS sufferers do not worsen as they grow and can look forward to leading a normal life. Around a third of patients experience a noticeable reduction in tics in adulthood (Tourette Syndrome Association, 1997).

Pamela Salas has pointed out that pharmacological intervention is not the only means to combat this disorder. Psychology has made a major contribution in the search for effective treatment, and in fact treatment has been developed for tics that has proved efficient to varying degrees. Yet, it is important to remember that specific treatment given to a particular child should not involve the application of a standard technique but should depend on the data obtained from the assessment previously carried out.

It is always essential to consider the possible problems involved: lack of attention deficit, impulsiveness, hyperactivity, obsessive-compulsive symptoms, lack of control of impulses, learning difficulties, emotional instability, a high degree of anxiety, phobias, separation anxiety and depression.

When these problems are more disturbing than the tics themselves they should be given priority in treatment.

In the second case the treatment applied was the following:

(One point that should be made is that children from all over Spain come to the "Huerta del Rey" centre for diagnosis, and that once this has been performed, recommended treatment is often given in their cities of origin although on certain occasions psychological treatment can be applied at this centre despite the long distances involved).

Tomas's parents first came to us two years after diagnosis when Tomas was in sixth year junior school and was 11 years old. His parents had visited the child psychiatrist and Tomas was being treated with Risperdal and Lumirox as well as occasionally receiving individual therapy at the hospital, where his parents were also being given guidance. However, far from improving, Tomas's situation had in fact worsened. His parents were alarmed when Tomas refused to go to school at the beginning of the year. The situation at home was very stressful. Tomas caused great anxiety due to his impulsive and aggressive behaviour mainly towards his brother. He had become introverted and refused to allow his parents to get close to him, rejecting any sign of affection and refusing to do extracurricular activities. Nor did he relate to the children around him. He suffered from many tics and was still prone to head-banging and emitting sounds, in addition to having difficulty getting to sleep at night, refusing to do any homework or to obey any rules.

During the first visit we pointed out to his parents the need to adopt a multidimensional approach (as had been recommended in the report two years earlier) and to coordinate the efforts of the different professionals involved in treating the child. The teacher's (tutor's) name and telephone number was requested, as was that of the school psychologist and psychiatrist. The basic underlying therapeutic approach to be used was also explained to them as was the fact that these interventions formed part of the psychological cognitive-behavioural approach.

His parents then left the room and Tomas came in. As with his parents, we explained to him the goals of the treatment as well as the various therapies and techniques to be used.

The goal of the first therapy was for the child to accept treatment and learn the reason behind his refusal to go to school, negotiate and convince him of the need to go.

The approach drawn up and what Tomas wrote with regard to his treatment was:

Goals:
- Achieve adapted behaviour habits
- Be able to control my own life

Therapy:
- Psychiatry
- Parental support
- School support
- Psychological therapy

Techniques:
- Behaviour modification (school and family). Points (concise records)
- Cognitive therapy
- Relaxation

The following steps were to speak to the school psychologist to request support for the introduction of school files amongst the boy's various teachers, and to propose a syllabus in line with Tomas's abilities and which would prove motivating. Although there was no problem with regard to the first request (the school and mainly his teacher-tutor were extremely concerned by the boy's behaviour and did not know what to about it), there was a problem concerning the second. With regard to the school psychologist's comment questioning how she could establish a more complex syllabus for him when he was not even capable of finishing his normal school, work we commented that he did not finish his normal school work as he found it repetitive and that if another educational approach were adopted Tomas's response to schoolwork and to school would change. The proposal was finally accepted.

His teacher (tutor), who was to be in charge of keeping his disciplinary record every day together with another of Tomas's teachers chosen at random by her was told why it was necessary as well as important to cooperate with a view to improving the boy's behaviour.

The record handed over to the school consisted of **a teacher chosen at random each day** by his teacher (tutor) or she herself scoring from 1 (excellent) to 5 (terrible or non-existent) the following areas: participation and interest, work done, whether homework was done or not and how well it was done, acceptance of teacher's rules and relation with classmates.

She was also given certain basic guidelines: putting him at the front of the class, not reprimanding him in front of the class, but in private, allowing him to leave the class without saying anything if he was going to fly into a rage. This time spent outside the class would then be made up during break. If the child was at a stage of tension-nervousness and feeling provocative, it would be better to let it pass and not respond for the moment as this would lead to even

worse consequences. It would be easier for them both to talk later on about what had happened when they had calmed down.

We also contacted the psychiatrist who was treating the child to inform her of our treatment. The psychiatrist mentioned that she was concerned at the rituals and obsessive ideas and felt treatment with Disperdan to be important.

Treatment at the "Huerta del Rey" Centre commenced in September 2002, and has continued to the present day (January 2003), comprising a total of five visits. Tomas currently attends school without any problem, does his homework, and takes part in extracurricular activities such as handball and IT. His behaviour and achievement at school have improved significantly, for which he has been congratulated. His parents are now enjoying a much more relaxed family atmosphere and are satisfied at the change in their son, as they perceive him to be happier, more settled, sociable and affectionate.

The tics are causing him a lot of problems at the moment and prevent him from concentrating mainly when he is doing his homework. At this point in the treatment we feel that we can begin to use therapy to reduce the tics, and focus treatment on controlling his impulsiveness and negative behaviour. Our aim is to thus ensure that there is no re-appearance of the anti-social behaviour displayed thus far, such as smashing up the school toilets or going into the younger children's classroom to cause damage. Tomas's attraction towards 'bad company' is a cause of concern. It is extremely important to reduce active attention on himself, identify what induces this explosive behaviour, lessen his rough interpersonal behaviour and control his impulsive behaviour.

Although the final goal of the therapy is to achieve a profound change in his personality in addition to reducing the tics, given that both are rarely achieved, we feel that the therapy has proved a success if Tomas is able to fulfil his school, family and social obligations without causing conflict.

We are aware of the fact that much remains to be done, but we also know that Tomas would not have come this far had it not been for **the involvement and dedication of his tutor, as well as his parents' efforts to keep detailed records,** and cooperation with the school in all aspects combined with the modification of educational strategies, therapy, assistance for the parents, psychiatric intervention and individual therapy for the child.

CONCLUSION

In this chapter we have attempted to broaden and delve more deeply into the scope of characteristics of gifted pupils with special educational needs. Most of the children we have assessed who have been diagnosed as gifted are children with associated disorders, the most commonly observed of these being: "attention deficit disorder and disruptive behaviour, ADHD", "learning disorders" and "separation anxiety disorders".

The possibility of making a suitable diagnosis allows adequate educational, social and emotional intervention for the children's needs. It also gives a more realistic vision to the parents, who in general feel very guilty and frustrated about the cause of the disorder and about its implications and educational limitations in their children.

In all the cases the lack of synchrony between chronological and mental age, as well as frustrating school experiences, with regard to levels of learning and social environment, lead to a worsening of the disorders.

As regards psychometric assessment of intelligence, it is important to remember that in gifted children with associated disorders, it is common to find dispersal between scores. This highlights the need to use different and varied methods for measuring intelligence so as to diagnose children and it is this combination of assessment criteria that will help us build up a picture of their educational needs. It should also be remembered that high scores are never the result of pure chance.

The main driving principle behind this chapter stems from an old precept in medicine: "We should not ask ourselves what illness the patient has but rather who is the patient with the illness" (Millon & Davis, 1998). It seems to me somewhat artificial to approach the issue of the gifted child as such when, as we have seen, these pupils are extremely heterogeneous. Yet I do feel that it is necessary both for the professionals working in the field of education as well as parents to understand that education is only possible if we start from a knowledge of the child. Each pupil must be treated individually and it is indeed hard to put forward general guiding principles for these children, as under the term gifted are hidden extremely differing people, skills and sociocultural environments.

Implications for Practice and Future Research

Nowadays, an understanding of these children's characteristics is more relevant than some years ago, since this knowledge will enable professionals to quickly understand the context in which the student's problem arises. This information is more important than ever since professionals have the means available to help students.

In the case of children with associated disorders it is unusual to have only one kind of treatment. By treatment, we are referring to any action required to optimise the child's development in the family, school or social environment.

This may involve several educational, pharmacological and psychological approaches.

1.- Pharmacological

2.- Educational support, for example, special lessons, tutoring, correcting, etc.

3.- Psychological:

a) Individual cognitive-behaviour therapy
b) Family therapy
c) Counselling for parents and family
d) Multidimensional model of treatment that may include some psychological therapies: individual psychotherapy, family therapy, and behaviour modification.

Disabled gifted children form a group who are under-assisted and under-encouraged (Cline & Schwatz, 1999). The focus of adaptation for their disabilities can exclude identification and development of their cognitive abilities. It is not unusual, therefore, to find a huge discrepancy between these students' mean academic potential and their actual performance at school (Whitmore & Maker, 1985). For these children to reach their potential, it is essential that their intellectual strengths be recognised and developed and that their disabilities be properly adapted (Willard-Holt, 1994).

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IMPLEMENTING APTITUDES

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SUMMARY

In her presentation, Adriana Mélo-Salinas, Eurotalent President, emphasised the importance for the research concerning the detection of aptitudes, their development in an adapted pedagogical context, considered as being an enrichment for the education of the highly gifted children.

The main idea which generated this symposium was the view of individual talents as a social psychological phenomenon, resulting from implementing processes of initial aptitudes into adjustive abilities. The processes are first within psychic multifunctional individual systems. Their dynamics are proper to mutual utilisation of component functions. These functions are described from the input reception and receptivity to action, action being the pole of output production. As such it is the goal of utilisation and a source of feedback (retroaction) along the same stages, the will being among them, decisive / abilities . It is too the last one in the psychic scale which is educable. In a free society the next step would be the choice of attitudes, which should not properly be taught, but left to the individual orbiter. Conversely it was (and is) the main field of initiation in an authoritarian culture. The interaction of every psychic component with every other gives a matrix of mutual use. But another type of such a matric is that of innumerable matrices of mutual use, between the psychic components of each individual with all other individuals. Such is the stuff of which collective conduct and mental life are made of. Which should then be the research and ways in science, pedagogy and social policy to enlighted the actors and prepare the children?

It happened that the oral presentations and texts have been complementary. Robert Pagès emphasised the plurality of giftedness as related to the complexity of both the individual and the social system, which is both the trainer and selector of every aptitude psychic subsystem. The

importance of will is stressed as the decisive stage of functioning in view of invention and creative adjustement, through original autonomy as well as social participation. An experimental outlook shared with N. Boufalgha (1996), is reported in interaction with a clinical approach, which is practised but not reported here. The unequal tempos between informative business and cultural fields are considered as problems for general and first highgifted pedagogy. About this problem of inner and outside source of control for utilisation of natural aptitudes, Jean Brunault uses his large and intensive amount of statistical data from his clinical experience with highgifted youngsters, both in testing laboratory and in the school life site. The main findings of his work show that school results are strongly correlated with chrestic (utilizational) dispositions regulating the investment of children in large fields of holistic attention as a regulator for minute attention. The channeling of springs is essential for adjustment of the pupil to his own available aptitudes, among which IQ expresses not the whole intelligence system but an instrumental part of psychic apparatus. The discussion of the author and other participants consider the ways of developping correlational results into causal hypotheses and consecutive practical interventions.

These approaches of learning find a correspondance with the research presented by Dmitry V. Ushakov who uses several social psychological theories. In fact he considers self- concept, hence self -esteem maintenance, as a regulator goal, an attitude positive pole. He distinguishes corresponding strategies of subjects concerning their factual level of success on a measuring scale. The less gifted children maintain their self-esteem in spite of facts, while the better gifted (intellectually) enlarge the field (changing the zonal attention), restricting the bearing of that particular scale, in favor of other scales. So the highgifted find a more sustainable pattern of apreciation in maintaining their self-confidence which means their autonomy. The self-autonomy meaning a such a proof was pregnant and reflected in Ushakov discussion, of Pagès emphasing on external social use of aptitudes in the economic and mediatic system. The couple of concepts (endochresis vs exochresis) is perhaps relevant.

Carl d'Hondt & Hilde Van Rossen's contribution is fully connected to the problems of education as they derive from the factors of lag or unequal tempos concerning especially the bearing of training goals and processes. Firm reasoning and experience show that self-development towards long terms projects and even endless ones (which are among the main projects of man) depend on basic attitudes. The AA. quote three of them : 1) the belief in solvability of every problem, 2) the convergence and mutual reinforcement of true and good as values, 3) the feeling of say, vocation of the person for an important task or mission. The proximal milieu is clearly taken as an important factor, e.g. the cultural style through familial climate in the early age.

Belonging to the psychiatric culture, Federica Mormando indicates three problematic attitudes for the education of highly gifted. These are speed of thought, empathy and joy. The discussion stresses the convergence with experimentally founded conceptions.

Dynamics of high-giftednesses
Robert Pagès & Noureddine Boufalgha

1. Plurality of *high-giftedness*. The biosociopsychological perspective is necessary for psychological reflection and field research.

We use the plural for giftedness. Every child and everybody is gifted and none is non gifted: genomic properties are individual *data* or gifts as well as specific: typical of the species. There is an *all or none* situation: a functional apparatus is present or not and never absent in a human being. Some are high-gifted on such and such criterion including IQ, and others are not. Hence the first Descartes' statement or principle: "Le bon sens est la chose du monde la mieux partagée": Right mind is the most commonly shared property.

But the second principle states: "the important affair is not to have a right mind but to apply it well".

The function of sorting right from wrong is *common* to all people in most human situations. Hence the phrase of *common sense* as opposed to *madness*.

2. Psychic system: components, structure and substructures

2.1. Processes

As well as *sensorial*, there are *logical illusions* too. Sources of information are plural. Refraction for the eye is not such as for the hand. There is a *basic incoherence* at the entry and a need for utilisation steps. *Sensorial* data are processed into perceptions and feelings. They become instrumental for drives, selected for their affective tones, confronted with beliefs with more or less *conceiving* control or bias, whose effects, right or wrong, are used as cognitive contributors to *will* and decision processes; such volitions combine into *attitudes*, co-ordinating choices –favor or disfavor– into target aiming, last step before action (*practice*), with planning, supplies, achievement or act then feedback and utilisation of it for maintaining or transforming part or whole of *upstream* thought and conduct.

All those steps are part of the dynamics of the *psychic system*; with reflexive access through *consciousness*, both during *watch* and part of *sleep*.

This alternation process means the sleep-restriction of outer *reference* through drastic lessening of both afference and efference.

It could be considered as a necessary alternation of maximal autonomy of the self (introversion) and minimal autonomy (extraversion). This alternation seems especially important for the *will*, whose autonomy is rooted in the sleep phase and tracable in the memory of dream. A main reference here is Michel Jouvet (1986, 2000).

The psychic system, even without consideration of non conscious processes, only physiologically and ecologically accessible to observation,

displays through its processes a net of subsystems (Ecology is here the external source of stimuli and causal impacts on the organisms).

2.2. The CEPI formula method

We will use, for short, a few initials and acronyms. One cannot reach the real structure of conduct only by the I (introspective processes which include all psychic concepts of functions and events) without reference to C (conduct as observed behaviour, comportment), E (ecological environment or *ecos*), P (physiology of inner and metabolic process). All non psychic sciences are in terms of CEP (behaviour, ecos, physical or physiological mechanisms). Only psychology (in fact both animal and human, introspective or inferred) include I after P, hence CEPI. Reciprocally, all science that uses I implies a psychological character.

2.3. EACVeFP : structure and subsystems

This description can be summarised as follows by an acronym or set of initials: EACVeFP

E: (a)esthesia (use of sensations, perceptions, impression, esthetic appreciation)

A: affect (drive, affective tone both on short and long time)

C: conception (from ideas and images through attention, either zonal or focal, toward cognition - with or without validation – evaluation, norms and project building)

V: volition, will (posture, tenacity, inspiration, effort, decision, ratio of waking vs sleep time)

e: energetization (investment of energy)

F: favor (attitude, targetting process, pros and cons)

P: poiesis or practice (action including intent, planning, supplying, achieving, feedback use of it)

It goes from the <u>input</u> E forward to the action P as an output.

We have seen the interaction of *will*, through *sleep* and *watch*, in biological processes with all kinds of sleep, including both paradoxical and slow dream episodes. It is clear that waking «*onirism*» is diversely linked to *sleep dreaming*, so that this diversity is open to study and act.

A case of *high gift* is the high gift in dream. Among poets like *Gérard de Nerval (*Pichois, Cl. & Brix, M.,1995), waking flow of dream is prominent. The role of dream or onirism among many *inventors* is known as very important. The process is not part of *psychometry* (testing). It has been part of our experimental work with usual questionnaire about sleep in concerned nights.

We have to face a variety of *highgiftednesses* because every *subsystem*, in itself is apt to have better or worse links with many others, or relatively isolated. E.g. the poet *G. de Nerval* was a likely victim of excessive rush of dream into watch (1995).

2.4. Observation in clinical practice : Zonal vs focal attention

Let us take another example. In the acronym EACVeFP, *attention* is part of C, conception. We studied a highgifted boy (IQ >140, age 17). He is weakly attentive to details of syntax or even to elementary mathematical structures. His poor focalization in writing or in maths problem solving is a partial effect of *zonal* attention, absent-minded during school exercises. This zonal inattention authorizes only, instead of *invention* or *rediscovering* venture, a borrowing approach and, locally learning by heart restitution (catechistic *rituals*). In common life he is exceptionnally alert not only to material incidents of life, but to the causal process of such incidents when interesting persons are concerned. But the school zone is out of zonal attention and positive targetting (attitudes). Other adolescents are absent-minded for all school business but deeply attentive and eager, concerning play stations (video games…). What could a general *concentration test* mean, in this case, except when the Wechsler test or Progressive matrices have been accepted as a play.

3. Tentative redefinition of intelligence. Action pole and utilisation functions (chresis)

It seems to become clear that all the psychic system is concerned with intelligence and that *Binet* (1905), is an ancestor of a prominent and robust lineage: *Terman* (1904,1917,1937), Wechsler (1939,1949,1955,1958,1967, 1989,1991,2000). For Terman's paper (1904), see also for an abridged version, Hare, A.P, Borgatta, E.F., Bales, R .F. (1955), is a transfer of Binet's experimental social psychology of suggestibility into the context of leadership social psychology. The narrow relationship between leadership and psychic (mostly intellectual) superiority, recalled to Terman, the very pregnant Emerson's words: "Who has more soul than I, masters me, though he should not raise his finger… Who has less, I rule with like facility. Soul could be a short cut for psychic system, in such meaning. This social psychological role of psychometry seems to have been one of the main stimulants of Terman in his adaptation of Binet's hierarchical scale or implicative measurements. Incidentally, Louis Guttman (1944) made a productive and logic generalisation of Binet's scale model, which was unrecognised as such, because it seemed to be relevant only as a model of growth.

Binet was right *not* to have said "Intelligence is what my test measures" (This misattribution seems to come from *Boring)*. Actually *Binet* decided to measure those abilities which were necessary to *act in daily life*, and not only at school. See also now, Sternberg (1986), who renewed what could be seen as pragmatic conception: it is not necessarily as "pragmatist" philosophical choice, but a scientific choice concerning the role of action in relation with the whole psychic system. That was a reason why Binet's test was not *only* and not *always* "validated" by school performance. His real *principle* was good: it is clear that, implicitly, it postulates a vectorial direction on the sequence EACVeFP. Practice, P, is the integrative user and pole of the upstream.

There is a kind of hierarchical vector of control stressing underlying downstream functions as users and regulators. That seems to be a good use of what aristotelician tradition (in *Leibniz* e.g.) called *final causes*, in this case

appropriately; and typically *not* when you have to explain the *solar system* and gravitation. With the greek verb *khrein*, "*to use*", and the name *khresis*, (chresis, Fr: chrèse), we can consider the first step esthesia (sensitivity), as the most instrumental and the least chrestic one.

On the other side the last integrator (action, straight or not) regulates sensitivity through the retroactions (feedback) of act, a cybernetic process.

Hence we consider that the variety of "intelligence" or "intelligences" goes with the diversity of emphasis on both a) functions or subsystems, and b) different factors and targets in the milieu. But every process which adds to synaptic psychic networks is an *adjustment,* whether it is borrowed from the society or invented by the subject. Borrowing in itself is nevertheless frequently an original assimilation.

Intelligence includes all the adjustive, global functions as opposed to hereditary *adaptation,* but using that huge open field, genetically transmitted, which has brought provision for thousands of different civilisations everywhere and billions of idiosyncratic personalities adjustability is an adaptive trait among the most important. It is linked to the extreme polyoecy, latitude of dwelling which is typical of man in his adjustments among the complex organisms. Countless modulations of the intelligence, such as we defined it, correspond to our programme of Barcelona (Pagès, Brunault, Ushakov 1992), for research on highgifts (surdouements) as well as to Howard Gardner (1983), Ellen Winner (1996) and others. Now it is time to see how this variety of "highgiftnesses" is generated, structured and accessible to education.

Indeed we see that every psychic function is in chrestic relationship with every other. So we can build a square matrix:

EACVeFP for simple structures and EACVeFP to understand better the psychic flow.

The vectorial acronym of utilisation, from the most instrumental to the most chrestic, gives an supplemental structure to that matricial organisation, putting action in pilot or cybernetic position (in greek *Kubernetes* is the pilot).

4. Experimental study of will

4.1. Principles and words

We have especially studied, mainly with N. Boufalgha, the *will* (R. Pagès, 1994, N. Boufalgha, 1996). The topic could sound as an archaic recall of old books. Perhaps *motivation* could appear a *smarter* concept.

The truth seems to be different. Motivation is a mix of all determinants of a behaviour, among them those who have an access to consciousness and those who have not and should be included. But there is a typical difficulty with this last half century ostracism and perhaps exorcism against will. The words *motive* and *motivate* ("motif" and "motiver") have a French origin in the English language. But *motive* acquired in English the meaning of French *mobile,* as "psychic determinant of behaviour". No longer "justification" or "warrant" as *motif* meant is left. Thus misunderstandings, in inevitable and frequently fertile exchanges between neighbouring languages, are inevitable too.

Moreover, in French like in English, the returning name generates a transitive verb, with a person as its object. "On motive quelqu'un", "one motivates somebody"; either, in short, one motivates him to do such and such act, explicit or not : "Jean n'est pas motivé…".

Motive meaning "inducement" was more or less referred to a *will*, e.g. the spring of a crime, the heaviest crime being when it appears *premeditated* and clearly worked out into a *volition*. Law if not psychology keeps will as a master concept.

On this point Freud had done his job: the drive present under A, in EACVeFP, was supposed to be the direct factor of action, without CV nor F. This short cut seems to be an extreme case, in which parentheses denote an optional process.

So the way was open for a kind of psychological *parsinomy* about the choice between reasons for proper vs outside boosters. There was no essential difference between being motivated from *outside*; and, midway, (why not unconsciously), as by *superego*, interiorisation of parents - and finally being motivated from *within*, through one's own resources and surgent processes. What we call outside vs inside utilisation of attitudes namely *exochresis* vs *endochresis,* has to be clarified in operational form concerning the process of will and attitude building.

4.2. Design and results on will

4.2.1 Variables (independent)

Only a sketchy presentation is possible. Our experiments on will have shown that night incubation (N), when frequent enough (without excess, obviously), was efficient on sport and intellectual performance when obstructive factors were introduced: anxiety (A) generated by passive and threatening social situation: that of being under psychometric analysis instead of being judge of the quality of these same tests; under unequal cognitive facilities: the negative modality is lack of landmarks of action, with blurred instead of pregnant target (that of attitude F) concerning a hopping task.

4.2.2. Design

N: one night only is rather anxiogenic (first experiment). Two nights were supposed to improve conditions for incubation (psychic hatching) that we have assumed to be an intermediate variable.

A is anxiety vs tranquillity through psychosocial situation, already defined
N: 0, 1 or 2 nights incubation
C: cognitive marks of orientation
A, N, C, each variable with 2 modalities, generate 23 cases, each case with 15 male college adolescents, totalling 120.
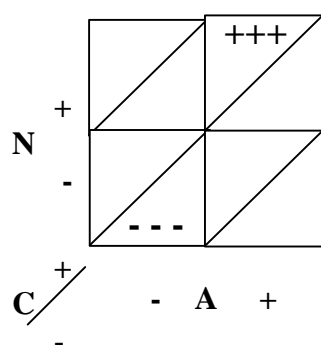
Optimal (+++) and worst (---) results were hypothesized in terms of multiple indices, of dependent variables, from tasks both motor (hopping) and free wording.

4.2.3. Results

The results after an analysis of variance on the three variables and their interactions, were clearly significant and rather strong in most variables of will, conceived as STIEDarNO means: S superimposed conduct, on a set of related conducts, e.g. posture as a condition for acts implying such and such posture;T: tenacity; I: inspiration as content production for will, relevant fertility vs dryness, degree of spontaneous prospective orientation; D: decision, with a: acribia (precision) and r: rapidity (speed of decision); O: oniric and sleeping quality and aspects, dream presence and traits.

Factor analysis showed a very dominant factor. The results for a few variables suggest developments about less attractive aspects of canvassed tasks, pointing at complementary research.

5. Deriving practical sociopsychological statements and practice

5.1. Strengthening autonomy

Now, let us consider the case of endochresis vs exochresis and their relationship with communication (e.g. advertisements, propaganda, teaching in terms of operation; enterprises, political parties, school in terms of institutions).

Clinical lessons were derived from our experiments. We think that oniric consciousness in dream and dream memory pervey efficient ingredients towards autonomy and relative reinforcement of endochresis. This aims at an index of autonomy as a quotient between inner and outer factors. A high index would favor autonomy, originality, invention, independence. Such an outcome can be facilitated by appropriate intervention in aid to callers for pilot assistance (French: recourants). Help goes to communication between their dreams and states of introversion happening and promoted within watch-time

in alternation with sleep. This way converges with (Pagès and Derghal 1984), for alertness, elation as a teaching factor toward not only abundance but originality and personal idiosyncrasy vs conformity.

5.2. The ambiguities of means for free goods and Freedom

But on the other side, bombing mostly with advertisements becomes prevalent in present society. When we develop not only a fertile market economy but tend to generalise a market society, in this society, the media are *free*. Indeed it means freedom from the state, be it democratic in governance and not at all gratuitousness. They are free except for the fact that they are very *costly*. Thus they risk to become the statistically dominant voice of those who can buy, mainly through advertising, which eventually maximises inequality. When freedom is not at all free, play on words is open to obscure the case, or perhaps, to see better the way to think it clear.

In spite of frequent moral and political reference to individual responsibility in market economy, as soon as it is concentrated, the situation, ease and security of the rank and file individual does *not* depend mainly on his own behaviour. It depends mainly on the fate of enterprises. In which fate most dependent personnel includes mainly passive participants, without relevant will. The leading governance is out of reach, or restricted to a small and uncertain formal role, sometimes in formally designed and denominated administration bodies. Whatever can be the source of such paradoxes and difficulties (due, e.g. to geodemographic scales with size advantages), the problems cannot be ignored and have to be addressed. Pupils -and adults-have to learn autonomy or adjustment needs through invention and creative freedom. It is a growing necessity but it includes the paradox of growing scarcity of relevant responsibility in governing one's own fate and that of the nearby persons or groups.

It could become difficult to change this *exochresic* society only by school efforts, even less if the schools turn into enterprises submitted to the goals of satisfying involved investors and much less satisfying relevant laws of relevant powers, both emanating from, and concerning a given territory. Teaching and learning *full citizenship* is concerned with leadership and democratic ways of leading what is to be led.

6. Problems of the several spans of time and unfitness of reach. Dealing with what should be accordingly emphasised.

It seems obvious (if not perpetually true) that entrepreneurial objectives have rather short terms with daily variations and do not aim at equalising chances of the individuals, e.g. as a way for redressing the effect of inequalities between birth families.

One is dealing here with operations that deeply concern long term *reach* of their operation and objectives. We are child centered, hence the future in view is objectively in terms of increasing life expectancy closer to hundred years. We have to think education in corresponding dimensions of time, and in a solidar world perspective. Let us take a military illustration.

Though for an operation where one is supposed to reach *far distant* targets, some people offer a class of weapons just adequate for close-combat; and the reverse is true. Unfitness of reach probably qualifies such *strategic bias and lack* in pedagogy. As such, a struggle against all kinds of unfitness summarises the role of all pedagogy.

Should we warrant a way through which the best potential minds would be trained into a permanent attitude, favoring short reach usage of their capacities, as with a kleenex tissue, contrasting with larger and larger *lifespan* and *lifespan field* in time and space?

Let us compare the general process with one field of highgift: with long training few high fees, but very high ones, drastic elimination trials or heats : a well known effect of it is massive *doping* (drugs), premature breakdowns about *records* only on those dimensions which are *measurable*, easily reducible to competition runs. Is creative talent mainly to be looked for in such fields? *Doping* was told about horse races only, up to the beginning of the 20th century.

We have to compare sport-show training to physical education, which should be *health training*, training for *sustainable* growth of everybody. Both ethos and ecos (conduct and environment) should benefit from such kinds of care and in situations that avoid production of excess wastes (trash, Fr: déchetterie) first with the brightest amount of potential capacities?

7. To conclude: what and how should be taught to whom?

7.1. Why and how such teaching first to high-gifted youngsters?

To say "first" is important though it could offend respectable defenders of equity. Here comes the fact that collective self educators, within groups of all kinds, especially those of peers, is a most important part of individual education.

High-gifted children are not automatically the mentors of their class, e.g. They can as well become marginals and even persecuted. But if they become mentors, it is not necessarily for the best. There is an opportunity here, to underline another perspective: it is that of dealing with collective organisation at all levels of societal mankind, integrating scientific knowledge of human behaviour: it will be the main task of new generations.

So *empathy* will be the entrance in aptitude and a special high-gift for developing that kind of knowledge and expertise which will be required to process into a fruitful synthesis the recent and present advances in physical techniques and arts. Taking into account this point is a condition to obtain from high-gift the exemplary leadership and effective mentorship for school and peer groups. The welfare of global society is the only chance for individual happiness in the future of all children. So that the leading endeavor is to implement the best utilisation of the best aptitudes as an easier and catalytic step in collective education.

The use of mentoring in school is only a small part of a large process in societal systems, as it is the case with many so-called pedagogical practices. Genuine school is larger in society than school proper. And it should be a good place to learn cooperation and mutual service as well as emulation. See

Tomski, G.& Tomski, T. (1996). R Pagès and Jipto, (1999) & Tomski, G.& Tomski, T. (1996).

A few outlooks are proposed here which are part of the idea that school cannot be efficiently governed only for momentary success: either for happiness of young people including high-gifted and/or for their good results in fields which could be chosen and defined in terms of short run professional integration, meaning economic only marketwise or not only. The recent big oscillations of the start up enterprises are just a sample of what the windfalls appeal is a short-sighted guide for long run training, learning and life project sketching.

Most important for the long term would be perhaps training into new codes and syntaxes, formal and less formal, in connexion with epistemology of science and know-how. Psycholinguistics and semiology of poetry and other creative arts are part of that general preparation for future developments of life urges.

7.2. Education school and media

Our views imply that a competition and compenetration between multimedia and school is active and growing. It has many winning cards for attention capture, which is the central prerequisite for individual and group learning : let's evoke selection of the outdoor actors, as beautiful people, with beautiful clothes, sceneries, landscapes, voices, eloquence and, for the audience diversity and freedom of choice, zapping major facility: satisfaction of what Ch. Fourier (1822) called "la papillonne" (flitting passion among the main ones). Some qualities of presentation whose cost is out of proportion for each minute of mediatic show, as compared to one minute of teaching.

There is however a main difference between the show-media, in spite of many artifices of would-be interaction : it is the genuine interaction between adult or expert personalities and that of the learner. It means that teacher-learner rapport is pushed into a new rôle. The teacher is no longer a mainly knowledge-tank, for transferable memory. Cultural memory is now broadly accessible through "teaching" machinery. The art of using it is one of the main competences which have to be very early and well taught : Instead of memory to memory (inspired by catechistic tradition), new teaching is from learner to learner, learning being not essentially to remember ready-made matter, but to organise a better and better performing and creative system of processing facts and difficulties. Georges Charpak (1996), a Nobel physicist, within a French and United States trend, advocates rediscovery as the means of learning experimental sciences through lending the hand ("main à la pâte"). But every field has to become that of such an approach. All good should be expected from that kind of learning which is not automatic habit only, on the way of experimental knowledge, especially in the field of human organisation of personal and social life. What has to be won here is the understanding that living through direct experience and derived "wisdom", is short of experimental aiming at predictive etiology and really reasoned causative action. Experience (Ge. "Erlebnis", Fr: "le vécu") is not spontaneously experimental thought.
E.g. a question: is the cause of a disastrous action to be confounded with the reproachable guilt of such and such person(s) so that punishment (individual

or collective) would be aetiologic remedy? To learn discriminating between symptom and cause is a general inventive method. To look at the show industries products with this acquired way of thinking could be a current exercise for all fields of policy. In spite of Saint Thomas, showing is not always enough for efficient thought and act. Images stimulate thinking and they can illustrate an explanatory discourse. They are used as a proof. But the thought that uses them is beyond them and has to grow evolve against numerous drives and pressures for interpretation : an important field of pedagogy.

Mass media including television are powerful means of popularisation in all fields including pedagogy. But we know their constraints. Those who teach can do it partly through the media. But there is a complementarity through differential gaps, between these cultural systems concerning span of outlooks and societal adjustment. A cooperation must not rub differences but, cautiously, make use of them.

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Intellectual aptitudes, their implementation and incidences on school achievement

Jean Brunault

1. Introduction

Since a long time it was considered that the school results depended only on the intellectual capacities of the subject. Accordingly, for a given level of intelligence corresponding success. This proposal maintains a major confusion between the gift and the talent. If we admit that intelligence means success, then success becomes synonymous with high aptitudes and the possession of these aptitudes gives unconditionally access to the success. The school failure of highly gifted children, the dramatic existence of Van Gogh indicate clairly that gift doesn't mean talent or its recognition (Gagné, 1993), (Pagès, Brunault, Nazareth, Ouchakov & Terrassier, 1993), (Pagès & Brunault, 1995), (Pagès, 1995a) & (Pagès, 1999).

2. A chrestic model of the human psychic system

Saying that it is not enough to have an open mind, but that the main thing is to apply it well (Descartes, 1637), is a way to say that intelligence is not all and that the most important is to apply it well (Pagès, Melo-Salinas & Vallet,1998; Brunault, 1999 & 2000).

The EACVeFP Model proposed by Pagès (1995b) admits that the components E= aesthetic, A= affective (thymic and orexic), C= conception, V= will, e= energy, F= attitudes & P= action, constitute data items of the individual psychic system. Its activity implies the principle of utilisation of the aptitudes. According to the author, "the chrestic function relates to the fact that any aptitude in its activity, to lead to services for somebody, supposes the use which makes or tends to make a particular aptitude or several aptitudes, of other aptitudes, and sometimes of itself". The activity of the human psychic system implies interactions between the different agents, the subject himself and the other partners, e.g. parents, teachers. Mutual adjustments imply an optimal utilisation of the partners's abilities, to enable child to obtain better school results.

3. Vocabulary
Chrestic (adj.). Greek khresis = use (Pagès, R., 1995).
See above **Chrestic Function**.

- Chrestic Coefficient (abbr. CC): compared ratio between the subject's chrestic note and the average note observed for the population of subjects (Brunault, 2001). Lower than 1, it indicates a below investment average.

Equal or close to 1, it represents an average investment. Higher than 1, it expresses a strong investment. See **Chrestic Quotient.**

- **Sectorial Chrestic Coefficients**: parts of the global chrestic coefficient (Brunault, 2001). Example: pleasure, attention, desire, effort, perseverance to learn. High and homogeneous sectorial chrestic coefficients: 1,49; 1,61; 1,54; 1,46; 1,68, average and homogeneous: 1,00; 0,94; 0,98; 1,00; 0,96, low and heterogeneous: 0,24; 0,73; 0,23; 0,76; 0,15.

- **Global Chrestic Coefficient**: represents the whole of sectorial chrestic coefficients. High global chrestic coefficient: 1,53, average: 1,00, low: 0,51 (Brunault, 2001).

- **Chrestic Quotient** (abbr. CQ): Chrestic coefficient multiplied by 100 (J Brunault, 2001). **Fr. Quotient Chrestique (abbr.: QC) .**

- **Detection**: Psychometric procedure measuring in one given field the level of capacities of a subject.

- **Douage**: method of development of aptitudes applied to douement without conditions of immediate profitability. Spontaneous tendency to the increase of douement (Pagès, R. & coll. 1996).

- **Douance**: Neologism from Quebec. Term proposed by F. Gagné (1981) to indicate the fact of being gifted.

- **Douement**: fact of being gifted. Individual psychic fact (Pagès, 1989). General property specific to the mankind (Brunault, & Pagès, 1996). Admits distributions under (low douement, syn. sous-douement) and over the mean (high douement, syn. surdouement). In any case douement can't be synonymous with talent. The indifferenciate use of douement and talent leads to gravissime confusions. **Eng. Giftedness.**

- **Douisticians**: specialists in douistic (Pagès, 1996). **Fr. Douisticiens.**

- **Douistic**: practical science of the social control applied to douement (Pagès & coll. 1996). **Fr. Douistique.**

- **Surdouement (Fr.):** High level of douement (Pagès, 1989; Melo-Salinas & Pagès, 1997)). The specialists admit various possible thresholds. 5%, 2%, 1% of the general population are most often allowed.

- **Talent (Eng. & Fr.)**: Psychosocial systemic product. Success recognised in a given field of the human activity. E.g. talents of the cooker, the sportsman, the musician, the mathematician, etc. (Pagès, 1998).

4. The sample

The size of the sample is N= 100 subjects. Its characteristics are as follows: Age: 7 to 16 years, Sex: boys and girls, average GIQ = 130 (from 100 to 158), Homogeneous distribution of IQ between boys and girls, 10 grade levels from Primary 1 to Secundary 10, 10 subjects by each grade level.

5. Hypothesis

On the one hand links between intellectual abilities and global school marks and on the other hand between chrestic investments and global school marks.

Taking in account the age as independant variable, from 7 to 16, we formulate the hypothesis that links between intellectual abilities and school marks should be less marked than between chrestic investments and school marks. For this reason, positive statistical correlations should be slighter between intellectual abilities and school marks and stronger between chrestic investments and school marks.

6. Variables

Three dependent variables are studied: intellectual abilities, chrestic investments (indicators of intellectual abilities implementation) and global school marks of the subjects. Intellectual abilities were measured with Wechsler Intelligence Scale for Children (WISC - III). Chrestic investments were quantified using the Chrestic Functions Inventory of the Child (Brunault, 2000). From the EACVeFP Model five chrestic indicators were choosen. Affective component (pleasure), Conceptive component (attention), and Will components (desire to learn, ease in the effort to learn and perseverance to learn). Using a scale in 11 points, the child, for each basic skill, indicates his pleasure, attention, desire, effort, perseverance to learn. Concerning the school results, for each subject an individual global school marks is calculated.

7. Results
7.1. Correlations between intellectual abilities and global school marks
R= +. 469 (<.0001) between GIQ and global school marks
R= + . 502 (< 0001) between VIQ and global school marks
R= + . 321 (< 0001) between PIQ and global school marks

7.2. Correlations between chrestic investments and global school marks
1. R= + 736 (<. 0001) between Pleasure to learn and global school marks
2. R= +. 746 (<. 0001) between Attention for learning and global school marks
3. R= +727 (<. 0001) between Desire to learn and global school marks
4. R= +763 (<. 0001) between Ease in effort to learn and global school marks
5. R= +679 (<. 0001) between Perseverance to learn and global school marks
6. R= + 742 (<. 0001) between Average of the 1 to 5 indicators and global school marks

7. 3. Correlations Comparisons

7.1. and 7.2. results comparisons, indicate stronger links between chrestic investments and global school marks than between intellectual abilities and global school marks. The general tendency suggests that when chrestic investments increase school marks do the same. Generally high chrestic investments announce high school results, while low chrestic investments predict low school results.

8. Applied considerations

Chrestic investments and school marks bring useful information concerning the endogenous state of the subject (indicating chrestic dispositions for learning) and information from exogenous origin (relevant to the parental and scholar conditions offered).

1. An above average chrestic investment is associated with an above average school results. Data indicate a positive adjustment of the subject to the conditions of schooling offered. Higher are chrestic investments and school results, higher is the adjustment of the subject to the offered conditions of schooling.

2. An above average chrestic investment is associated with a below average school results. Data imply a individual default of realisation. The origin is as well internal and or external to the subject.

3. A below average chrestic investment is associated with an above average school results. Data suggest intellectual abilities associated with inadequate conditions of schooling.

4. A below average chrestic investment is associated with a below average school results. Indicate an inadequate adjustment between the pupil and the conditions of teaching offered. For example: below average intellectual abilities or massive schooling desinvestment of the student.

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Strategies of self-esteem maintaining and individual differences in socio-cognitive phenomena

Dmitry V. Ushakov

Individual differences in two phenomena of social cognition have been investigated: in-group favouritism and subjects inclination to change their attitudes under the influence of cognitive dissonance. The two are supposed to appear because of the people's need to maintain their self-esteem.

Some strategies used by people to maintain their self-esteem have been singled out. These strategies, from one side, lay different requirements to a subject's intellectual level, from another side, - they determine in some extent subjects' behaviour in situations where their self-esteem is involved as it happens by inter-group relations or by cognitive dissonance investigated by Festinger.

According to the results of our research, it is possible to single out two kinds of strategies. The first of them, more primitive one, reveals itself in the process of an object evaluation in accordance with a certain scale. To fulfil this evaluative procedure, it is necessary to use the relevant facts and to co-ordinate them with the scale. The assessment is obviously easier in the case of evaluation of physical traits in comparison with intellectual and moral traits. In the second case the notions should be operationalized and co-ordinated with the facts. The strategy of self-esteem maintaining (that is investigated here) is directed at high evaluation of a subject's capacity despite the facts. So it is reasonable to suppose this strategy is peculiar to not very intellectual subjects. The researches on metacognition development initiated by J.Flawell have shown children poorly co-ordinate their real achievements (for example words remembering) with their expected achievements.

The second form of strategy requires more cognitive resources of a subject. By this strategy the subject accurately enough assesses himself/herself according to some scales but is prone to subjectively evaluate the importance of the scales attaching more importance to those scales where he/she is more successful. The results of the experiments seem to show higher development of intellectual capacities by the second form of strategy.

Different strategies of self-esteem maintaining peculiar to several persons seem leading to different social-psychological phenomena the base of which is supposed to serve people's need to maintain high self-esteem. An experimental investigation has been conducted to test the model.

Russian multy-generation family and its impact on children's cognitive abilities

Dmitry V. Ushakov

Different generations living together makes a specific trait of the Russian family. For economical and cultural reasons the children after having grown up often remain in a close contact with their parents. As a result grand parents play an important role in bringing up their children.

In two investigations conducted in collaboration with T. Tikhomirova we tried to elucidate the role of close contacts with grand parents in children's cognitive abilities growth.

Sixty 7-8 years old pupils of a Moscow private school have participated in the investigation 1. All subjects have been administered Russian adaptations of Wechsler's WISC and Torrance CTTM tests.

A much higher creativity and a little lower intelligence have been shown in children brought up by grand-parents.

These results however leave many questions to answer.

1. Are not the results peculiar to the age range of 7-8 years? In our investigation a negative correlation between creativity and intelligence has been found what is peculiar for this age. At the age of 6 or 7 years the children's results on creativity tests decrease. So probably more developed children may probably show worth results.

2. Are not the results due to the sample specificity? The investigation was conducted in a private school. This kind of schools in Russia is affordable only for the richest part of the population where the family relations may be very peculiar.

3. Do the effect represent the specificity of grand parents - grand children interaction or is it due to third factors? Both suggestions look possible. Grand parents have obviously specific traits in their interaction with children. At the same time the important role of grand parents is linked to the general family situation: often grand parents live with children in the families where both parents spend much time in their jobs.

4. If the effect is due to the peculiarities of grand parents interaction we may ask about which peculiarities play the most important role.

In an attempt to answer these questions the investigation 2 has been designed.

180 pupils of a public school in Klimovsk (region of Moscow) took part in it. They mostly represent families with a low income. The subjects' age ranged from 9 to 10 years.

A special questionnaire has been elaborated to be administered to children's mothers and grand mothers. It included 14 scales describing

different aspects of education styles. The children's creativity was assessed by mean of Torrance CTTM test, the intelligence - with Raven's SPM test.

The findings of a higher creativity of children brought up by their grand parents have been confirmed.

To assess the impact of different educational factors a multiple regression model has been applied. The model have a good feet to the empirical data. The most important factors differentiating parents and grand-parents and having the impact on creativity turned out to be:

  interdiction
  punishment
  self -esteem maintaining
  letting the chil d to express his/her emotions.

Grand parents shown to be lower in the first two factors and higher in the two last

Basic attitudes that lead to a higher level of motivation and creativity

Carl D'hondt & Hilde Van Rossen

Introduction

A creative act presupposes - as a matter of course - a complete gamut of cognitive and imaginative qualities, such as an extended and efficiently stored memory supply, an eminent analytical- and synthetic competence, an outstanding vocabulary or some other well known and smoothly manageable formal signsystem, a well-balanced hypothetico-deductive intellectual capacity, intuition...

These characteristics alone however, cannot guarantee prominent creative accomplishments. They can at most provide a spark, an illumination that might change drastically a limited sub-division or a detail of the field of knowledge; but they ll miss the power and the determination to commence an extensive and long-winded task. One gleaming sparkle does not make fireworks. The question remains what the driving forces are behind a person who starts a long term project. Where does one get the spirit, the courage, and persistence to tackle these endless projects. Projects that do not provide any guarantee of success, for which one lives socially and mentally isolated for months...? In biographies of creative persons, one finds time and again the same basic attitudes. It is striking that these creative persons have learned to cherish these attitudes from a very early age, and they thus had a chance to integrate them quite early in their personality. We will limit our exposition to three striking - and in our opinion - important attitudes.

1. <u>The belief that there is a solution to every problem, and that this solution can even be gallant</u>

This attitude consists of: the feeling that one has a hold on things (feeling of competence), that one does not live his/her life passively but that one takes action. This anti-fatalistic attitude assumes that the world is in harmony, that the world is a cosmos and not a chaos where men is a plaything in the hands of the elements that he neither knows nor understands. This attitude however, postulates the intelligibility of things. It is a fundamental conviction that there is a rational explanation for everything and it also possesses the will to find this explanation.

This basic attitude was a key element of the Greek culture and order of life. It is a fundamental conviction that men - through his/her own efforts - can lift up the veil that covers the uncomprehended reality. Knowledge and sciences are not a present from heaven, they are human intersubjective performances, full of errors and failings.

This basic attitude of young gifted children is tested for the first time during infancy when existential guilt is depressing their heart for the first time. At a very early age, gifted children are confronted deeply with vital questions, such as death, destruction, disasters, excessive human aggressiveness...
Some of these kids feel responsible and they take all the suffering of the world on themselves. Due to their dyssynchronic development (cognitive, social and emotional development do not keep pace) many gifted children are confronted with world-problems for which they are emotionally not ready. On a purely cognitive level, they might have gained profound insight in some of these problems, but on the level of emotional development - which follows the normal rhythm of development - they are not ready to cope with these distressing problems. The support and supervision of these feelings and ideas by parents and adults, is probably the principal factor in causing this - basically positive - sensitivity to be used as a constructive force in maturity.

The milieu however, is not only important to gain victory over the difficulties that threaten this basic attitude, it plays a vital role in the constitution of this basic attitude itself. Children who have always seen this attitude at home, will be able to integrate it better and deeper in their personality than children who did not experience this example at home. Moreover, the optimistic view and the dynamic approach that go hand in hand with this attitude, strengthen the positive image that the child has of itself and it intensifies its feeling of competence.

2. The experience of unity between the noetical-esthetical-ethical

Some biographies refer to some kind of amalgamation of profound insight and aesthetic emotion. Once reality reveals itself after a long period of investigation, the researcher will be captured by the beauty and the simplicity of reality and he will be seized by an emotion of esthetical admiration.

A moment of deep insight goes thus hand in hand with an experience of beauty. Moments of profound insight do not only lead to an experience of cosmos or a victory over chaos, that overwhelms ones heart with peace and happiness, but it also leads to feelings of modesty and gratitude. Profound insights confront us also with those things we didn t know and it creates some kind of disharmony, which evokes new constructive insights. This confrontation between the limits of Œwhat we know and Œwhat we don t know sharpens the intellectual integrity of the investigator. On the borderline between 'Wahrheit und Dichtung', the researcher shows his/her intellectual and moral integrity significantly.

For the young child, the discovery of grammatical regularity in language structures, the discovery of laws and order in nature, can be seen as a prefiguration of the experience of unity as we described it earlier. When a child experiences unity in diversity, harmony in chaos,... it does not only give that child a feeling of competence, of having hold on reality... it also fills its heart with gratitude and deep love for its speciality. This feeling of love for ones profession, the obsession one feels from a very early age, provides the energy that makes long-term projects possible once one reaches maturity (energetic aspect).

A child that experienced the harmony at a very early age is someone who discovered the laws and order of the world bit by bit on his/her own, and thus someone who saw the Œbeauty of reality, and as a result he/she becomes a participant in the intersubjective dialogue. This early partaking in human knowlegde, insight and in the common strive is probably a powerful energetic source for non-stop research and permanent self-inquiry (social aspect).

3. Another basic attitude with an important role as catalyst for creative processes is the feeling that one has an important task to fulfil

Saint-Exupéry gave a masterly description of this attitude. This attitude is linked with a strong sense of responsibility and it is also closely connected with the high personal demands that a skilled person makes. Many skilled children have had the feeling from a very early age that they liked learning and that they learned easily and profoundly. They guide their own development through a firm task-conscientiousness and a obstinate interest in specific subjects. In other words, they define their own goals, and they can thus improve the integration of their personal development and they direct this development through constant evaluation. If adults have an eye for the capacities of the child and if they can appreciate and stimulate them appropriately, then they will automatically support the processes of self-guiding, of profound interest for various subjects and the deep task-conscientiousness of the child; three factors which are extremely important as catalysts of creative processes.

Conclusion

The three basic attitudes as we described them, namely: a profound belief that there is a solution to every problem, the noetical-esthetical-ethical feeling of unity and the feeling and urge that one has to fulfil an important task; they all have their origins in the early years of a child s life. Besides this, we also tried to elucidate the important role of the milieu in the origin, the growth and the fall of these basic attitudes.

Problematic attitudes in the education of highly gifted children

Federica Mormando

Federica Mormando is sensitive : a) to the integral system of mind with which intelligence grows; b) to the excessive medicalization and pseudo pathology.

1) the speed of thought is among children often connected with the speed of action frequently diagnosed as hyperactivity.

2) the empathy is an essential part of the life and growth of the child. Intensive interactions with the milieu are part of his needs.

3) Joy is the positive pole of functional success in all kind of behaviour including thought. Genuine smile and laugh are among the best cues of healthy and fertile education.

THE RELATIONSHIP BETWEEN COGNITIONS, EMOTIONS & ACHIEVEMENT: IF ONLY GIFTED CHILDREN DIDN'T THINK!

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This paper identifies some of the challenges in the world of information for gifted children by exploring how children make sense of a chaotic and illogical world. Persistent difficulties tend to be resolved by the imposition of a system of rules of interaction incorporating elaborated conceptual systems. These rules may bolster inherent values and emotions but represent ideals and absolutes rather than realities and practicalities. As such, these rules fail to account for discrepant interactions and the child's attempts to resolve these conflicts generally result in a sense of shame at their perceived inability to manage the situation. The outcomes are extreme emotional distress, depression, and lowered achievement levels. This paper identifies this problem and management strategies solutions.

One of the most disturbing issues in gifted education is: that in spite of a proliferation of often exceedingly well thought out gifted programmes; in spite of a series of excellent curriculum packages ranging through compacted, differentiated and accelerated, to name a few; in spite of extension, enrichment and elaboration; in spite of a host of conferences, government papers and a series of enlightened and generous teachers; in spite of all these factors substantial numbers of gifted children are still struggling with our school structure and are still 'falling by the wayside'. It is accepted that 'gifted children do not do as well at school as 'bright children'' and for the majority of gifted children it appears that their outcomes are substantially less than that touted as they are generally failing to make the intellectual impact on our community that is so desired and needed in our time.

Such thoughts are simply considered disloyal if not down right treacherous. However, a field of endeavour only makes substantial intellectual developments if it is prepared to review its existing paradigms and to re-examine its demi-gods. More significantly, outcomes need to be measured and assessed for their validity and reliability. Specifically, do our gifted programmes target the groups that need them most and, if this organisational principle is successful, do these programmes then enhance learning and achievement for the students so engaged. Or do we simply think that it does because the students don't complain? The tools of science should be used to measure advances in the field of gifted study and separate these from highly acclaimed but essentially 'personal beliefs' about gifted education.

None of the forgoing means that there have not been considerable advances in understanding in this area of study, but it also means that it is time to review what has actually been achieved for the children of our studies. If the production of programmes for the gifted was a business and we were all accountants, a leading document at all our conferences should be titles such as <u>Discrepancies in Net Returns on Gifted Outcomes.</u> This is the guiding principle for this paper namely that there needs to be a more concerted effort to identify, guide and mentor with <u>appropriate</u> and <u>relevant</u> strategies those children that are within our purview. In addition there is a need to review and re-examine our basic assumptions and goals and to accurately measure and re-evaluate outcomes.

The terms that we use to describe gifted children are so global as to replicate some of the more florid self-help guides. A possible self help to giftedness manual would undoubtedly ask questions such as: do you have trouble sleeping; do you feel physical discomfort even wearing your own clothes; are you highly sensitive, intense and easily upset; did you talk early in fact did you achieve almost everything early and do you feel dissociated from your peers? When used as determinants of giftedness, rather than milestones some of these descriptors are actually wrong (for example the accelerated milestones) and others are simply misguided, for example, a substantial number of gifted children experience difficulty with academic tasks such as learning to read.

If, in spite of our care, guidance and concern, the fact that there are still a substantial number of gifted children who are not achieving at higher levels should generate a series of questions. Among these is the notion that so many critics of gifted education have suggested over the years namely, that the young children identified as gifted 'burn out', that our expectations are too great and/or that experience and development are substantial intellectual levellers?

I consider that the answer to this dilemma lies in our basic perceptions and understanding of what constitutes a gifted child. Whilst debates rage about inequities and cut-off points for IQ scores (no-one amongst us will confess to any desires to eliminate any child from a gifted programme), the issues become clouded and the actual focus of analysis becomes lost in the intellectualism of the debate. That focus is the gifted child, he or she and what are the factors that constitutes their giftedness and how we, as professionals should be managing their potential outcomes so that the goal of a happy, productive and achieving individual is not a hit and miss concept. Terman (1919) provided us with substantial clues:

> "Finally, in arriving at an estimate of a subject's grade of intelligence and his susceptibility to training, it would be a mistake to ignore the data obtainable from other sources… Standardised tests have already become and will remain by far the most reliable method for grading intelligence, but the results they furnish will always need to be interpreted in the light of supplementary information regarding the subject's personal history, including medical record, accidents, play habits, industrial efficiency, social and moral traits, school successes, home environment, etc." (Terman, 1919, p.50).

In addition to those research domains Terman succinctly selects, research in giftedness needs to identify those constellations of attributes that constitute giftedness and determine how they co-ordinate to reflect giftedness. We need also to examine the forms in which giftedness presents as well as the processes of giftedness. In short we need to examine the ordinary gifted child, that is one with an highly developed capacity for reasoning yet, who is neither a prodigy nor professes some profound, unusual and newsworthy talent.

For the purposes of this paper the gifted child is viewed as a dynamic and interactive constellation of attributes, operating in a frame of reference in which environmental, cultural, temporal and issues of personality and temperament serve as vehicles of communication impacting on the developing self. Of current significance is the need to understand gifted children in terms of their diversity and difference, with the corresponding research focusing on patterns of giftedness rather than an amorphous concept of giftedness divested of individual difference.

Consequently, the gifted self is seen as emerging from the interplay of these factors against a background of cognitive, emotional, behavioural and spiritual issues. This is the 'chrysalis' of the gifted child, who will initially simply reflect these early experiences without introspection and will engage in behaviours that manage the emotions accompanying these experiences.

Gifted children are different from the rest of the population at the level of their sensate responses to the world around. Their conceptual breadth is matched by a complex capacity to perceive detail in the world around them. In turn, their behaviour is energised by an organised and sophisticated higher-order system of values underscored by passion and intensity. The very manner of engagement with the community at large is a hazardous event for the gifted child. Their idealised notions of truth and human behaviour and their belief in the veracity of the spoken word lead them to believe that, the kind of verbal abuse so prevalent in the play-ground, actually reflects reality, that is, it presents some truth about them of which they were previously unaware. For such children unless protected and guided the world is considered to be an irrational place in which children are not only impotent but subject to the whims of hypocritical and unreliable and self-serving adults.

The key to their behaviour is their role as a 'scientist,' constructing hypothesis in search of explanation and understanding. Attributes in particular which appear to inhibit the successful negotiation of life paths for some gifted children include the following:

1.   A series of beliefs, derived from early interactions that form the basis for a series of personal constructs or rules. These 'rules' in turn are used as a guide for managing interactions, the purpose of which is self-protection.

2.   The relatively early development of moral perspectives and higher order values as guiding principles in interaction with others, such as acceptance of others and the search for justice and honesty. These positions celebrate a non-judgmental and accepting individual, but one that also lacks pertinent experience to discriminate and accurately evaluate the interactions to which they are exposed.

3.   Given their capacity to see clearly the confusions and dishonesty in the adult population in the world around them many gifted children are philosophically at odds with the general population and they tend to display a fundamental lack of trust in human relationships This is further confounded by the presence of an elevated level of anxiety.

4.   The experience of relative social isolation generated because they are considered 'out of step with their peers', or perceive themselves as 'different'. This social isolation reduces the capacity for feedback and orientation toward the community values and system of interaction.

5.   The ironies of the gifted child being 'excellence optimised' and castigated for seeking perfection in a world which talks of 'best practice' rather than excellence and 'quality assures' rather than does the best job possible.

6.   Invalidation and lack of acceptance and regard by the population to which the gifted child is exposed.

The extreme outcome of these difficulties is the **Invalidated Gifted Child** characterised as follows:
- The child becomes a 'pathological critic', with the most vicious condemnations reserved for the self
- The development of catastrophising thought patterns which inhibit behaviour, learning and achievement
- A generalised fearfulness which impacts on decision making and the ability to engage in any task the outcome of which is ambiguous
- Deep sense of shame expressed at inability to perform at the level of excellence that they think is required for approval
- Concurrently there is an inability to comprehend that mistakes are part of learning, coupled with a fear of failure or success 'undeserved'
- Diminished predictive ability as everything is filtered negatively, including success
- Presence of emotional turmoil that can lead to depression, or worse
- Sense of difference and separation from others which is negative and alienating
- An inability to distinguish levels of responsibility
- Generalised neediness, coupled with rejecting behaviours
- The emergence of non-specific physiological disorders
- The development of a 'victim mentality'

This paper identifies a series of beliefs reflected as rules, which are prevalent in the gifted children. There appears to be a direct relationship between the degree of risk to which a gifted child feels exposed and the strength with which the rules are held. Presenting characteristics of gifted children who more likely to be overwhelmed by their own rule systems include:

- Introverted intuitive gifted children
- Gifted children who repress and internalise their feelings
- Gifted children who focus on their anxieties, catastrophise and augment the anguish of their experiences
- Gifted children who are bullied and feel that they are unprotected by the adults around them
- Gifted children who are socially isolated by choice or through community ostracism
- Gifted children who are quiet, generally well-behaved and not identified as gifted by schools
- Children who feel shame as a direct consequence of their experience of being gifted.

The rules are generated as a consequence of the primacy and veracity of the spoken word coupled with the neglect and devaluing of non-verbal clues to behaviour. The purpose of these rules is as follows:
- Develop order out of chaos
- Provide a safe haven and a way of managing threat
- Overcome conflict between beliefs and experience
- Overcome impotence and inability to predict social outcomes
- To reflect virtual behaviour models: artificial images of appropriate behaviour
- To appear to be socially desirable and seek approval and acceptance by others
- Overcome a limited capacity to evaluate situations and engage in flexible response strategies

These rules tend to be complex and well developed although they may not be able to be freely articulated. Rules as enacted by gifted children differ from community stereotypes in the following ways:

RULES	STEREOTYPES
Protection of self	Guide to behaviour
Outcome of logic and learning	Consequence of social analysis
Invariant response	Influenced by context
Inner orientation	External focus
Idiosyncratic	Universal
Conceptual	Practical

The nature of the rules tends to reflect five major categories; these are Personal Inadequacy; Impotence; Interaction; Intelligence; Friendship. Children have

described the presence of these rules various as a weight, and most often as something akin to a large black cloud or a python that grips you and you are unable to resist.

The term **Inadequacy** reflects rules that justify unacceptable actions of others, including rejection and abandonment on the basis that the gifted individual is obviously lacking some attribute and is not worthwhile and therefore deserves the behaviour of which they are the recipients. Shame is the overwhelming attribute expressed here. Examples of these rules are:

- Bad things happen to me because there is something wrong with me
- I am weak person because I am upset by this
- Real people could cope with this situation
- There is something wrong with me because I feel different

Impotence is the situation where the gifted child believes that they are powerless to act and to make any changes. The ill treatment they receive is deserved because they are different, because they don't fit in. Powerless in this case appears to emanate form a sense of worthlessness. Examples of these rules are:

- I have to accept how I am treated
- Don't trust people they probably want to hurt you

Interaction rules are those governing social relations and are separated into rules in general such as:

- Conform, conform, conform
- Protect yourself: be defensive

Specific rules governing interactions with Adults, include the primary rule of 'Don't trust adults', as well as several subsidiary rules such as:

- Adults often cause more trouble because they disregard your feelings
- Adults want to make changes that suit them, not you
- Teachers can make people view you negatively

Intelligence rules reflect the burden of being different and not being valued for one's self but for what one represents. Intelligence is a burden that separates and divides the gifted child from some other real world other children occupy. Some rules are:

- If people like you because you are intelligent you better have the right answer
- Don't smile if the teacher praises you they will think you are big headed

Friendship rules reflect the anxiety of knowing that you are not part of the group and a timidity and lack of assertiveness that limits your opportunities to be part of the group:

- You must wait to be asked-don't join in
- You need to be exactly like your friend/ spend all your time with them/do as they say otherwise they won't be your friend
- Don't trust them they are probably not your friend

RULE DIFFICULTIES

The significance of these rules is that although they originate as a self-protective mechanism they are paradoxical in that they further isolate the individual and make them unresponsive to feedback from the group. The rules impede genuine social-interaction. It is not so much that the rules limit awareness so much as they render all contradictory information either inaccurate or they are interpreted as a danger to personal safety. Consequently, it becomes safer not to engage with others.

Rules reflect the predominance of shame as a response to the gifted child's awareness of their difference from other children. It is from this sense of shame that the defensive responding emerges which in turn further isolates gifted children. The marginalisation of trust coupled with a restricted engagement in interactions is generally reflected in an inhibition of risk taking and the development of initiative. Sometimes, however, the opposite is true and the desire to engage in risky attention seeking behaviour is extreme. Any increase in approval seeking behaviour means a corresponding reduction in the expression of original ideas and a constant censoring of the self.

These processes are debilitating for the gifted child who exists as his or her own shadow, denying the self and repressing desires to fit some self-generated rule bound, idealised model.

CHANGING THE RULES

Changing the rules is a Herculean task but with unexpected twists. The fundamental principal is that these beliefs become imbued with emotional content in order to be cemented as rules. Once a belief has moved into the category of rules it not only reflects an intellectual construction, and the presence of rational ideation but it also embodies the notions of a talisman or mantra, the primary task of which is to protect the user from harm. In order to facilitate change the 'rules' need to be identified, elicited and brought to conscious awareness. The emotional collusion with these cognitions needs to be clarified, understood and accepted as real for the gifted child. The presence of these beliefs must be seen as guiding the best possible 'modus operandi' for the gifted child given their limited life experience and behaviour options.

Change is not a matter of bolstering self-esteem as this concept, so bandied about and so poorly understood, is actually a measure of self-worth. It is an estimate of the worth or value of the self delivered by the self. Once initial conclusions are drawn from external information estimates of worth become an entirely introspective process and resistant to external change. For example, you do not see yourself as

achieving the role in community life that you desire, if you do not measure yourself against your peers favourably, if you cannot understand and mange the cultural system in which you are immersed, then you tend to see yourself as worth less than those people that you have used for comparison. Add to this mixture a prodigious intellect with an elevated capacity for reasoning, a dealer in the 'facts of the matter' then, all these preconditions for a sense of worthlessness, are being nobly and logically demonstrated by the community! In this case a sense of worthlessness is a rational response to irrational behaviour.

Change is not a consequence of increasing 'resilience' in the gifted child and considerable care needs to be used when attaching labels such as resilience because it is an easy forum for making the child appear responsible for what is essentially a community limitation. These rule issues are, however, less likely to occur if the concepts of resilience are understood and applied accurately. The significant aspect of the concept of resilience is that community support for the individual be both overt and freely endorsed.

Consequently, the primary conditions for change involve establishing conditions of personal safety for the gifted child and this may involve mentors, direct peer support or changing the existing system. Basically, this is the process of re-arranging the structure to provide measurable opportunities for achievement as well as reflecting a community acceptance of the attributes of the gifted child The primary source of achievement for a gifted child is the expression of what is termed the 'authentic self', that is they have the courage to be themselves in a public domain and not fear ridicule or resentment. They have the courage to express their different ideas, to take risks. In summary, they have the 'courage to be'. Such a process requires considerable support as well as reflection by many communities into their actual level of acceptance of gifted children who by virtual of intellect, are different.

There is, however, no single formula or one rule for generating change, as different people can successfully manage the change in different ways. Initially, change requires that individuals' reflect and review their management processes, schoolteacher to consider the language and behaviour of acceptance and communities reward excellence. Some guides to change are:

- A relationship with an individual with whom a trusting relationship has been developed and who has taken the time to get to know you;

- Parents who demonstrate their support by taking an active role on your behalf and prove that they love you in spite of your belief that you are un-loveable

- Some-one who dislikes you but who tells you how the system really works, and where your perceptions are incorrect

- Recognising that some personal rules relate to specific person or context, so don't see that individual and avoid that context

- Using humour, drawing, imagery, affirmations, reminder cards that give you a sense of mastering that individual or situation

- Enhancing self-awareness: a recognition that other people around you do not live by the same rules; a sense that perhaps you deserve better; an adult who manages to challenge your perceptions that all adults are untrustworthy

- Significantly, don't create situations where you are vulnerable.

- Providing an environment where there are clear boundaries for behaviour and the child knows recognises and believes that protection exists.

- Having people, other than parents as resources that are consistent through a major aspect of the gifted child's life so that they do not have to keep re-writing, or justifying their history.

Although all these factors will reduce the impact of these personal and entrenched rules it is important to realise that these rules will never disappear entirely. At times of stress and vulnerability they will re-emerge but having established a confidante who is available to talk about them and being actively being aware of their impact on the child's life can minimise their effect. Having people as resources in times of difficulty can contain these demons.

The zeitgeist or world-view of the gifted child reflects Freud's perspective that our major task is to adjust to the irrational world in which we live. For the gifted child such irrationality is chaotic and frightening and they require individual attention to facilitate their development.

> "Of all the judgements that we pass in life, none is as important as
> the one that we pass on ourselves, for that judgement touches the
> very centre of our existence." (Brandon, 1985).

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SOCIAL STANDS AGAINST CONCEPTUAL INNOVATIONS IN GIFTEDNESS

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ABSTRACT

The new conceptualisations about intelligence and creativity hardly have incidence in our society (school, family, mass-media, and others). What are the elements that make up a «sociocultural barrier» which obstructs the social penetration of new advances about giftedness? What's thinking tendencies settled an ideology so hard to modify? We will analyse the archetypes and the evolution of intelligence notions in the occidental culture as a possible reason of social difficulty about modifying conceptions.

SOCIAL STANDS AGAINST CONCEPTUAL INNOVATIONS IN GIFTEDNESS

Introduction

In previous works we have analysed stereotypes and prejudices about giftedness, whereas they are thought forms that difficult the understanding of son/daughter or pupil by themselves (Martínez, 1998, 1999). Once labeled, and, unfortunately, labeled not always well, who surround the gifted one attributes a group of problematic characteristics associated to the stereotype that previously they have on giftedness (Martínez & Castiglione, 1998; Castelló & Martínez, 2000). Everybody knows the effect Rosenthal, the Pygmalion effect, the expectations usually have consequences in the behavior of the other that tends to behave as they expected from him (Rogers, 1982).

To analyze, to classify the forms of stereotypes or prejudices widely extended on the giftedness and the talent, have not provided tools that allow us to promote a conceptual change, at least, between the professionals of the education. Demythologize ideas rooted in a culture, more felt than thought, needs something more than a good argumentation. We are talking about changing beliefs and attitudes more than changing thoughts. Beliefs are easily confirmed, through an isolated case or an article of sensationalist press.

Objectives

This work is, first of all, an attempt to understand where are the origins of these beliefs in our culture, how the mythological thought survives and how it is transmitted in form of folk wisdom, impregnated of moral connotations and laws

nonwritten. We asked why the giftedness and the talent and, consequently, concepts like creativity and intelligence, have been so influenced by fenomenological thinking trends or quasi-magical trends, and has been so difficult to advance in its conceptualización.

Because we are talking about demythologize, we have examined the greco-roman myths, what parts of them remains in our culture, what forms have taken and what is the process by which the myth loses its quality of truth (Serious, 1985; Vernant, 1971). We also have been talking about beliefs; therefore, we have reviewed how the Christian version of the Judaism considers the exceptional thinking.

Doubtlessly, the knowledge that comes from other sciences (anthropology, philosophy, history, etc.) has been naturalized psychologically, that is to say, interpreted from the frame of psychology. It is an attempt to reconstruct the history that is behind the prejudice and the stereotype, to understand how it has been constructed a socio-historical baggage hardly conscious that marks an ideology (system of beliefs) respect to the intellectual exceptional nature and that implies that some concepts are accepted quickly like truth, whereas others are rejected because they contradict the pre-established system of beliefs.

The Formation of Prejudices and Stereotypes. Categorical and Attributional Processes

Often, when we identify the cognitives qualities of the human being, we give excessive importance to reasoning forms that we could qualify of conscious and logics. But in any process of problem solving or decision taking take part, in addition to knowledge and logical reasoning, prejudices, attitudes, values, beliefs and emotions (not always conscious) that modifies our perception of the physical and social surroundings, and, therefore, our ideas and decisions.

Social Psychology has studied with detail this type of processes that influence remarkably in our behavior (Doise, Deschamps and Mugny, 1985). We have to understand that the categoryzation and attribution processes that are behind the prejudice or the attitude are a natural form to simplify complex surroundings and, often, incomprehensible. Also, since we have been talking about emotional components, the rationalization that we can process *a posteriori* to justify a certain attitude or behavior towards something or somebody is born as a resource to the anxiety that causes what is strange or, simply, as a control of internal impulses that are unacceptable, like the aggressiveness.

The values usually are shared with the sociocultural group we belong; therefore, usually they are not resisted unless it appears another group with values and attitudes different from ours. Attitudes and values are related to a great extent to the position that takes care in the social structure and the transmission from generation to generation of the distinctions between social groups (social class, ethnic group, religion, gender, etc.). Attitudes and values are an important aspect in the formation of prejudices that not only can cause a certain behavior (for example, discriminatory), but also «rationalize» to justify it.

Centering in the subject of the giftedness and the talent, we found, often, that parents as well as professionals center their reasonings in clearly stereotyped ideas or prejudices that shows ignorance as well as a social fear to accept differences. A particularitity of the intellectual exceptional nature is that it causes opposed feelings:

on one hand, of admiration and pride; but, on the other hand, of envies and fear. As we said, the necessity to categorize a behavior that excels of the norm can take in to hasty opinions devoid of solid premises (prejudices). One of the factors that influence remarkably in the formation of prejudices is partial or inadequate information that arrives mainly through mass media. These can get to mainly constitute an essential determinant of the attitudes of the family and the professional of the education since they reinforce the weak attitudes and prejudices, specially if they do not have other sources of information to resist and to conform a different attitude (Six, 1985). This prejudice becomes stereotype at the moment at which it is seen minimumly confirmed and it roots like an explanatory rigid guideline of the reality.

Let us see now some of the characteristics of the prejudices:

- They can be explained from specific processes of processing the cognitive information. For example, the generalization or excessive accentuation, when we considered the common characteristics of a concrete object like to all the objects of its category (Reasoning of the type: «A: Juan is gifted. B: Juan has emotional problems. C: All the gifted ones have emotional problems»).

- Prejudices can direct the cognitives processes of the individual, that is to say, the prejudices can modify the behavior of the prejudged subject and, in this form, being confirmed. (Pygmalion effect, Rosenthal and Jacobson, 1968).

- Prejudices are acquired from indirect experiences, from the socializing influence of the social surroundings (family, mass media, etc.). (Processes of categorización in the social stereotypes, Doise, Deschamps and Mugny, 1985.) The categorización is a psychological process with which we explained the organization that the subject does of the physical and social world. The process of categorial differentiation is a psycho-sociologic process that explains how the behaviors, valuations and representations of the individuals are conditionated by their belonging to different groups and the relations that among them settle down.

- One of the processes of formation of prejudices is related to the necessity to organize and to understand the situations of the daily life. This process is explained from the scope of the attribution. Theories of the attribution part from three assumptions: a) we are motivated to look for information that allow us to make attributions on causes and effects (usually we ask about the causes of our actions and those of the others); b) the allocation of causes follows certain rules or principles; and c) the attribution of causes influences in our later actions. Kelley (1973) studied the rules that sublie the atributionals decisions. To observe that two things happen at the same time (covariation) would be one of the fundamental principles, but the events can generally have several causes or explanations and the subjects apply causal schemes. These are groups of explanatory beliefs or ideas of what causes produce certain effects. The causal schemes reflect our ideas on the reality, imply a reference frame to interpret the reality, provide structure when the information is ambiguous or partial.

- Resistance to the changes. We must consider that the prejudices continuously are reinforced by the individuals of the group.

- Prejudices have as main functions:

a) Reinforcement of the identity of a group in front of groups of different characteristics.

b) Justification of the discriminations and aggressions towards the minorities.

Prejudices and Mythological Thought

When analyzing how prejudices are formed, we have been introducing natural forms of thought, habitually grouped like daily reasoning in contrast with the logical reasoning. Indeed, it is in these forms of daily thought where it connects what we could call «mythological or magical thought». Anyone of these forms of thought serves to interpret the reality, to accede to some type of knowledge, and to reduce the anxiety that always generates uncertainty, what is unknown. One of the so many functions of myths is that they are a pre-rational, magic, non-conceptual way to watch the reality. Commonly, the individual is only conscious of the tangible and symbolic way whereupon its myth is represented and in this way communicates the values of a specific culture, serving as a identity sign of the social group. If somebody question his group myths, would probably destroy his social foundations, because, at heart, would come to relativize the definitive solution that its culture has given to the problem of the meaning of life.

The myths transform, change of content and, even, of meaning, but the necessity of a «revealed truth», that in addition provides social identity, it is maintained throughout the human history. We must not forget that not-knowing generates anxiety, malaise, and, therefore, the myth is a human creation to give a *simple and quick* explanation to the natural and human phenomena that do not acquire meaning by the simple observation and the descriptive analysis, that is to say, require a superior explanatory level that appeases the anxiety in front of the unkonw.

«Myth designates a true history, a history of inestimable value, because it is sacred, exemplary and significant» (Eliade, 1999). Although, at the moment, the word «myth» means, at a popular level, fiction or illusion, it hasn't lost its function of normative transmission, although it has lost progressively its religious value. Greek authors drained progressively *Mhytos* of all religious or metaphysical value. Opposed to *Logos* and later on to history, it finished meaning «what cannot exist in reality». The jewish-christian tradition relegated to the dominion of the lie and the illusion everything that was not justified or declared valid by one of both testaments, introducing a certain historical sense to the religion, since the history narrated in testaments has a clearly chronological order (it happened in a certain time and in a certain place).

But the demystification of the greek religion and the triumph, with Socrates and Platon, of the rigorous and systematic philosophy, did not abolish the mythical thought definitively. On the other hand, it becomes difficult to conceive the radical overcoming of the mythical thought while the prestige of «origins» remains intact and the forgetfulness of what happened is considered in *illo tempore* (or in a trascendental world) as the main obstacle for the knowledge or the salvation. The rational man (in fact, one minority of intellectuals) does not replace the religious man and, for *homo religiosus* , the real, authentic existence, begins at the moment at which it receives the communication of a fundamental history.

For the cultures in which the myth continues having a value of true history, the main function of the myth is to reveal the exemplary models of all the rites and significant human activities: the feeding or the marriage as much as the work, the education, the art or the wisdom. The transmission is traditional and initiatic. The transmission is done through initiation rites in which the knowledge goes accompanied of a magic-religious power. They not only comply with a normative function but, perhaps still more important, of *transmission of knowledge* on the environment that allows the survival. In large measure, in the western culture, the religion took charge of the functions that the myth exerted in the considered primitive societies. In the XX century, we also have attended to movements clearly identifiable with eschatological and millennialists myths, and not only religion movements. Cohn, in 1963, wrote the following thing with regard to the nationalsocialism and the marxism-lenilism:

«By the pseudoscientific slang which both use, there is a vision of the things that remembers specially the lucubration to which the people of the Middle Age gave themselves. The final, decisive fight, of the chosen ones (lets say "aryans" or "proletarians") against the followers of the demon (jewish or bourgeois); the joy of dominate the world, or the one to live in absolute equality, or the two simultaneously, granted thanks to a decree of the Providence, to the chosen ones, that they will find therefore a compensation to their sufferings; the fulfillment of the last aims of the history of a universe finally deprived of evil, those are some of the old chimeras that still caress us».

Lets notice that as well as the modern man is considered constituted by History, the man of archaic societies is declared as a result of certain number of mythical events. *«Here is where the most important differences between the man of the archaic societies and the modern man notices: the irreversibility of the events, that, for the last one, is a characteristic note of History, does not constitute an evidence for the first one.»* (Eliade, 1999).

Myth and, what's more important, some functions of the myth, have survived of multiple forms, although perhaps the modern man does not accept it consciously, in a clearly technological and materialistic society.

The rest of popular mythologies that did not undergo the critics of classic Homeric mythologies, still subsist in the Greek and Mediterranean beliefs of our days, masked and christianized. The catholic church, specially in rural scopes, cristianized part of the rituals of the pagan religions. At the same time, it incorporated new rites of initiation and commemoration of the myth of Jesus Christ (although he has always been considered as a real historical personage).

But myths not only survive through the religion and the cult; they also arrive through sagas, legends and stories. It is in these narrations, although clearly diferenciables, where we can appreciate the value of the initiation rituals and where the archetypal models of the human behavior are transmitted clearly.

Our society has not forget to vindicate its origins and, to a certain extent, the historiography has occupied the place of the myths, whereas it narrates what happened in the beginnings, what is real, and constitutes our present identity.

Although through the myths we acceded to all the necessary knowledge for the survival (from the divine origin to daily tasks, like seedtime), in the contemporary world the knowledge of the reality of the human being and its surroundings has been

fragmented. To say it in another way, the oracles has been multiplied and professionalized; the capacity to dialog directly with nature has been lost.

The myths, far from paralyzing the human initiative, when appearing as intangible models, urge the creation in fact, continuously open new perspectives to the spirit of inventiveness of mankind. But the cristianized myths, popularized, transmitted as fiction to entertain (renewed in comic or fiction heroes) lose part of their magical power of renovation and creation. The part we rescue from the myth crystallizes in normative values, beliefs out of context, folk wisdom, prejudices.

Myths and Intellectual Exceptionality

Therefore, if we consider the necessity to know, to give explanation and to control everything that surrounds us as something inherent to the human being, we can understand, in the subject that we are approaching, that the historical evolution of the attributable to the exceptional intelligence and to the person that has this characteristic has been transformed only in appearance, but the symbolic content remains (to a great extent) not modified.

In the first place, is necessary to consider that intelligence, like quality, is not a neutral element in our culture. An ample range of insults talks about the lack of intelligence; therefore, it is a desirable quality. As Castelló aimed (2001), the term «intelligence» has remained blurred because socially is desirable that is not something perfectly delimited; if it was, it would have left outside the category many people. Also it is by this that the quality of intelligent is granted in numerous scopes; lately, for example, emotional intelligence has been vindicated. Indeed, a part of the content of the myth is coded; the knowledge is not necessarily something explicit that must be thought or be resisted with reality; only must be acted. In the same way, when a term stays blurred it can be added or take off parts of meaning, without for that reason altering the concept; it can be acted being applied *ad hoc* to convenience of the situation. The function is reassuring, appeases the idea that clarifying terms (socioemotionally filled) carry with it a cognitive imbalance, therefore, an intellectual effort with unknown results.

Secondly, in spite of the extension of the term to multiple qualities, our culture excessively values a type of intelligence that it correlates with the academic talent. That is to say, logical and mathematical reasoning, memory and verbal aptitude. We could find different origins for each one of these abilities, but without a doubt, the Greek philosophy is the departure point of valuation of the logical and mathematical reasoning. The memory has more remote antecedents, since only the memory assured the subsistence of the myth in the ungraphed cultures. Indeed, the chosen ones (chamans, oracles, etc.), as myth carriers, they were it by his mnemonic capacities and their capacity of linguistic expression. On the other hand, the qualities that compose the academic talent are easily assimilable by the society.

Thirdly, the western society has always established what were the valid criteria («legal») in order to accede to the knowledge. Any person who is able to accede by itself to the knowledge, jumping the pre-established norms, usually is punished by the system. We could multiply the examples, from the expulsion of Adam and Eva of the Paradise (See there that Adam has become like one of us, expert of the good and the bad, lets throw

him out of here, or he will be able to extends his hand, and also takes from the fruit of the tree to conserve the life, and eat from it, and live for evermore. Génesis -3.22-), to the processes of the Inquisition against Galileo or Servet. At the moment, it continues being specially punished the critical thought (independent) and the creative thought. The curiosity and the capacity to explore, far from being a quality, it is consider at a popular level a dangerous tendency («curiosity killed the cat»).

In fourth place, to discover series of subjects who are difficult to classify it generates, on one hand, the fear that they do not enter into a «standard» classification and therefore they are not easily identifiable (controlable); and, on the other hand, the desire to have those blurred attributes, to which a superior power is granted to them generally. This power would allow a fast access to the knowledge, the truth emerges and is revealed, the gift of the vision (in the sense to create and to organize the chaos) and, in synthesis, the fantasy relative to the omniscience as a form of mental power.

Finally, as a derivation of the previous point (relation wish-fear), we observed that superior intelligence (gift) must have a negative counterpart as a characteristic (weak point), for example, in its physical or emotional structure (of fragile constitution or emotionally unbalanced), or like expectable behavior (will have problems in the classroom). The archetype of the hero incorporates a series of exceptional qualities but some defects makes him vulnerable. Also evidences appear like inevitable exit to the use of the gifts of the hero. That is to say, the granted qualities must be used for the «good of the humanity» and not for his own benefit.

Conclusions

We consider that exists a series of elements that form our social attitude towards the phenomenon of the giftedness (that are far enough from the reality of the subject of high capacities) and that are hardly modifiable since they are strongly rooted in the collective systems of beliefs of each culture. They are part of the human being like those aspects tied to the magician, the not-rational, the not-conscious thing and, therefore, the nonaccessible simply from the reason.

As we have exposed, the beliefs about the exceptional cognitive nature can be reassuring and be admitted like authentic knowledge of the reality of the subject. The problem of this type of operation begins when the answers are unsatisfactory, the prophecy at some moment fails; then, we have two options: to renew it (through a substitute myth) or to look for another type of answers, another type of function, that we could call «knowledge in itself». The first option takes us evidently to the repetition, like certain evolution within such parameters socially admitted. The knowledge in itself tolerates a change of attitudes and deep values, a change of the system of beliefs, which would imply a certain degree of «revolution» of thought.

The myths have many forms to express. The necessity to quantify the nonquantifyable has attributed a quasi-magician value to the I.Q. In the same way which throughout history it has been attributed to the numbers magical properties, the scores obtained in an intelligence test acquire an absolute value. The problem is not only in the instrument of measurement, although from our point of view I.Q tests only measure a part of the cognitives abilities that compose intelligence, but the fact that they are not used to interpret the reality of the subject but to label it.

We believe that the analysis of the natural forms of human thought, the transmission of models and systems of beliefs in a traditional way, our past done of myths and history, the resistance to the innovation (between other factors), would explain the difficulty to change the conception on the exceptional subject.

This work is no more than an attempt to shape our restlessness on a natural phenomenon. It does not exist *a priori* an intention that our own «beleifs» show up solutions or concrete answers, but to extend the perspective of points of view, since it is a complex phenomenon and, therefore, susceptible of a multidisciplinary analysis.

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THE MONTGOMERY COMPUTER SCHOLARS: GIFTS EMERGE FROM PRISON

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ABSTRACT

Three Montgomery Scholars, individuals from an educational program created to send former inmates from the Illinois State Prison population to Malcolm X Community College and DeVry Institute, have been chosen as case studies to represent youth who were lost in a system of inner-city schools that overlooked "gifted and talented" children and whose profiles hardly fit preconceived notions of promising children. Taking the idea of a mind that deals with several different kinds of content, and acknowledging sensitivity to the diversity of different cultures, these men have exhibited exceptional intelligence and talent in both the gang culture and in post-secondary technical education.

The Montgomery Computer Scholars: Gifts Emerge from Prison

Montgomery Scholars Program

The Montgomery Scholars Program developed from a particular set of circumstances and the initiative of individuals in the not-for-profit sector. The background of the program is found in Chicago's poorest urban neighborhoods. The majority of inner-city American children exhibit little hope of attending any form of higher education. For those students that enter the gang/drug trade, the outlook is even dimmer. In 1991, 61% of state prison inmates had not completed high school (The Sentencing Project, 2001). Schools in Chicago neighborhoods where gangs are active are notoriously inferior. Indeed, a whole culture of city and federal school reform has been launched there based on this fact.

According to The Sentencing Project, a not-for-profit advocacy group, while African-Americans represent only some 13% of drug users in the United States, they make up 35% of all arrests for drug possession, 55% of drug convictions, and 74% of those sentenced to prison (Gering, 2001). According to a federal Household Survey, an estimated 72% of all illicit drug users are White, 15% are Black, and 10% are Hispanic (Substance Abuse and Mental Health

Services Administration, 1999). Almost 32% of males aged 20-29 are either incarcerated, on probation or on parole. In 1999, 46% of prison inmates were Black and 18% were Hispanic. In 1998 drug offenders constituted 21% of state prison inmates and 58% of federal prison inmates. Furthermore, Black mails have a 29% chance of serving time in prison; Hispanic males a 16% chance, and White males a 4% chance (The Sentencing Project, 2001).

In 1994, legislation was passed which denied federal Pell grants to incarcerated students causing many higher education prison programs to be discontinued. Individuals who have completed their sentences for drug convictions face additional barriers that frustrate access to education. A 1998 amendment to the Higher Education Act denies eligibility for grants, loans, or work assistance aid to students who have been convicted of a drug offense for varying periods of time. Repeat offenders lose eligibility permanently (Higher Education Act of 1998. Section 483; subsection 'F,' 1998).

Are our most vulnerable citizens subject to multiple punishments for their misconduct? David Borden, the executive director of the Drug Reform Coordination Network, believes that the provisions denying students aid " . . . amounts to a second punishment to people who have already been punished (Gehring, 2001)." James Garbarino, an advocate for minority youth and author of many books goes farther. " . . .Some boys get lost because they are systematically led into a moral wilderness by their experiences at home and on the streets where they are left to fend for themselves. These are the boys upon whose behalf I testify in court, trying to help judge and jury see the injustice of their experiences and how they have been robbed of their childhood by abusive and neglectful parents, but malevolent drug dealers, and by the sheer viciousness of their daily life. And I argue that to simply punish them with death or decades of incarceration only compounds the injustice imposed upon them by the world in which they grew up (Lost Boys, 2000, p.22).

These conditions, which face our urban minority youth, were well known to Cynthia Kobel, the executive director of the Harle and Ken Montgomery Foundation located in Chicago as well as to associates at the Safer Foundation, an organization that works through, Crossroads, a half-way house, to prepare and find jobs for ex-offenders.

The Montgomery Foundation board agreed to fund twenty-five students, seventeen of whom graduated with certificates Computer Electronics Technology.

Based on the success of the initial group, the Montgomery Foundation funded the educational program for more than 100 students. In the four years since the program began, 54% of the men graduated with a technology certificate and of those 13% have gone on to higher education. The recidivism rate of the 100 plus students was 9%. Only one of the men who went on to higher education returned to prison.

On Fridays, the men met in a group session with Ms. Kobel. Research exists which suggests that, in addition to the obvious and well-documented benefits of education in reducing recidivism, certain personality traits and attitudes distinguish reformed ex-offenders from repeat offenders. These traits

include feeling a sense of control over one's future, the ability to make something positive out of negative experiences, caring and wanting to contribute to others, finding fulfillment in being productive, taking responsibility for one's future, and finding meaning and purpose in life (Shadd, M., 1999). Ms. Kobel noticed many of these qualities developing as the men shared their personal stories during their Friday sessions. The students in the Friday sessions formed a new and positive peer group that diminished the effect of their gang, neighborhood, and prison peer associations. As Judith Rich Harris in her landmark study, The Nurture Assumption, has strongly argued, it is very hard to overestimate the powerful environmental effect of the peer structure on human behaviour. She argues that peer structures dominate the 50% of the variation in human behaviour that is not attributable to genes (1998).

The gifts emerge

While most of the men involved in the Montgomery program have shown a willingness and ability to be good students, three men, in particular, displayed intelligences far beyond the others. What are some of the reasons why these exceptional men and many similar, promising young boys in similar circumstances would not likely be tapped for gifted programs? The definition of gifted stated by the United States Department of Education (USDE) in 1993, would indicate that, perhaps, boys like these might be identified as gifted:

> Children and youth with outstanding talent perform or show the potential for performing at remarkably high levels of accomplishment when compared with others of their age, experience, or environment. These children and youth exhibit high performance capacity in intellectual, creative, and/or artistic areas, and unusual leadership capacity, or excel in specific academic fields. They require services or activities not ordinarily provided by the schools. Outstanding talents are present in children and youth from all cultural groups, across all economic strata, and in all areas of human endeavour. (p. 8).

The process that identifies students for gifted programs mocks this definition. Students are selected mainly on the basis of standardised test scores that do not measure the creative, artistic, and leadership aspects mentioned in the definition.

African Americans are underrepresented in gifted programs nationally. According to an Office of Civil Rights (OCR) report, African American students constituted 21.1% of all students, but only 12% of identified gifted students, a 41% discrepancy. In comparison, Hispanic Americans were underrepresented by 42%, but Asian Americans were overrepresented by 43% and Whites by 17% (Ford, 1998). If part of the variation of giftedness can be attributed to nurture, African Americans who are undereducated in substandard neighborhood schools and low ability groups, find their chances of being identified as gifted slipping with

each school year. A National Science Foundation Study found that in predominantly minority schools, only 9% of math and science classes were designated "high ability," while 28% were labeled "low ability." In predominantly white schools, 11% of these classes were considered to be "high ability," and only 7% were "low ability" (Chidea, 1995, p.71). Students in low-ability classes miss out on critical knowledge, skills and attitudes that are addressed in high-ability, and, even, average-ability classes.

In Chicago, North Side College Prep, a magnet school that selected only 400 students out of some 3,000 applicants for the school year 2000-2001, is a glaring example of what happens to minority students by the time they reach adolescence. Students are accepted at North Side only on the basis of an application and test scores. While only 10 % of Chicago school children are white, 57 % of North Side students are white. Likewise, Asian Americans represent only 3% of Chicago students, but make up 17% of North Side students. Only 14% of North Side students are black, but black students represent a majority, 53% of Chicago students citywide. Hispanics represent 37 percent of Chicago school children and only 11% of North Side College Prep enrollment (Johnson, D., 2000).

There are ten regional elementary gifted centers in the Chicago Public School system. As the chart below shows, whites represent 21% of elementary gifted students, about twice the percentage of their numbers in the general population (Chicago Public Schools, 2001). Although the majority of students in Chicago are black, only 28% of students in the gifted centers are black. Hispanics and Asians are overrepresented.

Table I

Regional Elementary Gifted Centers

	total	%White	#White	%Black	#Black	%Hispanic	#Hispanic	%Asian	#Asian
Beasley	1436	7.2	103	87.7	1104	1.9	27	2.7	38
Beaubien	913	53.1	484	5.6	51	28	255	12.2	111
Bell	731	45.7	334	13.5	98	29.4	214	10.7	78
Edison	269	33.5	90	18.6	50	28.3	76	18.2	48
Greeley	575	16.3	93	20	115	59.8	343	3.8	21
Keller	231	33.3	76	51.9	119	11.3	26	2.6	6
Lenart	240	38.3	91	38.3	91	12.1	29	10.4	24
Orozco	718	0	0	0.8	5	99.2	712	0	0
Pritzker	710	21	149	41.1	291	33.7	239	4.1	29
Pulaski	1129	4.3	48	3.9	44	90.3	1019	1.4	15
Total	**6952**		**1468**		**1968**		**2940**		**370**
Average		**21.1**		**28.3**		**42.2**		**5.3**	

SOURCE: Chicago Public Schools

To gain a place in a Chicago elementary gifted program, families must complete the application process and students are selected largely on the basis of standardised tests. The families of students who live in Chicago's poorest neighborhoods, while they value education and would like to see their children succeed in school, are not accustomed to thinking about gifted programs. Seeking a gifted education for their children is not really a part of their cultural landscape, or that of their peers; they would be unlikely to engage in the gifted application process. Furthermore, the children of these individuals attend schools where the standardised test scores indicate that the vast majority of students are not performing at grade level. The type of education the children in these neighborhoods generally receive is not intellectually challenging, but rather, is generally focused on student behaviour and characterised by a lack of abstraction.

Likewise, the children themselves are generally not part of a culture that would seek out gifted programs. Minority students express concerns about peer pressure because to be referred by a teacher for a gifted program might imply, if not require, following a teacher-pleasing pattern of behaviour. Some fear isolation if they are one of the only minority members in a gifted class (Harris J. & Ford, D., 1999, p.230). Generally, though, the idea of a gifted education doesn't cross the minds of this population.

Because standardised test scores are the main arbiters of identifying which students would benefit from a gifted program, African American students are at a clear and extensively document disadvantage. And, where teacher referrals are important, many teachers may not recognise the gifted nature of their students. The majority of teachers are white. For both white and black teachers, there is a class distinction between themselves and their students. Black males, who are involved in any way with gangs, are often perceived by teachers as "unsalvageable students on whom precious resources would be wasted," wrote Ann Arnett Ferguson in her book, <u>Bad Boys: Public Schools in the Making of Black Masculinity (Law, meaning, & violence)</u>. She went on to say of an elementary school where she did her research, "No one at the school seemed surprised that the vast majority of children defined as 'at-risk' of failing academically, of being future drop-outs, were mostly black and male" (2000, p.4).

Case studies

Despite their high levels of intelligence and considerable talents, all three of the students who distinguished themselves in the Montgomery program were high school dropouts, became involved with drugs, and were sent to prison. The three men all attended Chicago Public Schools in the inner city. None were tested in school beyond the required testing for grade level efficiency. None were referred by family or teachers for gifted programs. Even if they had been, the results may not have been positive.

"And then there are the gangs. If there are gang members in the family, the eight year old sees what's going down. He sees the money change hands. He then begins to make decisions and these decisions can be fatal. A young black male has from kindergarten to third grade until the system messes with him and a stigma is put on him," explained Kublai Torre, executive director of Amer-I-Can Illinois (K. Torre, personal interview, June 18. 2001).

ERIC

When Eric reached 12 years of age, in his neighborhood he was a man. He was to begin his stint on security. Up until now he was taken care of by the older men, not by his mother who was a drug addict, nor by his father who left when Eric was barely able to know who he was. The security men watch for the police. Eric's building is ten floors high and is the home for one of Chicago's largest street gang. Drugs are dealt out of the building all day and night. Sporadically three of four cop cars will pull up to the front and back of the building. You hear the younger kids yell out "5 oh" and the foot race begins.

"I lived in a drug infested environment, always violent and I was surrounded by negativity and people told me that we all would get incarcerated. No one planned for us to get an education," Eric said (Eric, personal interview, April 8, 2001).

By 14 years, Eric had his own corner, his own business. He kept the numbers in his head. He knew who owed him what, where to find those who owed and how to get the money back. He was a loan officer, an accountant, a psychologist, and a social worker. He took care of business and it was high finance. He belonged to a corporation: the Vice Lords. He was successful until he was arrested: possession with intent to sell.

These were not qualities that a teacher would look for in a gifted and talented child. Children in Chicago's inner city are not all tested for Gifted and Talented programs. Sometimes a teacher will refer students to gifted programs. Eric was not chosen.

After serving one year in Cook County jail and 91 days of a three-year sentence in Statesville, Eric came to Crossroads, a halfway house. He went to his counselor and asked if he could be considered for an educational program that he had heard about from some of the other men.

As Eric stated, "I've made it to 21 years old. How? I will say someone is watching over me" (Eric, personal interview, April 8, 2001). Eric has received a certificate in computer technology is planning to attend DeVry Institute. Not surprisingly, he is an "A" student in math, calculus and trigonometry. How did Eric go unnoticed? It was simple. He took tests and filled in the answers as he was told to do. He passed the tests, but the tests didn't go as far as to delve further than his grade level. No one thought to test the tired young man for his overall intelligence. He caused no problems; he showed no incentive. The message he got was that he was a young gangbanger who would soon be in prison.

Since entering the Montgomery Scholars program he has shown himself to be a gifted student. At Malcolm X Westside Learning Center he has proved to be an exceptional student. He was soon tutoring his fellow students and SAFER

received a letter about Eric and three other Montgomery students from Brother White, a professor at Malcolm X College: "Not only have these students performed exceptionally, in addition, they have unselfishly given of themselves by assisting other students who are experiencing some difficulties with the computer and math courses. This helps the students and instructors alike… I confidently recommend them for any further educational or employment opportunities that become available" (personal correspondence, 2001). The letter went on to cite each man for his individual contributions, which ranged from translating software for bilingual use to tutoring students to motivating others.

OLIVER

Oliver knows this is his last chance. If he doesn't get it together now, he fears that he could end up back on the streets or in prison. So, he is diligent. He doesn't have time to sit still; he is always working. He is on the honor roll at DeVry Institute and he spends 60% of his time in the computer lab. His other time is spent with his church. He is the music director of the church and the computer repairman for his ministry.

Oliver's teachers identified him as a gifted student, but his parents saw no reason to treat him differently. His uncanny ability to play the piano as a youngster was not deemed unusual, nor was his ability to play the guitar a couple of years later. His grandmother, who was a minister, had all three singing in her church. However, singing and playing musical instruments in his family was not a job, it was something to be done in church. Working was going to a nine-to-five. Oliver dropped out of school when money became more important to him than school.

In 1997, he was sent to prison for nine years. He began taking computer class in prison. "It's difficult to get into educational programs in prison, but I kept at them until they let me in one of the classes. I knew I wanted to go to school. All during my life, I have attended school. I just never finished" Oliver said (Oliver, personal interview, April 22, 2001).

Oliver has turned three-fourths of his small apartment into into a computer studio for his music. He is doing his own recordings, playing guitar, bass, keyboard and singing on tapes that he overlaps onto a master tape. The music is creative, beautiful and intense; it's a little bit of rock, gospel and blues. He has taken his music and computer skills and combined them into a talent that he vows not to let go unnoticed this time.

DWAYNE

Dwayne also grew up in Chicago, on the far West Side. "I was a shy kid. I was doing very well in school; in fact, my mother said that in second grade, I was doing fourth grade work. "The problem was that I had questions that teachers wouldn't answer. It was like it wasn't part of the curriculum. I remember one day

a teacher put a test on my desk. I looked at it and I had a question. I raised my hand and the teacher told me she had no time to answer questions. I just ripped up the test. School continued to be a problem and I finally dropped out of high school and went to work at a Pizza Hut. Either I was just bored or in trouble" (personal interview, May 6, 2001). Trouble did come to Dwayne when he was arrested and sent to prison.

Dwayne finished Malcolm X with his certificate in Computer Technology and then went on to earn certificates in A++ technology and Fiber Optics. He has a resume and is going on interviews. Another benefit of an education is that he is teaching his daughter about computers. "Higher education isn't something that was expected in our household. No one in my family ever went to college, I'm the first".

Recommendations

Our journey into this short study has confronted us with a variety of solutions to the problem we present here. To prevent the waste of other promising and valuable lives we believe that several areas must be addressed.

- ### Cultural understanding.

    Much as Peace Corps volunteers and other ex-patriots characteristically do, teachers must suspend judgment and immerse themselves in a culture that may not be their own. Only then will they be able to understand their students on the students' own terms and be able to appreciate qualities, including giftedness, that come in unexpected guises.

- ### Criminal justice reform

    Current drug laws, criminal investigation, and judicial practices are highly prejudiced against particular groups of people, namely poor Afro-American and other minority youth. The lives of these still immature people are disrupted, stigmatized, and directed toward permanent failure and despair.

- ### Urban School reform

    All students in poverty-area, urban schools should be taught a relevant, challenging, and enriched curriculum by well-educated teachers. Highly intelligent, urban, minority students should be identified as gifted and exempted from biased standardised tests.

- ### Community relations

    Schools should make extraordinary efforts to communicate with the families of their students. Parents and other relatives should be encouraged to think about gifted programs and other educational opportunities for their children. Likewise, schools should promote an ethos of goal setting, student achievement and self-reliance among the students they serve. Only when positive attitudes about schools permeate a critical mass of adults and students, will the conditions for change be present.

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DUAL EXCEPTIONALITY AND ENVIRONMENT: FAMILY AND SCHOOL FACTORS

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ABSTRACT

This article presents the process and conclusions of research carried out from April 1999 till June 2000, where instructional environment (school and family) is evaluated through a group of twice exceptional students from the north of Spain. First of all a process of identification was carried out and then information about environment was obtained and analyzed to observe whether there is any influence of it in the condition of dual exceptionality.

INTRODUCTION:

Twice-exceptional children can show different combinations of two phenomena simultaneously: sensorial and motor deficits, talent and cognitive deficit, hyperactivity and giftedness, etc. But in this article we only study the phenomenon of gifted children who have learning disabilities (GT/LD) and who generally have a low achievement (global or specific) which unbalances the relationship between performance and capacity (Bateman, 1964, referenced by Kirk & Chalfant, 1984).

For the study, initially, Provincial Departments of Education (of Asturias and Cantabria) identified a group as gifted children (69 students). To find out whether they also had learning disabilities their teachers were asked to make a subjective diagnosis (22 children). Then, this information was contrasted through an objective analysis that proposed three criteria of diagnosis: Globality, Dispersion and Coherence (19 children).

1. GT/LD STUDENTS:

This kind of exceptionality is not easily identifiable in the classroom, owing to the mask process which happens between them (giftedness and learning disabilities), this creates a marked absence of educational propositions adapted to the necessities and peculiarities of this population.

These children generally show their weaknesses in concrete areas but the problems associated to their dual condition makes them being very unreceptive in class. School and its activities create a feeling of anxiety and tension which make them feel failures even in areas where their weaknesses are not directly involved.

The phenomenon of giftedness combined with learning disabilities is manifested in a high potential, which has no direct reflection in their academic performance or in intelligence tests either.

Authors such as Beckley (1998) who presents students with giftedness and learning disabilities characterised by ambivalent traits pointed out:

a) A high level of frustration derived from the difference between their expectation of achievement and the final result which makes them tends to be aggressive and have a lazy attitude in class being, often, actors of the disturbs in it;
b) Tension and fear of failure that normally drive them into a constant defensive attitude;
c) Deficits in memory tasks and perceptive abilities, while showing excellent results in reasoning tasks and problem solving skills;
d) Shyness and negative academic self-perception, which promote a low self-concept, so they feel out of place in the classroom;
e) Strong creativity and more interest in areas that permit imaginative tasks;
f) High capacity for conceptualization, they can also appreciate relationships and connections, a marked ability to think in abstract and generalize. They enjoy solving problems for themselves;
g) Difficulties in basic motor skills such as graphomotor velocity, sequenciation, organization, visual perception and the ability of study.

Yewchuk & Lupart (1993) study these twice-exceptional children too. In this case, authors explain that GT/LD students have:

a) A better memory and general knowledge higher than the average;
b) Analysis strategies and problem solving skills greater than their chronological age;
c) A profound interest in learning;
d) A high level of comprehension;
e) Oral and written language superior to the average;
f) A sophisticated sense of humor;
g) A persevering attitude in carrying out intellectual tasks;
h) An ability to develop and improve their best areas of performance.

But, at the same time these gifted children with learning disabilities can show:

a) Problems in the development of self-concept, owing to the fact that their own view is affected by the existence of a negative perception of themselves and their capacities (although it can be different in other ambits of the child's life);
b) Intense frustration which generates strong tensions;
c) Problems in their relationships with their peers, teachers and even their parents;
d) Academic difficulties in some educational areas.

2. GIFTED LEARNING DISABLED CHILDREN IN THE CLASSROOM:

The researches of diverse authors (Baum, 1994; Vespi & Yewchuk, 1992) demonstrate the existence of this problem area among children and call attention to the need for further study to isolate different issues. Suggestions go from methods and techniques of identification to models of intervention; because it is not a correct approach attempt to combine both solutions at once, because they have been thought separately for Giftedness and Learning Disabilities (Brody & Mills, 1997; Robinson, 1999). So it is urgent to develop a concrete field of study on this issue.

Two factors facilitate the lack of attention that these children find in their classrooms: on the one hand, the huge misunderstanding that exists about this subject and on the other hand, the stereotype which has been applied to this group, which views a high capacity as always in correlation with a good performance. All of this, as Brody & Mills (1997) indicates, shows that educators find academic potential independent of achievement a difficult concept to accept (Whitmore, 1982).

As a result of this, there are many groups of these children in classrooms whose exceptionalities have not been correctly identified. Authors such as Baum (1994), Beckley (1998) or Brody & Mills (1997) divided these cases into three big blocks:

1) The first group are students whose giftedness has been identified but whose learning disabilities are obviated. They show low performance, which is attributed to a poor self-concept, lack of motivation or laziness, so their curriculum is not adapted to their special needs. In this situation there comes a moment when the discrepancy between academic requirements and students competencies becomes so great that it drives them into academic failure.

2) The second, those children whose learning disabilities have been identified but not their giftedness. An inadequate assessment and/or low scores in intelligence tests means that educators do not appreciate the existence of a high capacity.

3) The third, students neither whose giftedness nor learning disabilities have been identified. These children can seem like "normal" students because their capacities mask each other. They are perceived as underachievers not particularly able and without special needs to attend.

3. EMPIRICAL STUDY:

The following pages show process and results of a study of 19 gifted children with learning disabilities carried out in the north of Spain (Asturias and Cantabria).

3.1. PROBLEM AND HYPOTHESES:

The problem which is examined here reflects the need to know what influence the environment can have on dual exceptionality at two levels: in the family and at school: ¿Does the environment constitute a determining factor in the manifestation of dual exceptionality?.

The methodology used belongs to an empirical-analytic perspective centered on the quantitative analysis of general information. A non-experimental model is developed (ex post facto) to observe the relationship between different variables according to a Comparative Study (Arnal et al, 1992). Hypotheses to put forward explain the contrast during the research process:

1) The school environment has an influence in the manifestation of dual exceptionality

2) The family environment has an influence in the manifestation of dual exceptionality

3.2. VARIABLES:

Variables of the study form three big blocks of analysis:

A) Dual Exceptionality (table 1): is in both hypotheses. This is established on the scores that students have obtained in three criteria of diagnosis: Globality, Dispersion and Coherence. Globality analyzed discrepancies between intellectual capacity and knowledge; dispersion, variability between scores obtained in tests; and coherence, existence of weak areas within the development and learning process. These criteria are considered representative of how giftedness combines with learning disabilities to show a manifestation minimum (1 criterion) or maximum (2/3-criterion) of dual exceptionality. These are the groups (minimum and maximum) in which students are divided as independent blocks for the analysis of the environment.

Table 1: Dual Exceptionality (level of LD in students)

	FREQUENCY	PERCENTAGE	VALID PERCENT.	ACCUMULATED PERCENT.
MINUMUM	7	36.8	36.8	36.8
MAXIMUM	12	63.2	63.2	100.0
TOTAL	19	100.0	100.0	

Globality criterion: is a score that compares real level of knowledge with expected level of knowledge by intellectual test scores (K-ABC, WISC/WISC-R and WAIS). It is necessary to calculate a Z of knowledge (Zy) and a Z of IQ (Zx) which is regresionated in relation to its correlation with Zy (Zx * rxy). When both Zs have been obtained, the final score is calculated based on a formula of Cone & Wilson (1981). Whether the scores of Zs are smaller than those obtained with the calculations, it is considered that child does not show first criterion of dual exceptionality diagnosis.

Dispersion criterion: in this case, variability of capacities is studied. K-ABC offered an interesting test based on this criterion which compared four
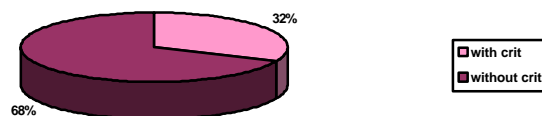
scales of information: knowledge, complex mental process, simultaneous process and sequential process. In the case of WISC/WISC-R and WAIS, dispersion criterion compared the scores' media obtained by students, grouping them into different blocks according to the Bannatyne proposition (1974). This

author established five characteristics in which children with learning disabilities seemed to show an important variability: spatial capacity, verbal conceptualization, sequenciation, acquirement knowledge and distractibility factor.

In both groups (K-ABC and WISC/WISC-R/WAIS) a student shows this criterion when there is a significance difference, at least, between two blocks.

32%

68%

- with crit.
- without crit.
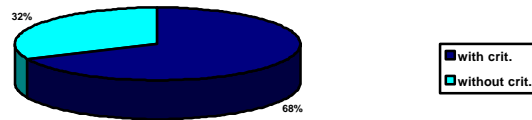
Coherence criterion: if children obtain in some tests an score which is significantly lower than the other, they show a weak area which can exist because of the incidence of learning disabilities. Students show this criterion when they have, at least, one weak area (independently of having strong areas).

26%

74%

- with crit.
- without crit.
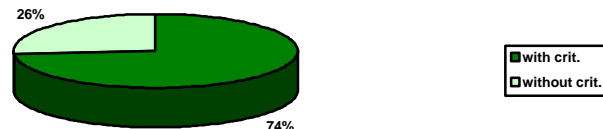
B) School Environment: belongs to first hypothesis, obtained with TIES-II of Ysseldyke & Christenson (1996) through observation in class; where there are differentiated twelve categories of analysis: *instructive plans, teacher expectations, school environment, unit of learning, cognitive emphasis, motivational strategies, relevant practices, feed back, times of work, adaptive teaching, progress evaluation and students comprehension.*

C) Family environment: is in the second hypothesis and is obtained with TIES-II too, through an interview with teachers; there are five categories of analysis: *family expectations, family discipline, family affectivity, collaboration with school and family organization.*

3.3.INFORMATION:
Tests for research were:
➢   A questionnaire for the subjective criterion of teachers about their appreciation of the existence of learning disabilities in children.
➢   For the dual exceptionality criteria:
•   Aptitude tests: WISC (Wechsler, 1991), WISC-R (Wechsler, 1997) and WAIS (Wechsler, 1995) for children who were from twelve till sixteen years old.
•   Pedagogic test: K-ABC (Kaufman & Kaufman, 1997) for children who were from four till twelve years old.

➢   TIES-II (Ysseldyke & Christenson, 1996): it gave information about family and school environments.

3.4. ANALYSIS AND INTERPRETATION OF RESULTS:

The analysis was made with SPSS, using a non-parametric test (because of the small population: 19 children) for two independent groups called U of Mann-Whitney. A unilateral interpretation is done in which the direction of the relationship is from the environment to the dual exceptionality, it means that the first one has an influence in the second one. The results are significance (90%) in these cases: in School Environment for "school environment" and "students comprehension"; and in Family Environment for "family discipline".

In **School Environment** there was a significance relationship between dual exceptionality and **"school environment"** with a *direct* score (more adequate environment= more difficulties). It means that when scholar environment is adapted to the propositions of TIES-II (efficient techniques of direction in the classroom with a positive and relaxing atmosphere, so as a constant control of the activity) children show a high level of disabilities. This relationship has sense because a relaxing environment but with a strong directivity is not adequate for the learning necessities of GT/LD children, owing to two reasons: their autonomous character for learning activities (they are independent learners) and their need to have different ways for work to obviate disabilities in their learning process.

Results show also a significance score (90%) in the *inverse* relationship between dual exceptionality and **"student comprehension"** (more comprehension = less disabilities) which indicates that when comprehension is high and adequate, children show a low level of learning disabilities. So when children know what they have to do in the classroom, it gives sense to their activity: they can do the work for themselves using their own strategies and skills.

In **Family Environment**, there is a category with a significance score (90%) which is **"family discipline"**, it has an *inverse* relationship with dual exceptionality (more adequate discipline = less disabilities). It means that when discipline is balanced (neither permissive nor authoritarian) GT/LD children show a low level of learning disabilities. Therefore, this group of students needs an education not only without excessive authoritarism (which could promote a rebellious attitude) but also without strong permissiveness (which could promote a decontrol in the activity). This result seems to be logical remembering the strong autonomy which characterized GT/LD children who need explore by themselves. But in any case, discipline is necessary at least to supervise their educative process and to help them to improve their weak areas owing to existence of learning disabilities.

3.5. CONSEQUENCES AND CONCLUSIONS:

Finally some things have to be pointed out:

➢   The direct relationship between "school environment" and "dual exceptionality" indicates the necessity of propose teaching methods adapted to the characteristics of this group, with the intention of finding ways which permit

improve their weak areas and continue with the enrichment of their high potential. All of this has to be done within a calm environment, directing and controlling constantly the classroom but no the learning (which has to be supervised with bigger temporal intervals, just to let students find their own ways to access learning).

➢   In school environment research shows also an inverse relationship between "student comprehension" and "dual exceptionality", so it will be necessary that students have cleared the activities and objectives to do in the classroom, so that way their work has sense.

➢   In family environment, results point out that GT/LD students need a kind of "family discipline" which permits them explore and decide by themselves, but with adults' supervision that establishes an order, helping them to avoid problems derived from their dual exceptionality.

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I DON'T NEED A LABEL – I KNOW HOW BRIGHT I AM!

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Australia

ABSTRACT

The purpose of this study is to determine the social/emotional effects of the label "gifted" on students selected in withdrawal programmes at primary school. 113 students from three government schools completed measures of self esteem before and after the programmes. A questionnaire eliciting their perceptions about the programmes and perceived differences in attitudes from peers and siblings was completed afterwards. Parents and teachers completed questionnaires about the children's attitudes as well as the Social Skills Rating System – parents and teacher forms respectively. Results showed gender differences on students' perceptions of anxiety, academic ability, self esteem and popularity. Generally, all agreed on ratings of self esteem.

INTRODUCTION

Due to space constraints, this contains only the method, discussion and conclusion of the paper presented. The reference list is the complete one for the entire paper.

METHOD

Participants

Approaches were made to three government primary schools in the Eastern Metropolitan Region, Victoria, where withdrawal programs were conducted for gifted children. The schools were drawn from a largely middle class socio-economic area and most respondents were born in Australia, although many of their parents were from various nationalities. The sample comprised 113 students, 54 girls, 59 boys with an average age of 9.

Test instruments and checklists

The children were administered the following measures:

1. Piers-Harris Children's Self Concept Scale (Piers, 1984) used to examine the self esteem of the participants in this study.

2. Child questionnaire devised by the examiner regarding attitudes towards giftedness.

The parents were required to complete the following measures and checklists:

1. Social Skills Rating System - Parent Form (Gresham & Elliott, 1990) is a questionnaire designed to evaluate perceptions and the frequency and importance of Social Skills in children in four areas: Co-operation, Assertion, Responsibility, Self Control. The SSRS also provides frequency ratings of potential Problem Behaviours in three areas: Externalizing, Internalizing and Hyperactivity. This measure was used to ascertain the level of social skills and problem behaviours shown by the student at home and in social settings away from the school environment.

2. Parent questionnaire devised by the examiner regarding attitudes towards giftedness.

The teachers were required to complete the following checklists:

1. The Social Skills Ratings System- Teacher Form. (Gresham & Elliott, 1990).

2. Teacher questionnaire devised by the examiner regarding attitudes towards giftedness.

Procedure

The researcher had no role in the identification of the students for inclusion in the withdrawal programs.

Prior to commencing the collection of data, parents were asked to sign consent forms following a detailed description of the commitment sought from themselves, their children and their children's teachers. A letter of explanation was sent to teachers, requesting their co-operation.

At the beginning of term 4, the children completed a Piers Harris Children's Self Concept Scale. One month later, the parents and teachers were requested to complete the relevant forms and return them to the schools in a provided sealed envelope. At the end of term 4, the children again completed the Piers Harris and the children's questionnaire about the effects of being included in withdrawal programs for gifted children.

At the conclusion of the data collection, the teachers, the children and their parents were thanked for their participation. The parents received a summary of their child's results with a graph indicating the two measures of the Piers Harris and a summary of the Social Skills Rating System, parent and teacher forms.

Results and Discussion

Table 1   Self rated overall self esteem perceptions

gender		Below Av.	Average	Above Av.
Male	**Pre Program**	80%	20%	--
	Post Program	76%	24%	2%
Female	**Pre Program**	65%	35%	-
	Post Program	52%	46%	2%

There was a strong positive correlation (r=0.7) between the children's academic ability and self esteem. Prior to the, program, neither the boys nor the girls rated themselves as having an Above Average self esteem. However, both boys' and girls' rating of their self esteem improved after the program, even though both groups still reported higher than expected low self esteem.

Table 2   Self rated academic perceptions

gender		Below Av.	Average	Above Av.
Male	**Pre Program**	5%	7%	88%
	Post Program	2%	22%	76%
Female	**Pre Program**	9%	19%	80%
	Post Program	2%	30%	67%

Overall students' academic perceptions increased, as expected, with a correlation of r = 0.6.

When gender is differentiated, prior to the program, the boys rated themselves higher in the Above Average category. However, after the program, the boys indicated a movement away from the Above Average, a significant increase in the Average and a lowered Below Average category.   In other words, the boys generally moved upward in their self ratings. Compared to the boys, the girls prior to the program rated themselves as higher in the Below Average, more in the Average and less in the Above Average than the boys. Post program saw a marked decrease in the Below Average, a marked increase in the Average and a lower Above Average categories.

In the actual count of academic perceptions, prior to the program, boys and girls who rated themselves at the lower to middle ranges of academic performance, showed a trend towards an upward movement in the their ratings post program. However, those who had recorded within the high range maintained their perceptions of their academic performance. Those with higher academic scores were found to have lower anxiety.

In both boys and girls the decrease in Above Average category post program, may be due to comparison with others in the withdrawal group of other gifted children, rather than the rest of their classmates in the regular classroom, where they may be the "top" of their class. These findings support those of Ford (1989), Guskin et al. (1986) and Tidwell (1980) which found that gifted primary school students describe their academic abilities as at least average.

Table 3   Self rated anxiety perceptions

gender		Low Average	Average	Above Av.
Male	Pre Program	89%	9%	1%
	Post Program	89%	9%	1%
Female	Pre Program	78%	17%	5%
	Post Program	73%	20%	4%

There was an overall decrease in anxiety levels with a correlation of r = 0.7 between categories before and after the program.

There were no real changes in the pre program and post program ratings of anxiety by the boys. Generally, prior to the program, the girls rated themselves with higher anxiety levels than the boys. Further, whilst there was more a positive movement towards the Average range, the girls still rated themselves as having higher anxiety levels than the boys, post program. However, generally, there was a reduced anxiety level for the girls as a result of the program regardless of their academic perception.

There was a positive (r=0.5) correlation between the post program rating of academic ability and decreased anxiety levels overall.

There was a weak negative correlation (r=–0.3) between the children's post program recording of their anxiety levels and the teacher's ratings of internal behaviour on the SSRS. A weak negative correlation(r=–0.24) was registered between the children's overall post program rating of anxiety levels and the parent's rating of internal behaviour on the SSRS. This suggests that parents' and teachers' perceptions of children's anxiety levels are different to those perceived by the children.

Table 4   Self rated perceptions of popularity

gender		Below Av.	Average	Above Av.
Male	Pre Program	14%	22%	64%
	Post Program	15%	25%	59%
Female	Pre Program	4%	24%	72%
	Post Program	6%	30%	65%

There was also a strong positive correlation (r=0.7) between the pre and post ratings overall of popularity. The boys recorded higher ratings of Below Average popularity than the girls for both pre and post measures. However, both girls and boys increased their levels of Below Average and Average ratings and decreased Above Average ratings. This may be due to the perception that there is some social disadvantage in being labelled gifted overall. There was no literature reference regarding popularity and gifted primary children in withdrawal programs, only adolescents.

Table 5 Post program Children's Questionnaire Results

	positive	No change	Negative
Siblings	5%	82%	12%
Peers	16%	76%	8%
Parents	90%	10%	-

There was no measure as to how their peers treated the gifted children pre program. Therefore this rating was retrospective and possibly the children may not have been treated positively by their peers beforehand. In a study of gifted adolescents conducted by Manaster et al. (1994), 61% recorded that their peers treated them differently, whereas only 24% of peers of the primary children in this study, combining both positive and negative changes rated themselves as being treated differently. Kerr et al. (1988) found that adolescents were concerned by peer reaction, but this was not found in the current study. There were no references in the literature regarding reaction to the label and concerns about peer reaction for primary aged children.

The children's questionnaire results showed 85% children were surprised or excited at being included in the withdrawal program. Yet, 85% of the children rated themselves Above Average on academic ability. It is not clear whether the children understood the reasons behind their selection in the withdrawal program.

No information was available as to whether their siblings had been identified as gifted which could impact on the reaction according to Ballering and Koch (1984) and Colangelo and Brower (1987a).

The ratings by the children of their parents' reactions would confirm the findings of Chamrad et. al. (1995) that parents are often prouder of their gifted children than their other children. It may also reflect the parent's recognition of their child's ability and the fact that it has been recognized by those outside the family. 10% of the children reported no change in reaction from their parents. This could indicate possible indecision that some parents may experience at the attribution of the label gifted to their child – its effects on themselves, their child, other children in the family and the need for lifestyle changes, according to Colangelo and Brower (1987b) and Johnson (1994).

Table 6 Post Program parent questionnaire results

Use of label	67% often	29% sometimes	4% never
Think child is gifted	42% often	43% sometimes	4% never
Concern at label	22% excited	59% surprised	19% are concerned
Sibling reaction	9% surprised 18% excited		32%concern 5% angry
Self esteem of child	17% increased	77% no change	6%deteriorated

These figures appear to reflect the fact there is not a consensus as to what "gifted" means in the community and, as suggested by Colangelo and Brower (1987b), stresses the importance for parents to having clear guidelines as to what "giftedness" means. This is particularly pertinent when the "excited" and "surprised" figures are combined, despite 67% of parents using the label "gifted" to describe their child.

Parents stated that 36%, sibling reaction did not apply as the child was either a singleton or the sibling was too young. When the parent's figures of "angry" and "concerned" are combined, then 37% siblings are negative about the attribution of a label "gifted" to a sibling. This contrasts with the child's perception of 13% of siblings being angry. Combining the parent's "excited" and "surprised", 27% of parents have rated siblings as positive, compared with 5% by the children's ratings.

According to the parents 81% of the children retained former friendships after the program.

Table 7 Postprogram teacher questionnaire results

	positive	No change	deteriorated
Soc.interaction	7%	91%	2%
Peer reaction	2%	89%	8%
Self esteem	19%	79%	2%

The figures relating to teacher estimates of positive or no change in peer reaction after the program are different to those estimated by the children. The children record an increase in peers reacting more positively towards them after the program and fewer peers are rated as not changing in their attitudes towards the gifted children. But there is agreement between teacher and children's ratings of negative reaction from peers post program.

There was a weak negative correlation (r=–0.03) of teacher's expectations of the child's academic standard after the program. It is possible that teachers already had high expectations of these children and therefore little change was expected.

Generally, it was found that child, parent and teacher perceptions about self esteem post program were fairly consistent.

CONCLUSION

This study was undertaken in an attempt to identify the social/emotional effects of the label giftedness for primary school children when they are included in withdrawal programs. Most studies in the literature had focused on adolescents and their reaction to the label, with few looking at aspects of the effects for primary school children. The majority of the studies investigated the relationship between gifted children and their siblings.

In this study, parents, teachers and the children rated issues dealing with self esteem, popularity and levels of anxiety. Self esteem ratings were the only ones where there was some agreement between parents, teachers and children's perceptions overall. It had been expected that parents, teachers and children would have similar ratings of the children's anxiety, popularity and academic levels but this was not found. Parents' and teachers' ratings of children's reactions to the label by being included in withdrawal program and their social interactions with their peers had very weak relationships. Generally the outcome was positive with self esteem tending to be elevated overall.

Gender differences were seen in measures of self esteem, anxiety, academic and population ratings. Overall the boys and girls registered a positive increase in self esteem, post program. The differences between the pre program and post program ratings by the boys on self esteem were in a positive direction. However, the girls recorded greater changes between the two measures. The changes in the ratings on academic ability were greater for the girls who showed a marked decrease in below average, a marked increase within the average range and a marked decrease in the above average range. The boys rated themselves as moving towards the average range but the changes were smaller than for the girls. There was no real change in the boys' ratings of their anxiety pre and post program. However, the girls tended to move towards decreased anxiety levels, post program. The boys rated themselves as less popular than the girls.

The withdrawal program has benefited both boys and girls, but more girls have registered gains in self esteem and lowered anxiety than the boys. Parent and teacher estimates of children's popularity and anxiety were different to those estimated by the children. There were similarities between parent, teacher and child ratings of self esteem.

It would be useful to extend a study such as this investigating the social/emotional effects of the label giftedness on children in primary school withdrawal programs to a larger sample, and for the measures to be taken over a longer period to determine whether the findings are similar.

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SOCIALS MITHS IN GIFTEDNESS

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ABSTRACT

From *Mentor Psychopedagogic Center* we check commons and differentials elements about initial consultation motives and expectatives created when parents come.

The highest percentage of initial consultation motives are parents who wants to know if their children are gifted and obtain an adecuate psicopedagogic response, but with the diagnosis we note that only a 51 %, approximately, really are.

We will apprise social expectatives about «giftedness» mith and how it still differ from children reality. We will comment the responses and counselling we offer to correct this problem.

SOCIALS MYTHS IN GIFTEDNESS

In the ten years that we have been working in the *Gabinete Psicopedagógico Mentor*, we have had occasion to take care of great amount of demands related to the subject of the giftedness and the high abilities. Of them we have been able to observe certain common or coincident elements on the expectations generated from a partial or slanted knowledge of this phenomenon.

In this work we mainly question the social influence of archetypes or myths that condition the arrival to the center of parents worried about certain conducts differentials in their children, when compare them with other children. We are talking about conducts that are considered own of somebody with high abilities, like, for example, a greater rapidity in the assimilation of learnings, or an eagerness of knowledge beyond the limits that the school offers.

One of the most habitual questions that we find is: «My son has a learning or conduct problem. Is he gifted?». Why is related to something so negative the fact to be gifted, when any logical approach to the subject says to us that the high abilities are in itself a positive resource and not as much a difficulty of the subject?

Our experience has taken us to determine that a strong influence of social type exists (mass media, professionals few versed in the subject, etc.)

and that one is latent behind the reason for counselling that takes to the parents to look for answers, but what answers?

We have stated that half of the families who look for aid because they think that his son is gifted, in fact he is not; and the other half that it is, only in a small percentage a direct or indirect relation between high abilities and some type of difficulty exists, specially related to the development of its potential in the school environment, as it could be the rate and quality of the learning, difficulties of communication with his companions and/or their professors, etc. We think that this situation requires of a deeper analysis.

For this reason, next we will classify the type of influences that we have been able to observe and the answers or expectations that these parents look for and that already we can advance that all of them almost have as a background a social fear to accept the differences, as well as ignorance on the world of the high abilities.

TYPE OF INFLUENCES

> *Influences of mass media.* Generally, in journalistic articles, discussions, monographics, etc., in television and radio, the exposition that is offered to the public includes a vision quite sensationalist on the subject. Except for honorable exceptions, due to an eagerness to impact, the classic image of the gifted one that appears is very slanted or is far away from reality. In general lines, this image usually is the one of a boy who spends the day bottled in his studies (typical «bookworm»), with few friends, who is a «know-all», that has an intellectual quotient superior to 130 and, mainly, that due to the boredom that the classes of repetitive type suppose to him, he is lead to a loss of interest of everything that has something to do with the school and for that reason arise problems of scholastic failure. Further on we will analyze these data.

> *Influences of some professionals dedicated to the giftedness.* Also we have observed that some people who dedicate themselves to this subject, reinforce the idea previously exposed of mass media (at least in Spain). If not, from where do journalists get this slanted information? Colleagues who continue pleading for the notion of the gifted one like a being with problems and, therefore, need to be diagnosed as rapidly as possible to avoid future misfortunes and/or the idea that giftedness is equal to have a I.Q. superior to 130, when almost everybody knows that if we remained only with this score (and it depends on the test), as much, it can give an approach to an academic talent, but does not consider neither the creativity nor the fluidity in the interconnectivity of the different aptitudes, which we consider basic for the diagnostic. This leads us to

question the following: if confusion exists at the time of delimiting what is giftedness or what is academic talent, with the consequences that carries in the type of intervention, how it is not going to reaffirm the stereotype socially or, in other words, this confusion in the general population?

➤ *Influences of the professionals of the education.* Due to our own experience with them, for some teachers «it doesn't exist gifted children, but young overestimulated», or they have an opposite idea to the exposed one in previous points: «If he is gifted, he does not need aid or educative support». The first premise takes implicit that the giftedness is a purely environmental phenomenon. The second one, it estimates to adjudge to the boy a level of emotional maturity superior to which he really has, and, in addition, it is limiting a basic right of the student: to be developed based on its characteristics and educative necessities. Both ideas we consider that are erroneous and we think that what exists behind these ideas, the background, is a negation to a series of fantasies that occur in the teacher: mainly, the one of which «this boy is going to make me work a lot», when, in fact, this fantasy is not resistable with reality, and the one of which «if it has a high intellectual or cognitive level, also it has a high level of development of the personality», when, as Terrassier exposes in its «Asincrony Theory» (1985), what happens is exactly the opposite. Often, theachers have also the idea that if the student shows high abilities, but does not apply them, or he applies them with an inferior yield to which they would hope of him, for them this is not showing an internal conflict of the boy, but a negative attitude: «It is not that he cannot, since he is very intelligent; it is that he does not want».

➤ *Influences of politicians.* In general lines, the spanish politicians who take care of the educative subject accept the idea of the existence of the gifted ones, as well as the fact that they possibly need scholastic aids. Therefore, at first they do have worried to make laws that regulates the educative development of these children, but at the time of putting them in practice, there is a lack of follow up and control in order to apply them correctly. With this we do not want to elevate this subject to the level of «national priority», but at least we vindicate an equal educative treatment to the one of those students who are disabled, because in the same way that they have special educative necessities, also some students with high abilities needs them.

TYPES OF ANSWERS THAT PARENTS LOOK FOR

- ➤ «I wish he was gifted.»
- ➤ «I wish he was not gifted.»

When they come to our center, parents usually arrive with some or several from these preconceived ideas that we have just mentioned. At first, nevertheless, we must say that we worked with a *slanted population*, because the presumed gifted ones we visit usually have some kind of problem, emotional, relational or educative, because if not, parents usually don't bring us the boy (although some exceptions exists, those of those parents who come by preventive interest).

Two facts occur in the boy: on one hand, he has a problem, and, on the other hand, he shows signs of a high intellectual development (that will have to be confirmed). The question that worries us is that they tie or they related in a causal way, that is to say, settles down a relation of cause-effect between these two facts, without having a minimum previous analysis (mainly, thanks to a correct information by the mass media, teachers, and so on). In this entailment, we can observe a necessity by the parents to find relatively simple answers to a question that, in fact, is much more complicated, and here we did not talk about specifically the high abilities, but the complexity of the general development of the boy.

Let us see with more detail these parents' expectations:

- ➤ «I wish he was gifted.» Usually, we find this latent reason for counseling in those families or parents who look for an explanation of the behaviour of the child who serves them for everything. For example: «Is he demotivated?» Sure, because he is gifted; «Does he fail?» Sure, because he is gifted; «Does he has bad behaviour, or has no friends?» Sure, that is because he is gifted... And thus we could go on until finding a unic explanation for phenomenons that are indicating us many things. The function that exerts this type of idea is to appease the anxiety that can produce certain behaviours of the boy which they do not understand with a superficial analysis.

- ➤ «I wish he was not gifted.» We have observed that this previous fantasy appears in those parents who, influenced by the social myths we mentioned before, think that if his son was gifted, in the future he would still have bigger problems than the ones he suffers at the present time, that is to say, it is magnified and feared the fact that giftedness is equal to problem. Peculiarly, many of the children of these families who do not wish that their son was gifted, usually are. Probably, these parents have a prediagnostic intuition more based on the reality of what they observe in the relationship with the child, in spite of these preconceived ideas.

FALSENESS OF SOCIAL MYTHS

As we have already aimed, the first of the social myths that it is clear that is false is the one that considers the gifted child as a «bookworm» that acquires high scores in everything, because if in something is characterized a boy with these characteristics is indeed in not needing to spend hours in front of a text to understand it and to remember it. This also can come from a confusion with the academic talent, that it is a form of complex talent in which the elevated resources of verbal, logical and of management of the memory type are combined. Being an interaction of resources, the great functions that are generated relates to the management of the memory from organized verbal informations in a logical way. Therefore, they allow the storage and the recovery of any type of information that can be expressed verbally (or complemented in these terms) and that has a logical organization, which gives us aptitudes specially indicated for the formal learnings (or academic learnings) (Castelló and Martínez, 1998). But the fact is that gifted children have the potential to stand out in any area and, in addition to these mental resources of the academic talents, they are also equipped with social, musical, motor or emotional intelligence, among others, as well as of remarkable creative aspects, and, what we think that is the element par excellence differential, the capacity to create interconnected networks to each other, which generates an approach to the knowledge different from the other types of high abilities.

In what concerns to the assumption of scholastic failure in that the gifted children will fall necessarily if an adapted treatment in the school does not occur them, we must analyze also this, because we have been able to verify that this fact has a greater tendency to occur more in academic talents that in gifted, since it would be consequence of a higher rate of learning that would cause that the student get diminished his motivation by this one in the measurement in which ordinary curriculum explain subjects that the academic talent already knows, or teacher dedicates more time than the one this type of students need, falling then, little by little, but more and more, in the apathy or boredom towards everything that means scholastic learning, and that unconcern could take them towards a scholastic failure. On the other hand, most of the simple talents (verbal, mathematical, space, artistic, etc.) can also show this boredom, but because of a different reason: the lack of motivation towards the moved away curriculum of their area of talent, but the cases of giftedness usually do not become bored (beyond which any student becomes bored), since the work of connection and organization already occupies and motivates enough to them.

With regards to the relationship difficulties, mainly with the other children of their same age, it is a characteristic more related to aspects of personality and social abilities. For that reason, a great variability exists depending on each person, although it can be accentuated mainly in intellectual profiles that tend towards the little flexibility, specially when the

creativity is not one of the strong points of that person. For that reason, the logical, mathematical and academic talents usually are the ones who have the highest risk to have socialization difficulties, and still more if they turn out to be introverts, or competitive, or discriminatories attitudes have been fomented to them (Castelló and Martínez, 1998). On the other hand, an added problem exists when the level of language and vocabulary is very superior to the one of their companions, since instead of improving, it makes worse or it makes difficult the communication with them (Martínez, doctoral thesis).

With respect to that always the gifted ones acquires very good notes in everything, it turns out to be that we will only be able to wait for a scholastic high performance in the academic talents or in the precocious students in the first years of its cognitive development. Nevertheless, the gifted ones will not necessarily get good marks, or will have the same yield in all the subjets, because although they have potential to emphasize in any area, usually occur a greater motivation towards some field of specific knowledge. Anyway, as we have already explain, they don't usually present scholastic problems, neither of low yield nor of demotivation.

TO CORRECT PARENTS' BASELESS EXPECTATIONS BASED ON THESE MYTHS

The desire to have a gifted son as the answer to all the bad things that distresses him includes the fear to that he is not it and vice versa. When parents come to our center, our task is to lead back these expectations towards a more realistic vision on the boy, sometimes even before the diagnosis has been formed:

> ➢ The reason for consulting is usually a difficulty or a conflict at some moment of the development of the boy
> ➢ It is observed a remarkable development in one or more cognitives areas.
> ➢ We try to undo the equation with which the family comes between the previous two points while diagnostic elements are not sufficiently solid to confirm, to reject or to modify this hypothesis. Our interest is centered in changing the previous labelling that has made the family or the school by a psychodiagnostic.
> ➢ Psychodiagnostic. The diagnostic tools offers the possibility of understanding, more than to label. We consider that to conclude a diagnosis sentencing that «his son is gifted» or «his son has an I.Q. superior to 130» socially reinforces that slanted idea. To label generally closes the door to the knowledge and, therefore, it conditions and limits the type of intervention that has to be done (it is when we find directions standard), whereas to try to understand, habitually, it opens them.

Sometimes, according to what we have been able to observe, the confusion, coming from the gathered information, with what certain people go to a center specialized in high abilities, is so that a justification for serious mental illness with important thought failures can be looked for in the giftedness. If at popular and journalistic level the idea of the «crazy genius» is fomented, for example, it is not strange that we end up finding disorders of psicotic order when the person came looking for a possible giftedness as an explanation for his problems.

Finally, we would like to clarify again, in case we have not made it clear already, that we cannot speak of a direct correlation between types of personality, mental pathology and high intellectual abilities. Therefore, who are announcing these ideas (we repeated, unfounded) are creating unnecessary anguish or anxieties in the parents, and we only have to remember that if somebody (we mean a professional) believe in these interrelations it is possibly because he has been in contact with a biased sample of population, as the one we have in the *Gabinete Psicopedagógico Mentor*, but without considering this fact, and, therefore, thinking that all are equal or that it will happen the same to all of them.

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MORAL REASONING ACROSS THE CURRICULUM

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"Let us strive then to think well; that is the basic principle of morality"
(Blaise Pascal)

ABSTRACT

This paper outlines the relevance of teaching moral reasoning to students of all ages in all curriculum studies. A teaching strategy is presented which applies Moral Philosophy to a moral reasoning strategy. Conclusions are drawn about the importance of teaching Ethics to students.

INTRODUCTION

Teaching students reasoning strategies in the context of a relevant situation is integral to the process of teaching, at all levels and in all curriculum areas. Feldhusen, Van Tassel-Baska & Seeley (1989:248) state that 'thinking is always an adaptive process in which the thinker must be able to utilise his or her current knowledge base to deal with new and novel situations that call for some decision or action'. Teaching thinking strategies applied to issues of a moral nature aims to develop thoughtful students who are both effective and affective thinkers.

MORAL REASONING

Whenever a question arises that involves the choice between right and wrong, good and bad, our own or others' well-being, it is a moral issue. Moral reasoning is the ability to recognise a moral issue and decide upon its desirable outcome. It is the application of higher order critical thinking skills combined with caring thinking skills applied to solving problems of a moral nature (Silverman, 1993). There are both cognitive and affective aspects to moral reasoning (Pagnin & Andreani, 2000).

The cognitive skills of metacognition, logical-rational evaluation, critical-analytical thinking and problem solving combined with the affective abilities of empathy, openness, trust and tolerance are the tools of moral reasoning. Folsom (1998:265) refers to the combination of intellectual learning with the moral dimension as 'wider order thinking'.

INTELLIGENCE AND MORAL REASONING

The ability to reason well is central to the concept of intelligence, but intelligence alone will not guarantee morality. To recognise the 'right' choice and

to judge our own and others' actions, is to make an act of reason. To choose to value morality and to make the 'right' choice is an act of character.
White (1988:72) sees that the link between intelligence and choice:

> *makes the whole idea of morality possible in the first place...that's ultimately why we hold people responsible for what they do - because their intelligence gives them the power to choose how they'll behave.*

High levels of cognitive intelligence lead to giftedness and the potential for creative vision. High levels of emotional intelligence lead to the development of character and ultimately the potential for moral vision. The thinking, feeling person, in whom intelligence and character combine, can achieve the highest level of human development - self-actualisation. It is a confluence between cognitive intelligence, emotional intelligence and the disposition towards morality that can determine an individual's moral reasoning ability. The more confluence between the three, the greater the individual's capacity to reason and behave morally. Without the disposition towards morality, the individual lacks the motivation for moral action.

Context is also an important consideration. The environmental, social, personal and situational contexts will influence an individual's choice to reason and /or behave morally. An individual, for example, who is struggling to meet his or her basic needs may not take time to consider the morality of whether or not to be opportunistic and take money out of another person's wallet found on the ground, or whether to hand the wallet in to the police. Individuals may choose moral behaviour in some situations, but disregard it in others depending on the importance of the situational context to their personal viewpoint.

This relationship between cognitive intelligence, affective intelligence and personality, in context, and how this confluence influences an individual's moral reasoning and moral behaviour is represented in Figure 1 below.
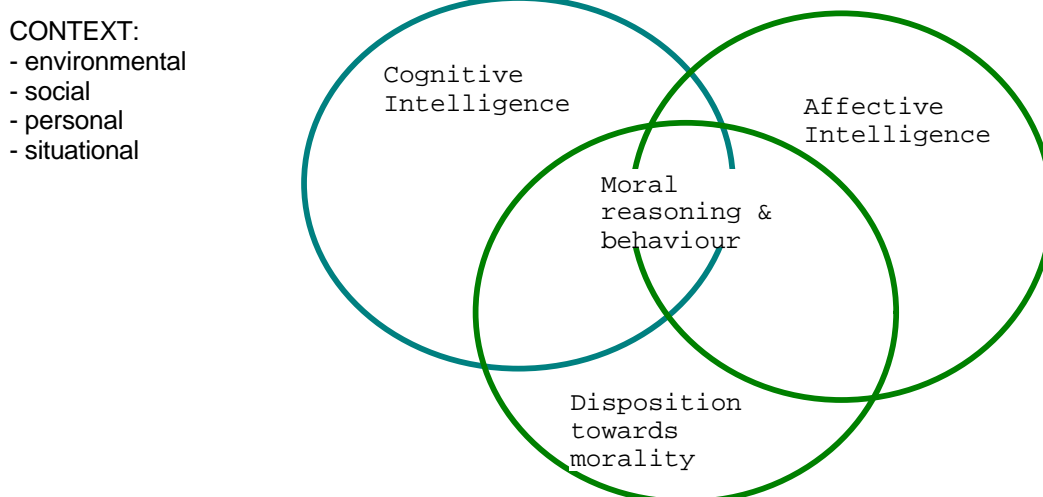
Figure 1. The confluence model of factors contributing to moral behaviour Henderson (2001)

MORAL REASONING AND THE GIFTED

It is generally agreed that gifted children are capable of more advanced moral reasoning at an earlier age than their non-gifted peers (Clark, 1992; Silverman, 1993, 1994 to name but a couple). Silverman (1994:111) says that:

Having observed the development of gifted children for over 35 years, I am continuously impressed by the moral sensitivity of this group...I have found that the higher the child's IQ, the earlier moral concerns develop and the more profound effect they have on the child.

Whilst often able to understand issues of a moral nature on a cognitive level, gifted children are not necessarily able to cope with them on an affective level, nor know what action they should take.

All children benefit from being taught moral reasoning strategies. The moral sensitivity of gifted children makes it imperative that they are given specific guidance in developing moral reasoning skills. Silverman (1994:115) endorses this when she says that:

[the gifteds'] enhanced awareness and moral sensitivity derived from the marriage of cognitive complexity and emotional intensity render gifted individuals vulnerable. The greater the asynchrony and moral sensitivity, the greater the vulnerability of the child within a morally insensitive society. It is their vulnerability that warrants special educational and counseling provisions rather than their potential to contribute to society.

MORAL DEVELOPMENT

Most theories of moral development see the individual progressing from self-centred to others-orientated attitudes and beliefs (Piaget, 1930; Kohlberg, 1966; Dabrowski, 1972; Gilligan, 1982; Rest, Narvaez, Thoma & Bebeau, 2000). Add to the picture of moral development Erikson's (1950) theory of Personality development and it becomes clear how closely aligned the development of personality is to the development of morality. The development of identity is integral to moral development (Moshman, 1999). How closely a person's self-concept is aligned to the concept of morality will have more influence on whether they behave and develop morally than their ability to reason, their age or even their experience.

Cognition develops with rational, objective and metacognitive thinking processes. Self-concept develops with the exploration of alternative values, beliefs and commitment to choices. Moral reasoning draws on cognitive and affective abilities. Moral development will progress in a rational, reflective person for whom morality is central to identity.

Most theories of moral development describe the transition to higher stages of development occurring through the arousal of inner conflict. It would seem that, just like the grain of sand causing the oyster to produce the pearl, so too the individual needs to experience a level of inner conflict or 'disequilibrium' (Piaget, 1985) in order to advance to higher levels of development. The verbal conflict aroused through consideration and discussion of a moral dilemma can create such friction under the careful guidance of a perceptive and thoughtful teacher.

MORAL DILEMMAS

A moral dilemma is generally agreed to exist when an issue calls into question what right course of action should ensue. To decide whether or not an issue presents as a moral dilemma, the question being asked needs to concern the nature of what is right, and one choice of action must be selected from several possible alternative actions, each of which can be justified in some way.

Tannenbaum (2000:451) states that 'there is no proof that students will absorb vicariously morality by reading about 'good' people'. An approach which actively involves them in the process of decision-making and demands of them a personal commitment to the choice is a more effective method.

CURRICULUM APPLICATION

The task of education in Moral or Ethics Education is to encourage the student to engage in an ethical life as well as to provide the tools for moral reasoning.

Rice (1996) states that 'all education in Dewey's conception is moral education to the extent that it enables students to participate more actively and meaningfully in social life'. She continues, quoting Dewey directly who says of curriculum subjects that 'as mere school studies their acquisition has only technical worth. Acquired under conditions where their social significance is realised they feed moral interest and develop moral insight'.

There is a difference between solving a moral dilemma as a cognitive exercise and engaging in moral activity as a worthwhile pursuit. Ideally one would hope to promote the latter in the context of the former.

Moral dilemmas may be introduced to the class through acting out role plays, watching a film clip, looking at a cartoon or a photograph, reading a story, taking an article from a newspaper, setting up a debate, playing a game, or may simply be raised through a class discussion or a question raised by a single student.

As a vehicle for encouraging the development of moral reasoning, the study of moral dilemmas through literature, film, subject application, current affairs, personal experience or relationships, and the teaching of moral reasoning strategies in this context, has valuable applications. Reasoning strategies are best learnt in the context of content that is relevant to the subject and students being taught. Moral dilemmas can be found in all curriculum subjects. Whenever an issue raised prompts the questions 'what should I do?' and there are several justifiable alternatives, each with different outcomes, then a moral dilemma is presented.

MORALITY AND PHILOSOPHY

The concept of morality, or the nature of what is 'right' or 'good', remains open to interpretation. Historically, four major philosophical perspectives have emerged, which interpret morality according to different criteria:

- Consequentialism considers right actions to be those that result in good consequences and promote the well-being of others.
- Deontology interprets actions according to a set of unswerving universal principles.
- Virtue Ethics views right actions as reflecting the ideals of a virtuous person, showing virtues or traits of character such as courage, integrity and compassion.
- Communitarianism concentrates on right actions that uphold social contracts or obligations, either written down or implied.

Each philosophical perspective offers criteria to help solve the moral dilemma of 'what ought one to do?' by imposing a sense of order and moral imperatives. With reference to these moral imperatives, the choice of right action can become much clearer. But each moral perspective has limitations.

Examining the dilemma from all four philosophical perspectives is like looking at a botanical specimen through four different procedures - each procedure will reveal the specimen in a different light and help to ascertain its nature. A more complete examination is possible by reference to all analytical devices.

MORAL REASONING STRATEGY

The moral reasoning strategy outlined in this paper borrows heavily from other problem-solving strategies, particularly Maker's (1995) discussion of moral dilemmas based on Kohlberg's (1964) theory of moral development, and Ruggiero's (1997) analysis of ethical issues. By including a consideration of the major philosophical schools of thought, Barker and Henderson's (2001) strategy

gives the moral reasoner additional knowledge and skills with which to deliberate at greater depth and understanding.

In discussing moral dilemmas, one assumption that is made is that people in general seek to do the right thing. The central questions asked are:

- What could I do that is morally right?
- What should I do in this situation?
- What will I do? and importantly
- Why will I choose that course of action?

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              Moral reasoning Strategy

1.    Define the moral dilemma and identify who is affected
2.    Establish the context of the situation
3.    Consider multiple moral perspectives:
            Utilitarianism
            Deontology
            Virtue Ethics
            Communitarianism
4.    Explore alternatives
5.    Individual choice of action
6.    Community of Inquiry discussion      -pairs
                                           -small groups
                                           -whole class
7.    Individual reflection
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Figure 2: Moral Reasoning Strategy, Barker and Henderson (2001)

Step One - Define the moral dilemma and identify who is affected by it.

Having perceived that a moral dilemma exists, the first step in the process is to restate the dilemma - what exactly is the moral question involved? Students who are morally sensitive will quickly identify a moral issue. In the classroom, this step can be taken as a whole group together, to ensure that all students are clear about the nature of the problem. Integral to identifying the dilemma will be the identification of all the people involved - the main people as well as others affected by the outcome.

Step Two - Establish the context

The students also need to be clear about all the relevant facts of the situation. Where and when the situation occurs is important to establish, as context is critical in deciding upon what is the right action to take. Perhaps not all of the details necessary for making a decision are obvious, and questions may need to be asked to clarify the context of the dilemma. If not all necessary information is available, then some speculations and assumptions may need to be made in order to advance. Again, the reasoning strategy depends upon these two initial steps being taken as a group to ensure that all students have the knowledge they need to make a reasonable choice.

Step Three - Consider multiple moral perspectives

The next step is a detailed process of holding the facts up to the scrutiny of each of the four moral philosophy perspectives in turn. During this process, the student should be given guidance to help them to understand the criteria of each perspective, and how each perspective would determine right action in this particular situation. The justification of each perspective is as important for the student to understand as the action it advocates.

Initially the teacher should guide the students through this step. Scope is there to broaden the students' knowledge and understanding of Moral Philosophy with some extension work exploring this field. It is to be hoped that the students will develop both a knowledge of morality and Moral Philosophy as well as the skills of applying this knowledge.

Step Four - Exploration of alternatives

The students at this point should be able to explain what each affected person would want to happen from their point of view. This is important because the students may identify with only one of the people involved, but a well-reasoned choice will also consider others' points of view. They need to understand that different people may have different needs and priorities.

Step Five - Individual choice of action

Having all possible courses of action and justifications at hand, the student then has to decide what is the overriding priority, and which criteria for judgement best 'solves' the dilemma. There will be some dilemmas where a couple of perspectives seem to carry equal importance and yet come to different conclusions. Students may be overwhelmed by the difficulty of singling out and justifying one course of action. The teacher may need to give them guidance towards finding some way to resolve such an impasse.

Here, each student should be able to write down, with their reasons, their own position as to the right course of action in the dilemma being discussed. They may not be completely decided but they need to take at least a tentative position.

Step Six - Community of Inquiry discussion

When we decide on a course of action, we need to be able to communicate our decision to others giving our reasons to support our decision in the context of the Community of Inquiry (Appendix 1). This next step requires students to share their ideas, in pairs, in small groups and finally as a whole class. The small groups could be comprised of students who agree as to the course of action and they can share with each other the reasons for their decision. This should help the students to clarify and consolidate their own position, as well as listening to and considering others' points of view. The students need to be able to present their choice of action and defend it with clear justifications.

Step Seven - Individual reflection

The last step is one of individual reflection. It may be that the students' original positions have been reinforced by the group as the right thing to do in this situation. It may be that the students' choices remain unaltered, but their reasons have changed. Perhaps the group discussion has caused the students to rethink their original choices. Ultimately students need to make their own decisions autonomously, and should be able to communicate the reasons behind their choices. Whatever the outcome, thinking about thinking, or metacognition, is a conscious self-evaluative process which serves to consolidate the reasoning process and reconcile any concerns.

MORAL BEHAVIOUR

Jewell (2000) asks the question whether 'a morally developed person [is] one who feels strongly about moral issues or understands moral issues or acts ethically when dealing with other people'. In order to act morally, one must place importance on moral behaviour and see oneself as a moral agent. Whether or not a person chooses to act morally in all situations is dependent not necessarily on their capacity for moral reasoning but on other personality factors which provide the motivation for moral behaviour.

The distinction must be drawn between advanced moral reasoning and advanced moral development. The former implies the abstract intellectual ability to recognise a moral issue and decide upon the 'right' outcome. The latter implies the practical application of the moral imperative. This requires other personality factors such as courage, autonomy and altruism. Aristotle, in his Nichomachean Ethics, says that good choice is the result of true reasoning and right desire.

Provision of a moral climate

Moral development can be stimulated through the establishment of a moral climate or culture within which the child interacts (Clark, 1992). Clark (1992:136) cites Kohlberg (1964, 1972) who believed that the child's moral climate or environment was possibly the most influential factor in his or her moral development, saying that 'a child who experiences moral, humane behaviour from others progresses in moral development'. The components of a positive moral climate include:

- discipline aimed at helping children become self-disciplined, taking responsibility for their own actions
- communication which is open and respectful
- family support and a responsive learning environment
- attitudes and examples of teachers and peers which reflect values such as justice, cooperation and respect for others
- teaching behaviours which aim to develop the child's positive self-esteem

Learning which involves cooperation with others is moral learning, for it concerns working together and making decisions in a social situation.

CONCLUSION

Children of any age need social skills, for life is communal and building social relationships is integral to communal life. As children develop, they start to see themselves as individuals and questions of identity and the nature of relationships arise. For adolescents, emerging from a childhood of certainties into an adult world of rights, responsibilities and often-conflicting pressures, choosing the right thing to do can be one of their hardest challenges. In all aspects of adult life, individuals are called upon to make decisions and choices which will impact either positively or negatively on their own and others' happiness and well-being.

The strong imperative for teachers is to assist students to make good choices and to teach with this aim in mind. It seems that such an essential element of preparation for life is often left to chance and not given specific guidance. Reasoning skills can be taught, knowledge of the nature of Moral Philosophy can be imparted, practice can be given to encourage the development of cognitive and affective skills and dispositions conducive to making good moral choices. By guiding students through the process of moral reasoning, we can help them to make the transition from an orientation towards personal interests to an appreciation of social responsibility, thus facilitating their moral development.

Moral reasoning strategies can be taught to students and they can become more skilful at evaluating and justifying moral choices. The question arises whether the development of moral reasoning can generate an increased capacity for higher moral development. Further research is needed to explore this question.

Our task as teachers is to impart the 'wisdom of the elders' in a sense to the students in our care, to inspire in them the belief that the ethical life is a worthwhile pursuit, and to teach moral reasoning that will exercise their cognitive and affective intelligence's in a positive moral climate. This will empower students with the knowledge, skills and dispositions to make well informed and reasoned moral choices. Then two very important consequences should follow: firstly their individual development will be enhanced and secondly the moral fibre of society will be strengthened.

APPENDIX 1
CODE OF THE COMMUNITY OF INQUIRY

1. **Present all ideas with the intention of discovering their strengths and weaknesses.**
   Look critically at each idea.
   What is the strength of the idea?
   What is the weakness of the idea?

2. **Interpret all ideas in the best possible light.**
   Listen carefully to others' ideas.
   Ask questions to clarify the heart of the idea.
   Do not nit pick or be distracted by trivia.

3. **Dispute and defend ideas, not people.**
   Any criticism of an idea is not a personal criticism.
   Do not defend an idea on the basis that your friend said it.
   Do not attack an idea on the basis that your enemy said it.
   Do not take an attack on your idea as an attack on you personally.

4. **Explore ideas for their own merit, irrespective of personal values**.
   Defend ideas you agree with as well as those you disagree with.
   Dispute ideas you agree with as well as those you disagree with.
   Do not assume that someone personally values or agrees with any position they present.

5. **Aim to collectively and cooperatively arrive at the truth.**
   Do not aim to try and beat the other person in an argument.
   Do not set out simply to prove the value of your own personal opinions.
   Explore the value of your opinions without bias.
   Explore the value of other ideas.
   Review and reappraise your own ideas in the light of the reasoned discussion.
   Value the insights that others can offer to help refine your own ideas.

Jewell & Henderson (2001)

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THE SAFE
A Safeway to Science Education For Gifted Youngsters

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ABSTRACT

Most programs for Israeli children gifted in science are aimed at primary and junior high school students. Senior high school aged gifted youngsters too often remain unchallenged. The Weizmann Institute in Israel is a science research institute which also develops and operates informal science education programs for advanced children and youngsters (Subhi & Maoz, 2000). The Institute, together with Israel's high school system, initiated a physics tournament entitled, "The Safe Project", in order to meet the academic needs of these youngsters. This is a team competition among physics-major high-school students who are requested to plan and build a working model of lock for a safe.

The Physics Tournament

The program is aimed at students who are physics majors (at the Israeli high school system every student in 11th-12th grades is required to major in a certain subject, either from the humanities or from the sciences disciplines. Those who choose physics are required to choose a high level of math too). Teams of five students plan and build a lock for a safe based on their physics, chemistry, electronic, and computers studies. After building the locks, they gain points by successfully breaking into the safes built by the other teams as well as by having ingenious lock that resists break-ins.

At the beginning of the academic year, the interested students and their teachers are invited for a study day at the Weizmann Institute. On this day they are introduced to the tournament through a short video film of previous competitions and they learn about this year's project. They also receive the materials to build the safe: wooden boards for the box, a transparent door and an electrical lock, which can be opened when it gets an electrical current. The participants' task is to plan how to bring the current to the lock.

The students have now about three months to plan and build the safes. During this period the two coordinators of the program, who are Ph.D students in physics, are accompanying the teams, help them to solve problems and advise when needed.

Then the teams are invited to the Weizmann Institute of Science to the two-day tournament. Each safe is put in a separate room, and four members of a team, accompanied by a graduate student of the Institute, try to break

into the safes of their peers within a time interval of 10 minutes per safe. Each team attempts to break into about 15 safes. The fifth member stays with the team's safe and is responsible for resetting the lock for the next team and for explaining how the lock works. The role of the escorting graduate students is to make sure that the teams are working according to the rules in their attempts to break-in and to keep the time intervals.

Prominent professors of the Physics Faculty volunteer to serve as referees. Moving from one safe to the next, they evaluate the following issues: the sophistication of the planning, the elegance in it's implementation and the functional performance and appearance of the exhibit. They also interview each team's participants, evaluating their scientific comprehension of the locking mechanism. The final mark of each team is a weighted average of the referees' grades, the grades given by all other teams, the number of successful breaks-in and the number of teams who fail to open the safe. The referees' grade is calculated as 50% of the total mark.

The tournament's second day is devoted to an exhibition of all participating safes. Each team is proud to demonstrate its own invention to fellow participants, parents, teachers, friends and curious Weizmann Institute members. This happening is concluded with a ceremony and the announcement of the winning teams.

Each year a booklet is issued, describing the various safes and their locking mechanisms. The booklet also contains detailed explanations of some locking mechanisms and links to relevant literature, mainly on the Internet.

The Ministry of Education gives financial support for the competition and the winners receive grade of 100 points for the matriculation examination in the physics lab. About 30% of the teams receive prices.

According to the participants this two-day event is an exceptional experience from both science and social aspects, and the competition itself adds a special component to the atmosphere.

The most exciting aspect of the tournament is the time, devotion and talent the team members devote to the design and building of their inventions. Participating students need to think of possible locking mechanisms, to select the most appropriate one and to ascertain the feasibility of its implementation; occasionally they need to build a simplified model. Next, they need to calculate the optimal parameters of all the locking apparatus components, and to build the safe. Finally, they have to test the safe under normal conditions, to guarantee its robustness and to assure an overall respectful appearance.

The participants are thus exposed to the entire process of inventing and building a device based on scientific principles.

Science Olympiads and Competitions

The goals of Science Olympiads, which were established in 1983, are as follows (Hughes, 2000):
- To recognise outstanding achievement in science for students and their Teachers.
- To provide an academic alternative to athletic competitions.
- To improve the quality of science education of students.
- To increase student interest in science.

Some competitions are pencil-and-paper activities, some involve lab work and others require actually building devices. Pencil-and paper activities can be regarded as passive types of participation, while lab work and construction activities are active ones.

Participation in science tournaments and Olympiads naturally attract youngsters of higher than average ability, and can serve as a trigger to enhance interest in science among those who have the ability but little interest

There seems to be little doubt that participants in any kind of competition learn something about the subject they choose, often much more than they gain in the formal learning setting. The active type of tournament where participants are requested to plan and build a working model is one of the most challenging competitions, in that it requires combining skills of ingenuity and originality, motivation, commitment, research abilities, self learning and planning abilities.

Talent Development

It is well accepted that participation in tournaments and Olympiads is an appropriate challenge for talent development of gifted youngsters. The participation in the competition makes them learn the subject matter to improve knowledge and ability. Struggling with the tasks, they have to research and solve problems, and thus develop abilities to work autonomously. It also enables them to gain insight about their abilities and compare with other participants (Campbell, 2000).

Pyrit (2000) assumes that "the process of talent development in science mirrors the process of career development of scientists". Choosing to take part in a competition provides an opportunity for self-selection since students' participation is voluntary (Pyrit, 2000). In order to succeed, the students have to be creative and commit a lot of time, as expressed by Sosniak (1999) who views the main ingredients of talent development to be time commitment, engagement in authentic tasks and involvement with communities of like-minded committed individuals.

The participation makes them learn the subject matter and to improve knowledge and ability.

Participation in a competition such as the Physics Tournament, where the students are required to plan and build a lock for a safe and to comprehend projects built by peers, also reveals abilities that were hidden to the teachers beforehand. All of a sudden they found out that students who were not considered as "stars" in the class excelled while planning and building the project.

The Study

We (together with Dr. Sherman Rosenfeld, a colleague from The Department of Science Teaching at the Weizmann Institute of Science) conducted a study on 72 subjects, out of 125 overall participants of the 2001 tournament. Two kinds of questionnaires were given to the subjects: closed

and open-ended. Through these questionnaires the following questions were asked: What do the students "gain" from the participation? What do they "pay" for participation? How does it contribute to the school atmosphere? Does the school management encourage the students' participation? What is the effect of getting prizes? What do students perceive as the positive, negative and interesting aspects of the participation?

Here are some preliminary results:

Why Do Students Want to Participate in Science Tournaments?

One goal of having science Olympiads and tournaments was determined many years ago: to challenge highly able students (Campbell, 2000) and to increase students' interest in science (Hughes, 2000). When students were asked why they participate, they claimed that:

- It provides them with a way to pursue their interests in science.
- Participants experienced "a sense of personal achievement".
- Participants enjoyed the social aspect of belonging to a team of peers with similar interests.
- Science Olympiad events are fun and interesting.
- Science Olympiad is more hands-on and requires more work and more initiative than science classes.
- Science Olympiads provide opportunities to choose the topic to be learned.
- Science Olympiads show the relationship between book-learning and the real world.

Evidence was found to support all the above statements from the participants in the Safe Project. In addition, the participants indicated the good atmosphere at the Institute during the event.

Working on a project for the tournament requires:

- High level of understanding science.
- Ingenuity of ideas.
- Motivation to invest free time.
- Commitment to start and finish the project.
- Cooperation with your peers.
- Self-discipline.
- Confrontation with unexpected technical problems.

The students also develop creativity and originality, traits that usually do not find expression in school studies.

It was found that the contribution of the participation to the students lies mainly in the following components (the percentage represent those answering "agree" and "agree very much" on a 4 pt. Scale): they develop an interest in physics (90%), they develop research skills (83%) and problem-solving skills (89%), the challenge to build a working model enhances creativity (96%), students have a sense of personal achievement (93%) and most important they realise that there is a difference between book-science and real-life science (96%). In addition, 87% of the students indicated that working on a project is a time- consuming process, but only 36% thought that

it makes them neglect their other studies at school. In an open question of the positive aspects of the participation in the tournament some students stated that it gave them "This is a challenge and an understanding of the gap between theory and practice".

In summary, both cognitive dimensions, such as problem-solving skills, and affective dimensions, such as motivation, interest and a feeling of personal achievements, were expressed. These components have been recognised as important factors of giftedness in the works of many researchers (Tannenbaum, 1986, Renzulli, 1986, Feldhusen, 1986, and many more).

The Role of Teamwork

In this project the students learn teamwork: It was empirically found (Baired, 1996) "that team competitions place participants in situations where success depends on cooperation within a team while competing against other teams. Such cooperation within a competing environment has been found to promote optimal problem-solving performance" (Johnson, Maruyama, Johnson, Nelson & Skon, 1981). Shaw (1932) found that even when there is unequal participation by members of the group, the groups hold significant advantage over individuals in a problem-solving situation. Johnson et al (1981) conducted studies on individual, competitive and cooperative learning. They found that cooperative learning is superior in promoting achievement over all age levels within science. Hughes (2000) also reported of the advantages of teamwork:

- Developing cooperative skills.
- Belonging to a group of peers with similar interest and abilities.
- The members of the teams are actively learning the subject they chose.
- Teamwork develops local pride.
- The challenge of bringing an idea to a working model, deepens the Students' understanding much more than what is achieved by preparing for an examination.

In the current study, 72% of the participants agreed that going through the planning and building process improved their cooperative skills, and 82% thought the competition improved their social contacts at school. Many students referred to the social aspects of the whole process and the atmosphere at the Weizmann Institute during the competition, as a very enjoyable event. "The building process is fascinating and so is the competition. You meet youth from all over the country" or "Meeting with students from all over the country and building the safe is very enjoyable".

A Trigger for Excellence in Science Education

The project could not be successful without the support of the school management and at least one science teacher at the school. There are many

teachers who use this project as a trigger to advance science education. For example, in the North, where the students live far a way from academic institutions, students come from schools in the area to a science center for their science studies. Participation in this project has a strong effect on raising interest in learning physics. The teacher uses this competition as a trigger for developing excellence in science education. Even before choosing the center's teams for the next competition, the teacher gathers many students together and asks each one to learn one of the previous safes, to present it and explain how it was planned and built and what was the best way of breaking into it. This exercise gives the students a very good understanding of the scientific laws of the previous projects and develops their thinking skills for the next year.

There are several more aspects to participation in this competition, regarding the students, the teachers and the school environment.

Effects on the Teaching Staff

According to another teacher (Magen E.) the project also has many effects on the teachers:

- The contact between teachers and students is strengthened; it becomes more open and spreads among all the science students.
- The intensive mutual work deepens the personal contacts within the teaching staff.
- Presenting the project to all the students, prior to the competition, with discussions of its principles add color and excitement and contribute to the popularity of science studies at the school.
- It strengthens the cooperation among the science teachers and the lab assistants.
- Science students, their teachers and lab assistants share the sensation of creating something new in the school and there is excitement, mutual help and many discussions.

Are Prizes Needed?

It is well accepted by the tournament's participants that the most important benefit gained in the tournament is the exciting experience. However, it seems that the prizes are also very important and it was needed to decide on the relationship between the number of participating teams and the number of the prizes. If there are only a few prizes, many participants become frustrated because they invested so much in their projects and expected recognition for their efforts. On the other hand, if the number of prizes is too high, it gives a feeling of devaluation to the winners. It was decided that the ratio of 30:70, where about 30% receive prizes, is the correct ratio to keep the optimism and motivation to win high while still maintaining enough "respect" for the winner.

Exposing the students to different ideas than their own, and giving them the opportunity to share experiences with the participants from different schools are also a very important parts of the competition and one of the reasons why the participants like so much to spend the two days at the Weizmann Institute.

It was interesting that almost all the participants in the current study (except for one) felt that every participant should get a prize as recognition for their efforts in planning and building the project.

Effects on Future Choices Related to Education and Career

It was found that after participation in the tournament, some students who previously could not decide what they would like to learn at the university, made their choice to study science and engineering.

Olson (1985) surveyed finalists of several years of North Dakota Science Fairs and found that at least 67% of the participants completed bachelor degrees in science and engineering, 73% of them declared that participation in the science fair had an important effect on their decision. More than 50% were involved in science-related careers.

Summary

To summarise this project, here is a quotation of one of the teachers whose students have been participating in the Physics Tournament for the last three years:

"For me, it is a physics festival, a pure enjoyment for me and my students. For the last three years I found out that students who are not considered as the stars, are very creative and develop new knowledge in physics. I learned to know my students **differently** and that makes it worth it all. The competition provides the students with very different opportunities than school does".

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GIFTED WOMEN ROCKING THE BOAT:
Perceptions of Merit in The Corporate Culture

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Why are bright women who dare to 'rock the boat' by doing things differently likely to encounter barriers to the development of their full potential? This paper is part of a qualitative research study, Gifted Women: Rocking the Boat and Opting Out, designed to explore the experiences of women of high potential in leadership and management who left the central office of a large education bureaucracy in Australia. It questions conventional concepts of merit and focuses on why capable women often do not 'rise to the top' but remain at low to middle levels of the organisation. In addition it asks why, when a few women do make it into executive management ranks, they almost inevitably hit the 'glass ceiling'.

Women in Management - The Facts

The imbalance of women and men in management, particularly senior management, and the implications for the performance of organisations is a current and continuing issue. Attention has increasingly focused on why most women, once they enter management, do not advance but remain in low to middle levels despite affirmative action legislation and employer awareness of equal employment opportunity guidelines. This phenomenon is generally attributed to the 'glass ceiling', a transparent barrier which applies to women as a group, because they are women, which prevents them advancing beyond a certain level (Still, 1984; Morrison, White & Van Velsor, 1987; Four Corners, 1992 all cited in Bellamy & Ramsay, 1994; Karpin Report, 1995; Stevens, 2000).

Women executive directors stand at a mere 1.3%; and of the 2,345 director positions in Australia only 10.7% are held by women (Women's Policy Office Fact Sheet, November 1999). Women in Australia represent approximately 70% of the total education workforce but occupy only 25% of management positions (ABS Census, 1996). These figures have not changed significantly in the last decade. "At its current glacial pace Australian management will achieve equal representation for women in a mere 177 years (Fiona Krautil, director of the Equal Opportunity for Women in the Workplace Agency cited in Stevens, 2000, p. 18). In contrast women surpass men in educational qualifications, holding nearly as many bachelor degrees (49% and 51% respectively) and 60% of all post graduate qualifications (ABS Census of Population and Housing, 1996).

Context

This paper explores some of the reasons for fourteen women (W1-W14) of high potential in leadership and management positions (project leaders to CEOs) voluntarily leaving employment with a state education department in Australia, despite a record of high achievement and many years of loyal service. The research is guided by a feminist methodology with the intent of creating knowledge about the women's experiences. In the process I have placed a greater emphasis on identifying outstanding ability and performance than was evident in the women in management literature to date. By highlighting the women's exceptional capabilities, their potential contribution to leadership, management and change in the workplace can be acknowledged.

Giftedness and Leadership Potential

A broad definition of giftedness is accepted for the purposes of this research. The term 'gifted women' is used interchangeably with 'women of high potential'. Changing definitions of giftedness, including the multidimensional nature of giftedness (as opposed to a unitary, fixed definition of intelligence) and the emphasis on developed ability, influenced by environmental factors such as schools, peers, families, and chance events; and personality factors, such as persistence and determination are influential (Renzulli, Reis & Smith, 1981; Gardner, 1983; Gagne, 1993, Braggett, 1994).

To explore their potential in the area of leadership the research participants were asked to list factors that they believed to be their qualities as leaders. Persistence, focus, tenacity, determination, commitment, probity, passion, intensity, sense of justice, in-depth knowledge, love of learning and a desire to make a difference were frequently cited as leadership qualities that guided their work. In response to the question "What personal qualities guide your achievements?" the women indicated many characteristics which are recognised in the identification of the gifted: empathy; intellectual curiosity; creativity; open mindedness; resilience; and reflective, analytical and intuitive thinking. Hard work was also seen as a necessary ingredient in career success, fitting with definitions of giftedness that recognise personal (internal) motivation and commitment, as well as environmental (external) factors, as interacting with general ability to reveal outstanding performance (Renzuli et al., 1981; Yewchuk & Chatterton, 1990; Gagne, 1993; Braggett, 1994).

It is important to note that definitions of giftedness as eminence or unusual or remarkable attainment usually fail to consider the degree of women's marginalisation, that is, women's relative distance from the mainstream of their

societies' achievement centers (Arnold, Noble & Subotnik, 1996, p. 428). Women must cultivate not only their intellectual and creative capacities, but the psychological resilience that will enable them to overcome stereotypical attitudes and the traditional constraints that have thwarted the expression of female giftedness" (Noble, 1996, p. 413-414).

Baggage from the Past

Many of the research participants talked about the history of career progression through a seniority system based on length of service and country postings. Although promotion by merit had replaced the old system, subtle barriers were still in place and certain experiences were valued over others. Coming up through the ranks was still seen by many men as the only legitimate path to promotion. In addition, the opportunity for men to have had prior line management experience was a reality, particularly in the primary system. The advantage for men was expressed humorously in this account

> *... what was not really ever highlighted by the men [is that] you've now got an increasingly feminised work force in primary with the Level 1 and 2 teachers now being 92% female and 8% male. If you tag 50% of your deputy principal positions in primary for men you virtually have to be just warm, upright, living and male to be guaranteed of promotion. You're tagging 50% of the positions for 8% of the teaching workforce. W11*

Concepts of Merit

With most of the structural barriers of the past removed, job selection, by definition, is based on merit. However perceptions of what constitutes merit vary according to context and are largely controlled by those in power. Viewed through the 'lens of privilege' merit cannot be seen as a neutral or fair measure for all:

> *Viewing educational administration through the lens of privilege means deconstructing concepts such as merit, seeing it as a social construct which favours those already in power, largely white middle class males ... (Burton, 1993). Exclusive notions of merit and leadership deny access to those whose experience and skills do not conform to a dominant view (Blackmore, 1995 p. 54).*

Lack of experience is often cited as the main reason that women do not win administrative positions. Ironically, males with less experience are frequently hired to fill those roles (Hill & Ragland, 1995, p. 111). The flaws in this process are much harder to define than the direct discrimination issues of the past. Despite in-depth experience, high qualifications for the position and proven ability to lead teams to successful outcomes, many of the women in this study missed out on 'the job'. An unsuccessful interview was often the defining factor. W5 told of her experience in the selection process and the problems that can arise when the interviewee has more expertise in the area than the members of the selection panel:

> *I think any selection process, any interview process is fraught with all sorts of difficulties ... often, when you've been in the position for a long time and you know the area well, you actually know it far better than the people who are interviewing you ... [so] the answers you give, the responses you give, may not be the ones they imagine are the right ones.*

W13 also thought there were inherent problems in the interview process and in the selection of panel members:

> *The requirement is that there will be an expert on the panel. The 'expert' in this case was a manager who had been in the job for a matter of weeks and had never worked in the area before. That meant that there was no one on the panel who could understand the complexity of the issues and therefore little value was placed on expertise. Apart from brief reports from referees, there were no real checks on past performance. The panel members were hand picked by the executive director who was also on the panel.*
> *Of course he chose people who thought like he did ... and were influenced by his power.*

Competent women with more experience, more expertise and stronger qualifications were passed over for males who had been pre-selected for the job. The job application process was in place, to meet equity criteria, but those in power often had the preferred candidate in mind. As an already initiated member of the boys' club, he had the full support of his mentors who were also the ones with whom the final decision rested.

The Ideal Candidate

The selection panel's stereotype of the 'ideal' candidate can be detrimental to women applying for jobs in typically male dominated management structures. As pointed out by Harris (1998, p.8) "... decision makers appear to base selection decisions on the fit between the attributes of the job applicant and the decision maker's perception of the typical job holder". She uses Fiske and Linville's (1980) argument that "organisational decision makers gradually acquire a set of mental models of important, repeatedly encountered, categories of people and objects. These mental models guide the processing of new information and the retrieval of stored information". In his work on the learning organisation, Senge (1990, pp.174-175) explains the importance of recognising 'mental models' and their influence on our thinking and actions. He says that new insights fail to get put into practice because they conflict with deeply held internal images of how the world works. These images limit us to familiar ways of thinking and acting. The more traditional 'masculine' qualities are likely to be valued when mental models remain unchanged.

W1 felt that it was much easier for men to be noticed as they were merely reinforcing old patterns:

> *It's a different task [for men] because in a lot of instances they are just reinforcing a pattern that is already there. They've been hand picked as clones and they are expected to deliver [as clones] ... As a non-clone you have a much tougher job.*

Jocelynne Scutt (1996, p.2-3) describes the process of cloning, now recognised by many feminist researchers as operating in male dominated work environments. The cloning effect operates so that 'like support like' in a system where men in positions of power encourage those whom they see as a mirror image of their younger selves.

The Value of Project Management

Job selection criteria can exclude women by focusing on experiences such as traditional line management, whilst not valuing other management experiences. Ironically, by not giving women opportunities for line management experience, either in acting positions or in promotional positions, the woman can never qualify for the job. The entrepreneurial nature of project management and its vital role in the implementation of change is rarely recognised as 'real' management experience.

W2 talked about the lack of value placed on the management skills of women leading projects, and their consequent exclusion from promotional positions. In her corporate executive role she argued for the recognition of successful project management experience in the job selection process. But she said that because of the structure and the requirements of the merit principle it was "almost an impossible task". She explains the difficulties and the "huge chasm" that existed:

> When I was with the senior executive service and on interview panels, like every week, that was one of the things that hit me between the eyes. The number of quality women applying [who] had these superb examples of project management and delivery (what I would see as terrific, complex, important projects) but they hadn't held any position substantively, and because of the strict way you needed to interview and appoint in the public service [they didn't get the promotions] ... I used to argue that [issue] vehemently for my senior executive service positions ... it was a huge chasm that seemed so unjust at the time.

W12 saw quite clearly that the management skills involved in leading a project were never going to be counted as 'real management' in terms of career development. She spoke of being held in high regard as a good producer, and realised that she was always going to be seen as "a good hand maiden for someone else's career opportunity":

> I got a position in head office ... on a wonderful project and in terms of the project I found that just terrific. But what became alarmingly clear to me was that there was no future for me there because while I think I was held in high regard because I was a good producer and made things happen, I was always going to be seen as a good hand maiden for somebody else's career opportunity. I thought I was never going to be allowed to be seen in my own right as a leader and a manager.

Being Sidelined and the Effects of Restructuring

The restructuring motivated by economic rationalism meant that there were fewer management jobs available. When the inevitable restructures occurred, women often came off second best. Four of the women in this study were acting in positions for two or three years before the jobs were advertised as vacancies to be filled. None of the women won the positions; three were filled by men from within central office and one by a woman from interstate. Each woman in the acting position had been receiving feedback that their areas of responsibility had been performing highly, demonstrating the effectiveness of their leadership. Not winning the positions that they had worked so hard to develop was the catalyst in their decision to leave. W14 observed:

> ... there were two positions and they both went to men. They'd been Social Studies teachers together and they'd been Social Studies superintendents together, so of course, competing with that kind of corporal capital is hard ... and I never tried (to appeal). W14

W4 summed up the effects of restructuring for women in social justice and equity areas and for women on special projects. Being 'different' limited career prospects:

> Many women's jobs were discarded in the restructure. As a result of restructuring, the PD unit was disbanded. The 'frills' went, the margins. Economic rationalism doesn't help. I was perceived as 'different' and that didn't help my career prospects ... I had different ideas.

> Women weren't seen as part of it. There were very few women there (in management) ... I think women have had to work harder at being good at the job because they are under scrutiny.

According to Bellamy and Ramsay (1994, p.14), the economic downturn seemed to "sharpen the practice of women being treated differently". Those who miss out in the job selection process are those who don't fit the dominant culture, for example, women and a small number of men who are seen as not playing the game. Blackmore (1999, p.4) describes the new opportunities for resistance to gender equity which can arise in times of radical restructuring. Redefining jobs can mean reallocating jobs to men through subtle processes of selection.

> Indeed, in times of scarcity and the radical restructuring of the social, economic and political relations due to economic globalisation and cultural uncertainty, new opportunities for resistance to gender equity and social transformation of gender arise ... Structural backlash is when the male biases embedded in educational organisations, processes, structures and values are able to be mobilised, consciously and unconsciously, in some, but not all, men's favour through the actual processes of restructuring e.g. job redefinition and reallocation. Cultural backlash takes the form of populist discourses circulating that are resistant to gender equity. (p. 4)

Some of the women in senior management positions found themselves sidelined as they became more of a threat to the male status quo. W3, who considered herself "a reasonably astute bureaucracy watcher", talked about her experience which was personal as well as political. It involved resentment of her leadership of some high level initiatives but it also involved factions. Up until that time she had a career rise that she described as "just terrific". It therefore came as

a shock when she was sidelined in what seemed a classic case of the executive female 'hitting the glass ceiling'.

I left because I felt as though I'd been sidelined ... first of all you think, "Oh, is this really happening?" And yes, more evidence comes up and you start getting the drift ... It was personal but it was also political. In the senior management levels in the Department at that time, and I expect that it would be the case now, were factions, and my faction ... had been sort of a key faction for some time. With a change of Minister and a change of Director General (and a change of direction) our faction had got sidelined.

W14 felt her career was progressing buoyantly until she did not win a director's position that she had acted in for over two years. The realisation that she was being sidelined after being seen as a possible threat to the men in power led to her decision to seek a more supportive working environment:

I felt my career [was on a high], I felt in quite buoyant halcyon days really - that things were on the up ... I was managing my career well, I was enjoying it, one way was leading onto another way [but] I think it was a difficult time for the men because, for the first time ever, there had been a female Director General. They thought that she was perhaps favouring people like W14 [speaker], W6 and others, when in fact she was also working us pretty hard in the sense that she didn't want to show favouritism. But whatever [she] did I don't think it really mattered ... They thought I was in line for Director General, but I didn't aspire to that job.

I think what they do is the 'scorched earth policy' - I mean just gender cleansing and that's exactly what happened of course ... my strategy basically is not to stay for too long in an environment where you just know that there is not going to be support.

Reflection

The lack of recognition of the achievements of highly competent managers who did not fit the traditional mould was a major concern, as was the inequity in job selection processes. Seeing things differently and speaking out was often seen as a threat to established practices. There is a penalty for women and others who rock the boat or 'shine too brightly':

In a recent article in The Australian Magazine Stevens (2000) confirms that although many senior women choose not to talk about it, "too many still crash before they smash through" the glass ceiling. Rob Jackson (quoted in Stevens, 2000), a Melbourne lawyer specialising in gender discrimination in the workplace, confirms that blatant discrimination is probably a thing of the past, but gender bias can surface suddenly and at senior levels:

These days, gender discrimination is like a car accident. It happens when you least expect it. We see senior managers, women who have been happily travelling along, thinking everything is fine and then, wham, they get run over. (p. 18)

Failure to recognise the management skills of project leaders, mostly female, meant that they could not compete with the predominantly male line managers in the promotional stakes. Women who were in senior and executive management positions eventually found that they were not welcome, they were

subject to internal and external politics, their values were different and they disliked the dominant culture. Hitting the glass ceiling became a reality. When they became a threat to the male status quo, they were conveniently sidelined in the next restructure. Often men with less experience and men with connections won the positions.

Accounts of women's experiences can provide an insight into the strategies a select group of men and male-dominated institutions use to maintain their power. The challenges to existing thinking can raise possibilities for changes in behaviour. A different way is possible:

> In a male-dominated society it is patriarchal power we experience. Patriarchal leadership relies on a pecking order which has nothing to do with merit and everything to do with status and power over others. It demeans, belittles and disempowers followers; it does not foster independence, willingness to take responsibility, creative thinking, loyalty or respect. A different view of leadership brings a different view of power (Val Marsden in Eveline and Hayden, 1999, p. 184)

Margaret Wheatley and Myron Kellner-Rogers (1996, p.100-102), authors of A Simpler Way, talk about the link between self-awareness and change; the need for both individuals and systems to be open to new ways of being and to learn through interdependence with those we previously refused to see. They explain that often our fear stops us from being open to new connections with a result that "we choose control over effectiveness". Real change may be "only a shift of the light away" (Marshall, 1994 in Marshall, 1995, p. 7).

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RUNNING HEAD: EMPOWERING FAMILY-PROFESSIONAL COLLABORATION EMPOWERING THE FAMILY-PROFESSIONAL COLLABORATIVE RELATIONSHIP

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ABSTRACT

A clear message was sent with the passage of the Individuals with Disabilities Education Act (IDEA) that families are to be active partners in the process of their child's formal educational processes. In order for this to happen, strong family-professional partnerships must be established. This article provides the background for collaboration and steps to a successful partnership between families and professionals within gifted education programs. Specific steps include: (a) sharing knowledge and skills, (b) using effective communication, (c) understanding individual roles and responsibilities, (d) meeting the needs of children/students, through collaboration across learning environments, and (e) understanding steps to successful collaboration.

Empowering the Family-Professional Collaborative Relationship
Within Gifted Programs
"Children's lives are in all of our hands; like a quilt,
brought together by the threads of collaboration." Gibson & Mitchell, 2000

One of the basic principles of law that governs special education in the United States is parent participation. A clear message was sent with the most recent passage of the law that families are not only to be participants, but *active* partners in the process of their child's development and formal educational processes. This critical component of the educational system, however, is often minimal. The barriers to forming effective partnerships between family members and professionals may be because "Such intention is more easily written than carried out because it requires a recasting of the parent-professional relationship that has been customary for many decades" (Johnson, 1997).

The research is clear that when family members are involved in their child's/student's educational experience, achievement increases, graduation rates improve, and the child/student is more likely to go on and graduate from college (Dettmer, Dyck & Thurston, 1999; Turnbull & Turnbull, 2001). With this knowledge comes a professional responsibility to develop a partnership with families, and a family member responsibility to become active in their child's/student's educational programs. It is only when these two components are blended, however, that quality education for each child/student is experienced.

Empowering the family-professional relationship is key to a successful partnership. Steps to building an empowered relationship include: (a) sharing knowledge and skills, (b) using effective communication, (c) understanding individual roles and responsibilities, (d) meeting the needs of children/students, through collaboration across learning environments, and (e) understanding steps to successful collaboration.

Sharing Knowledge and Skills

One key to empowerment for both professionals and family members is in gaining knowledge and skills (Turnbull & Turnbull, 2001). To do this, both families and professionals need to understand common characteristics of giftedness, as well as how to best support the diverse learning needs of each individual child/student who is gifted.

Professionals in the field of gifted education have much knowledge about teaching students who are gifted. Family members know their children's interests, capabilities and needs. They, also, may have obtained knowledge about giftedness and have much to share with professionals. It is through the reciprocal sharing of knowledge and skills that both family members and professionals become empowered.

One example of shared knowledge is when professionals share theories about giftedness, such as the importance of the blend between the predisposition to giftedness from birth (nature) and how responsive the people are to that child/student within his/her environments (nurture), with families (Plomin, 1997). Families, in turn, share insights about successful strategies for motivating their child/student. Key to sharing both knowledge and skills is positive communication.

Using Effective Communication

Communication between family members and professionals can be a challenging activity. However, positive communication is essential if *all* members of the partnership are to be empowered. Although the first mode of communication that comes to mind when thinking about collaborating about a child/student's education is face-to-face meetings at the school (e.g., parent-teacher conferences), there are many other ways in which to communicate. Other modes include (a) written forms (e.g., newsletters, journals, child/student products, notes); (b) telephone conversations at mutually agreed upon times of the day, (c) electronic communication such as email messages or home pages that can be accessed through the internet, (d) informal meetings in the hallways, classrooms, or grocery store, or (e) face-to-face meetings scheduled and held in places other than schools (e.g., homes, over lunch at a restaurant, churches, community centers).

The key to positive communication is to first establish the preferred mode of communication by each of the partners. Partners should check with each other to determine individual preferences for receiving information. Each partner should then honor the other partner's preferences.

Understanding Individual Roles and Responsibilities

When forming a partnership, it is important to understand the roles and responsibilities of each partner. For example, do family members fully understand all of the job duties of teachers? Do teachers fully understand all of the roles and responsibilities of the family members? Taking the time to understand where each stakeholder is coming from lends itself well to working better together. Professionals can let family members know what roles and responsibilities come with the profession of educator. Families can share insights into their values, beliefs, and preferences, so professionals better understand how to identify and target individual learning experiences for their child/student.

Professionals' Roles and Responsibilities

There are a number of responsibilities that professional educators must address. It is apparent to most families that they are responsible for the cognitive and emotional growth of the students in their charge. Professional educators have a responsibility to design and develop curriculum that is developmentally and individually appropriate for students and which addresses laws, standards and required competencies (Smith, 1998). As professionals, they must choose instructional strategies that are complementary to the individual children's/students' learning styles and modalities.

One responsibility of professional educators work with their colleagues in a productive manner that may not be so apparent to families is that of working to promote must that promotes the general education of all children/students (Friend & Cook, 2000). Another one might be the responsibility to continue their own professional development in order to stay abreast of current theories, practices, issues and trends.

Educators are responsible for keeping records of their teaching and of the students'/children's learning. Families should understand that the volume of paper work required in special education is particularly time-consuming. Additionally, professional educators have a responsibility to communicate with each family regarding the progress and needs of the child/student; and to the larger community about such things as educational services, processes, initiatives, and accountability efforts.

Families' Roles and Responsibilities

Turnbull & Turnbull (2001) offer a structured way to get to know families, so values, beliefs and preferences are taken into account when designing individual programs for children/students who are gifted. The Family Systems Framework (Turnbull & Turnbull, 2001) offers a visual illustration of how families function. It is particularly useful as a conversation guide.

The Family Systems Framework is divided into four Levels. Level one is "Family Characteristics", which offers insights into both individual characteristics of family members, and the characteristics of the family as a whole. It is important to understand how the family defines its own members. This can come through finding out the size and form, cultural background, socioeconomic status, geographic location, and/or special challenges (Turnbull & Turnbull, 2001, pp. 86-104) of the family. Learning about characteristics can assist in understanding the family's response to their child's/student's giftedness.

The second major framework level, "Family Interactions," offers insights into how individual family members interact with each other. Within this level, there are four interactive subsystems. These include the marital subsystem, the parental subsystem, the sibling subsystem and the extended family subsystem.

The marital subsystem refers to the interactions between marital partners or significant others who function in this capacity. It may be important to know whether or not the child's/student's exceptionality affects the marriage, for example. This may lead an educator to provide some resources that otherwise may not be known to the family.

The parental subsystem consists of interactions between the parent figures in the family and each individual child. Understanding differences of how the father interacts with the child who is gifted compared to the mother may alter the resources the professional shares with the family, or provide insight into involving a parent in an individual project or assignment.

The sibling system involves brothers and sisters. Sibling relationships can provide both support and rivalry interactions. These interactions can, then, affect martial interactions as well as parental interactions. It may even be a sister or brother who offers suggestions for designing individual education programs for the family member who is gifted.

Extended family member interactions can come in many forms. Grandparent-to- grandchild interactions, aunt/uncle-to-niece/nephew interactions, or cousin-to-cousin interactions are all examples. In a society where extended family members live miles apart from each other, close friendships may serve in this extended family capacity. Knowing who the extended family members are within a family may provide informal support for a gifted child/student not obtainable in other ways.

"Family Functions" is the third level of the Family System Framework and consists of eight subsystems: affection, self-esteem, spiritual, economics, daily care, socialization, recreation and education. These are key components to understanding how the family meets not only the individual family members' needs, but, also, the collective needs of the family. It may be important to understand how the child experiences affection within his/her family in order to guide the professional in acceptable affectionate interactions. It may also assist professionals in understanding the roles and responsibilities of the child/student who is gifted within the context of his/her family. Understanding the family functions may lend itself well to designing homework that fits into family life rather than interrupts it.

Finally, "Life Cycle", the fourth level of the Family System Framework, explains how the dynamics of the family change over time. Characteristics, interactions and functions may all change, depending on the age of the child who is gifted. Meeting the needs of the child is different if they are 2 years of age compared to when they are 10 or 17. A crucial time in the life cycle occurs during major transitions. Families may particularly need the support of professionals when the child moves from preschool to school, from elementary school to middle school, from middle school to high school, and from high school to their adult life.

When using the Family System Framework, it is important to understand that all four levels are interwoven with each other. Characteristics will affect individual interactions, daily functioning and/or life cycle adaptations. Conversely, interactions can change characteristics or functions. For example, if the father of the family loses his job, this affects the economy (functions) of the family, which can affect interactions. If a child/student who is gifted is not stimulated within school and home environments, challenging behaviors can increase which can affect interactions and functions. These examples explain why the Family System Framework must be understood not only by their level parts but, also, by the framework as a whole. Using this framework as a guide can be beneficial to both professionals and family members in better understanding the roles and responsibilities of each family member.

Meeting the Needs of Children: Collaboration Across Learning Environments

Families and professionals working together is key to meeting the individual needs of children/students who are gifted. Dewey (1900/1915/1943) spoke of the importance of seeing all environments as places for educational experiences. He talked of the ideal home having a workshop and miniature laboratory for children. He also talked about schools extending learning to "…the out of doors, into gardens, surrounding fields, and forests" (p. 35). If both professionals and family members embrace this concept, then partnering across environments is critical for meeting the needs of children/students who are gifted.

Additionally, learning can be maximized in either the school or home environment by families and professionals working together to improve learning within each other's environments. The sharing of knowledge regarding a child's/student's learning background, interests, skills, concerns, and emotional growth enables the collaborative partners to challenge and encourage a child/student who is gifted to develop to his/her full potential.

Families and professionals can work together to provide effective opportunities for a child's/student's educational growth. Through a shared understanding of the individual needs, routines both in the home and school can be tailored to the child/student to optimize learning.

Explorations and investigations can be encouraged in both settings and most probably will overlap environments as the gifted child becomes immersed in her/his learning. The child who has an intense interest in insects at home will almost certainly carry that interest into the classroom.

As gifted children become adolescents, the families and professionals need to work together to provide relevant information and understanding of self, for transitions in school as well as across the life span. For example, families provide cultural values and beliefs on which a student will make college and career choices that professionals have helped the student to explore.

Both families and professionals play a role in encouraging gifted children to participate in camps and competitions that challenge their abilities and interests. Families are often more aware of what types of activities might be of greater interest to a child/student, while professionals may have access to or knowledge of scholarship opportunities that make the activity possible.

Also, families and professionals need to collaborate effectively when working in their partner's environment. When families volunteer to work in schools or professionals meet families in the home for conferencing, both need to be sensitive to the traditions routines of the other'.

However, children are not limited to learning in either a school-based environment or their home environment. A child learns much from any environment with which s/he interacts. Therefore, both families and professional need to make every effort to collaborate with the community environment as well. Mentor programs are an excellent example of this type of collaboration. To be effective, such collaborative efforts must be sustained throughout the year rather than viewed as short-term ventures. Adding the community to the collaboration creates a synergy for dynamic educational opportunities for gifted children. However, families and professionals should share the decision making process when determining what community resources are appropriate for their child/student.

Understanding Steps to Successful Collaboration

Last, but not least, empowering successful collaborative partnerships takes time to develop. Without giving it adequate time, as needed by each family and professional, effective collaborative partnerships may never develop. Six essential steps to successful collaboration include (a) know it is a process, (b) take the time to get to know each other, (c) communicate for understanding, (d) problem-solve around issues, (d) compromise, and (e) celebrate successes.

Know it is a process

Empowering the collaborative partnership between families and professionals is a process. According to Friend and Cook (2000), "All teams progress through a life cycle" (p. 31). The cycle includes a period of forming, where members learn more about each other and arrive at a mutual understanding of the purpose of the relationship. The next period in the process is storming. At this stage, members begin to be comfortable enough with each other to disclose their differences and discuss how to resolve them. The next stage is norming that involves individuals within the partnership/team to establish their roles and relationships within the team, take on and act within their assigned work tasks. Next is performing, the stage where team members align themselves

to achieving the goals that have been established. The last stage is adjourning, which is one of celebrating completed tasks.

Each stage cannot be rushed, and depends on the individuals who make up each partnership/team. For example, one team of professionals/family members may get through the norming stage quite quickly, but get stuck in the storming stage. It is imperative that each stage be given the time to be fully explored and experienced on an as-needed basis.

Take Time to Get to Know Each Other

As outlined in the forming stage of the process, collaborative partnerships or teams, it takes time to progress through each progressive level of team building. This is because it takes time to get to know each other and develop a working relationship with each other.

Professionals can use the Family System Framework (Turnbull & Turnbull, 2001) as a guide to better understanding families. Learning about individual characteristics, interactions among family members, family functions, and life cycle events, assists professionals in tapping into strengths and overcoming challenges of the family as team members.

Family members can get to know professionals by becoming active in their child's program/educational process. Communicate preferences and priorities of the child/student with the professionals on the team. Volunteer to assist in school projects (whether in or out of the school/program). This could be responding to requests for materials or, even, setting up a web site for the classroom. Other examples include extending learning into the home and other environments as guided by professionals, and keeping current on other needs within the child/student's classroom or school.

Communicate for understanding

One way to make sure each stage in the teaming process is given adequate time to come to a full conclusion is through good communication among the team members. Communication should be in the preferred mode of the receiver of the information, and communication must be clear and understood by the receiver (Friend & Cook, 2000; Turnbull & Turnbull, 2001). Positive communication skills include both nonverbal and verbal modes of communicating. Nonverbal modes, such as, physical attending to and active listening skills are important. These communicate that what the sender of information is saying is important. Verbal communication includes using skills such as furthering responses to encourage the speaker to continue (e.g., "tell me more"), paraphrasing what has been said to check for understanding (i.e., stating back what was said in your own words), responding to affect (i.e., accurately perceiving the message intent, rather than just to the words used), and using open-ended questions more than close-ended (Turnbull & Turnbull, 2001).

Problem-solve around issues

Friend & Cook (2000) state that problem solving begins first by identifying the exact problem. Without this first step, collaboration can stall. Once the problem has been fully identified, the next step to solving them is to brain storm all possible solutions. Even if some of the solutions seem silly, it is important to create as many as possible. Once all of the possible ideas have been generated, the partners, together, begin to eliminate those that are unacceptable to both/all members by evaluating each one as a potential solution. When a final solution to the problem is identified, it is implemented. Each member of the partnership/team outlines roles and responsibilities for implementing the solution. Once the implementation is done, the outcome is evaluated. If the solution has not solved the problem, each step is repeated and a new solution implemented.

Compromise

Collaboration includes the need to compromise at times. It is often compromise that leads to the advancement of teaming stages, to coming up with the best ideas, to solving problems, and to empowering trusting relationships between families and professionals.

Celebrate successes

Finally, taking the time to celebrate successes is important to empowering relationships, encouraging continued collaboration and increasing trust and rapport. Deciding how to celebrate can take many forms. Whether elaborate or simple, taking the time to celebrate can make all the difference to the continuation of a quality family-professional partnership.

Conclusion

Turnbull & Turnbull (2001) define collaboration as "the dynamic process of families and professionals equally sharing their resources (motivation and knowledge/skills) in order to make decisions jointly" (p. 50). Friend & Cook (2000) define education teams as "…a set of interdependent individuals with unique skills and perspectives who interact directly to achieve their mutual goal of providing students with effective educational programs and services" (p. 28). Regardless of the definition found among the leaders in the collaboration field, almost all have common denominators. These include trust, shared visions, parity, reciprocity, and action to meet common goals; all of which develop through collaborative partnerships.

Collaboration requires that each partner on the team, whether professional or family member, be empowered to bring visions into actions. Empowerment takes a sharing of knowledge and skills between team members. It also demands effective communication. Getting to know each member of the team not only allows for tapping into strengths and helping overcome challenges, it, also, assists in assigning roles and responsibilities for any project or task. And when

all of the people who are involved in the developmental and/or educational team come together to share their skills, learning can be extended within and across all environments.

Through the use of the family system framework professionals develop a sound understanding of the families of gifted children that ensures a more productive partnership. The six essential steps to successful collaboration (Turnbull & Turnbull, 2001) helps to empower families and professionals to work together and maximize learning across environments. Families and professionals working in collaboration creates a synergy that helps both to support gifted children/students and challenge them to reach their full potential.

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SELF-PSYCHOLOGY AND HERMENEUTICS: A NEW INFORMATION GATHERING SYSTEM FOR THE COUNSELLING OF GIFTED

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INTRODUCTION

In this study the researcher tries to explain a model for information gathering in the interviews with the gifted adolescents. This model is based on the two important areas of epistemology: one is psychoanalysis the other one is hermeneutics. The adolescent group is specifically chosen since as many practitioners will know, time to time it may be very difficult to make counselling with this group.

Eventually the aim of this study is to discuss validity of self-psychological and hermeneutical methods for information gethering in counselling with gifted adolescents.

Thus the researcher is asking the question of is self-psychology from psychoanalitical background and hermeneutics how may they form a valid method to gather healthy information to use in the counselling with the gifted adolescents?

To answer the research question the study needs to discuss the four important concepts used here, followed by the formulation of their relations and case presentations as supportive material for the formulation.

REVIEW OF LITERATURE

This part of the study will discuss the major concepts of the study, namely: self-psychology, hermeneutics, adolescence and giftedness.

SELF-PSYCHOLOGY

In clinical psychology Psychoanalysis has an important place. The value of this theory is due to its strength of the internal consistency and ability to explain the roots of the behaviours. The psychoanalitical school has improved since Freud formulated his theory and nowadays there are four subschools namely, Drive school which is sticked to very classical application of the Freudian Theory, Ego Psychology developed with the enriching participations of mainly Anna Freud & Erik Erikson, followed by Object Relations school where Melanie Klein, Fairbairn, Guntrip were the major contributors and at last Self-Psychology school founded by Heinz Kohut (Ardalý & Erten, 1999).

According to Tura (2000) the main contribution of Kohut to Psychoanalysis is his discussion on narcissism. "On Metapsychology" Freud (1991) categorized narcissim as a pathology which prevent the development of a healthy personality since the libido (love) rather to be invested to the other is invested to the person him or herself, preventing him or her from a mature communication with others. But on the other hand it is also important to note that Freud (1991) suggested in "On Sexuality" that :"the narcissistic libidinal cathexis of the ego is the original of things, realized in earlier childhood, and is merely covered by the later extrusions of libido, but in essentials persists behind them".

In fact Freud (1991) in his article on Narcissism claims that the heavy investment of libido to his or her body is the patological one. It seems this aspect of narcissism was well captured by Kohut who argued that narcissism is important for the life starting from the very beginning (Ardalý & Erten, 1999). According to Kohut before the drives of sexuality and agression more basic one was present from the very beginning of life this is narcissics, in the sens that the infant needs somebody to look at and after (Siegel,1996), that is how he or she survives. In other words infants narcissistic need to be looked in reality, guaranty, physical and psychological continuity of the life for the infant. In this respect Kohut mentioned about two narcissistic developmental stages one is the Grandiose Self belonging to the infancy where infant perceives everything pleasant, confortable, soothening are coming from internal and the mother care here provides the validity of this perception (Siegel,1999). The second stage is the perception of the child the parents as omnipotent people and at this stage idealization of the parent occurs what Kohut calls Idealized Parental Imago with which the child wants to identify (Siegel,1999). In other words when the infant is in the period of Grandiose Self he means by his presence 'I am perfect and you are a part of me', in Idealized Parental Imago period she means 'You are perfect and I am a part of you' (Ardalý and Erten,1999). During these periods something called by Kohut as "optimal frustration" occurs. Unavoidable unavailability of mother for a while or discovering that father is not of that omniscient that create disappointment but if it is in the limits of the tolerance of the child, he or she tries to soothe him or herself by finding some new dealing methods which are the internalized parts of the parental previous attitudes gained by transmuting internalizations (Baker & Baker, 1987). That is to say that the child's self improves through these optimal frustrations and transmuting internalizations activities. At that point another important concept of Kohut needs to be mentioned, this is "self-object". Self-object need is the "inner necessity which requires to be at least partially met by another person or thing (Baker & Baker-1987). This is important because self develops with its relation of the self-object, and parents are very important in this respect since their mirroring, their acceptance helps to child to internalize and form a self-object in themselves. These two aspects of the child self Grandiose Self and Idealized Parental Imago in adult life forms the two poles which are ambitions and ideals (Kohut,1990).

The pathology according to Kohut is due to the lack of presence of the parents in the world of the infant and child through the mirroring the very existence of the child by their cuddles, songs mainly their smiling glances. All these mirroring activities approve the liveliness of the child. In the formation of the pathology the optimal and natural frustration is maximal, causing insufficient experience of mirroring and self object therefore missing the ability of transmuting internalization for self soothening (Kohut,1990).

An important contribution of Kohut to Psychoanalysis is his concept of Self. For Tura (2000) Kohut left outside the methapsychological concepts but find more useful a pragmatic one the "Self" as an integration of all id, ego, superego functions. The self is formed by two poles and their tensions states Kohut and puts the abilities and skills between them, having the function of balancing the narcissism (Kohut,1990). He also says that the abilities and skills are in the service of ambitions and ideals. In other words according to Tura (2000) a gifted person or a person with developed abilities will be able to menage the childish demands of the other aspects of the self by balancing narcissism. For Kohut the healthy person has two important characteristics sense of oneness and sense of sameness. Sense of oneness is superficial and uses the abilities to know the past and to project for future and sense of sameness is deeper (Kohut,1990). Therefore the health in superficial level is highly related with the quality of the abilities as Tura nicely formulated. But for the deeper aspect, sameness the pathological problems may arrize and this is not subject of this study. On the other hand for superficial problems Kohut's example in his book "The Restoration Of The Self" is Proust and his recovery of the discontinuity of the self through his search of the past by using his ability in literature. The importance of the example lies in the talent of Kohut who was able to connect art with intelligence and psychoanalysis and appreciate good piece of art.

Another very important area of contribution by Kohut is in the epistemology of the psychoanalysis. Kohut belýeved that empathy is the most important observation method to get closer to the world of the other, in other words through empathy we understand what is going on in the other and by using this information we may create an environment for him or her (Kohut,1990). Kohut theorized that the empathy is the basic way to establish a good relationship between mother and child (Siegel,1996). In other words through empathy the needs of the infant is obvious to the mother. Any failure in this process may cause the frustration and if it is more than optimal the frustration may be pathological.

Siegel (1996) claims that the epistemological shift from very empirical and explanatory one to the understanding by using empathy and introspection is a turning point in psychoanalysis. By using empaty the observation of the other provides important information. In fact the main subject of this study is the founding new way of information gathering. This information gathering sysytem by using empathy and introspection is very subjective and not empirical though it is used in self-psychology. How may it be relied on, Trust in?

HERMENEUTICS AND SELF-PSYCHOLOGY

Follesdal (1995) suggests that hermeneutics was originally a method used to interpret theological or legal texts which are difficult to understand. In the19th century through the works of Ast, Schleiermacher and Dilthey its scope was extended to cover the interpretation of all kinds of texts (Follesdal,1995). The definition of hermeneutics in "The Cambridge Dictionary of Philosophy" (Audi,1996) suggests that it is not only the interpretation but the analysis of the interpretation of the material which can not be worked with the empiricist methodology. In this sense the hermeneutical circle, first developed by Schleiermacher, is the specific way of interpretation of the part which in turn compared with the whole and this process repeats itself again and again explains the dictionary. Through this technique the consistency of the interpretation is secured. The text is understood by interpreting every part in the light of the other parts and the whole, in a developmental process. An important point in the interpretation according to Follesdal (1995) is the simplicity and comprehensiveness of the interpretation among the competing ones. Palmer in his book "Hermeneutics" goes to the historical roots of the word hermeneutics and stress its meaning to explain the deeper meaning of a text to make it understandable for the masses. Paul Ricoeur claims that the duty of hermeneutics is to make obvious the hidden meanings and symbols in a text, therefore he suggests that psychoanalysis is a perfect hermeneutics (Palmer,1969). Very similarly Shleiermacher suggests that the interaction between the text and the interpreter creates the interpretation, one brings the grammer the other psychology. In other words the meaning of the text is formed through the psychology of the interpreter. The hermeneutical circle in this sense form a reference point but every reference point is checked with the other parts and the whole, by this way the interpreters consistency is secured over its understanding of the text (Palmer, 1969). Strenger (1991) points out that the relationship between the reader and the text is system of assimilation and accomodation where first the text is assimilated to the internal framework of the interpreter then through the change of the framework an accomodation of the interpreter necessitates, in other words the hermeneutical cycle proceeds in this way. Strenger (1991) comments that psychoanalysis does not only search the reasons of the human behaviour but tries to decipher the symbols as well. In this sense the value of hermeneutics as a mean of interpretation is very important for psychoanalysis. Specifically hermeneutical cycle as a technique has a common function with Kohutian empathy and interpretation dyad. Kohut uses empathy for an interpretation and if the interpretation does not fit he questions his empathy rather then to force the patient to accept it as classical method does (Ardalý & Erten,1999). In other words the patient's inner world is assimilated by empathy and reconstructed by an interpretation to return to patient if it is successful a new step occurs needing again assimilation, if it fails then accomodation is needed from the part of the therapist. To make it more clear by using empathy the counsellor gathers information from the inner world of the patient and bu using interpretation reflects what he or she sees there if the interpretation is accepted meaning that compatible to the patients framework then it goes, or let us call the whole then it is accepted if the

interpretation is refused it is not compatible with the patient's framework. It is important to note here that this cycle with patient occurs as an intersubjective process but on the other hand an intrasubjective process of this cycle works in the counsellor. Since the unaccepted interpretations may be defences of the patient therefore the psychology of the therapist is very important as Schleiermacher has already pointed out. That is to say the therapist is also interpreting him or herself meanwhile, another cycle goes inside. An important warning from Steiner (1995) is that the psychotherapy should not be reduced to hermeneutics, in the sense that the patient is not a text which will be freely interpreted. In other words the hermeneutics is rather a method of information processing and it may be used in the framework of psychoanalysis with its principles.

ADOLESCENCE

Parman (2000) proposed that the adolescence is not only a period of growing up but also a period of change and transformation. Winnicott (1997) on the other hand suggests that an adolescent shows the characteristics of a little child. In fact he is not alone in his thoughts, Kroger (1989) pointed out that adolescence is the second individuation process after the childhood. She basis her proposal on the individuation theory of Margaret Mahler. In this sense the adolescent like in his or her childhood passes though a process of individuation. In this individuation process the adolescent gains autonomy and prepares for life. Therefore the communication with the parents or anybody having or suspected to have the role of authority over him or here is considered an enemy. An enemy since the adolescent needs to experience the life him or herself without the interference of another, by this way he or she differentiate from the others and re-gain the concept of self after the childhood. This proces is explained by Kohut as the third idealization after self idealization (Grandiose Self), idealization of the other (Idealized Parental Imago) the idealization of an equal, peer, brother or sister, an cousin (Twinship). On the other hand it is also important to note that Blos (1962) suggests that the narcissistic investments are very high in the adolescence. In other words the adolescence period requires secure relationship where the adolescent will not feel invaded by the presence of the other, this secure relation is provided by the peers mainly. But the relations with peers also may be troublesome since there exist a struggle of acceptence. In that case the most reliable way for the adolescent is the parental laps, not for a long time though. This going and coming back oscillations is called rapprochment period by (Kroger,1989) as Mahler did for the children.

GIFTEDNESS

According to Feldhusen (1986) giftedness is the combination of general ability, special talent, self-concept and motivation. Mönks (1992) adds to that giftedness requires preconcýousness relative to peers, advanced interest to life

events, developed thinking skills. When he discusses the giftedness model of Renzulli (motivation, creativity and high intellectual ability triad), for Mönks (1992) motivation includes risk taking and commitment for future. He takes general ability and special talent under the headýng of high intellectual abilities measured by tests and he explains creativity as a capability to sove problems with an original way. Mönks (1992) put this model into a triangular social framework where family, peers and school plays important role in the life of the adolescent. In this social context, gifted child and adolecsent may prefere the adults as their peer since intellectually they may share more (Webb, 1993). On the other hand research by Sahin (1995) showed that the family cohesion has a significantly high correlation with self-esteem and success in gifted Turkish pre-adolescents. In other words the social context suggested by Mönks is important for the self development taking into account family and peers especially for adolescents. What about the school then?

The role of the school in reality teachers and counsellors place may be important for the adolescent in the sense that they offer not only a teaching environment but also an environment of relationships.

A FORMULATION

The relation is the important aspect of the school. Especially the student and teacher relations are the more stressful ones time to time. The role of the counsellor on the other hand is more complex and delicate. The counsellor belongs to two worlds the world of the adult and world of the adolescent. This conflicting double characteristics of the counsellor in the eyes of the adolescent, make her dubious. On one hand they serve the teachers, parents on the other hand to students. Therefore the main job of the counsellor is to show his or her reliability to everyone in school. The role of the counsellor in this sense is to keep himself on a such a distance that will neither invade the personality of the adolescent therefore cause fight or flight nor appear as insensitive to their needs. How to achieve such a difficult job? Where to find the boundries to keep such a distance?

At this point Kohutian techniques "empaty and introspection" show us the way with the hermeneutical cycle. The most important aspect of a relationship is to realize and accept the very existance of the other. To realize and accept the action of understanding is crucially needed. Empathic understanding provides us how the other is feeling and what he or she needs. To provide a validity to our empathic understanding hermeneutical cycle may be used so that we check our empathic understanding with the other everytime and check our understanding of ourselves and this double check provides us the place where to stay. This interactive communication provides a survival area for the adolescent who is on the way of the construction of his or her self. This secure area belonging not to the adults not to the peers forms an island of recovery or refreshment for the youth. In other words the tension between parents of dominance and the tension of acceptance by the peers is not so intensely lived, in the relation of counsellor and adolescent.

In the case of the gifted Kohut provides another important area of survival, the talent. Which means that the counsellor may rely on to the abilities of the adolescent, for example his precocity of information processing, capacity of elaborating about life issues, or advanced thinking skills, enjoying the adults presence and friendship. All the ability areas provides an asset for the counsellor since the gifted adolescent's chatacteristics provides an area of easy communication. The counsellor will be more able to find a subject that atracts the attention of the gifted due to his intellectual maturity and sensuality. The important point though as Sahin (1995) pointed out the vulnerability or resilience problem of the gifted. According to ªahin the triadic structure of self by Kohut helps to understand the level of resilience or vulnerability of the gifted adolescent. As Kohut (1990) geniusly explained the talent is able to recover the problems in the ambitions (Grandiose Self) and ideals (Idealized Parental Imago). In other words in some extend the trauma in childhood may be recovered by the talent as the ambitions and ideals activate the talent (Kohut,1990). Therefore the empathic understanding and hermeneutical cycle may be used in the gifted adolescent to assess the balance of the ambitions, ideals and talents so that the best help may be offered to the youth. As Kohut pointed out the tension between desire for power, success and richness and goals may be organized and realized through talent.

The researcher will illustrate this formulation by case examples.

CASE

D is 17 years old now, but when I have started to work with him he was 15 years old, very successful academic, sportive and artistic area. A gifted male, from an economically deprived in Eastern Anatolia. He had one elder sister and brother. D had behaviour disorder especially creating problems in the classroom arguing with teachers and fighting with peers though he was not a lonely youth. His relations with his friend had always oscillations repeated good and bad times. He came to Ýnanç School exclusively for gifted and poor children from an orphanage in a remote area of Turkey. His mother was dead when he was 5 and the father took him to the orphanage a couple hundred kilometers away and leaving him there forever. He has not seen his father then, but had a couple of telephone call. In the orphanage he had very badly treated by the headmaster who seems a pathological person since he had been discharged from his position due to maltreatment of the students. On the other hand he had a very good relationship with a teacher during his years there.

The history of D is the history of distrust. When his mother died his father was far a way to find a work. In the village after the mothers funeral, nobody gives anything to eat to the children, they milked their coves and drink the milk but since they had not enough flour they could not make bread, and they had not sufficient wood for fire neither. When the father returned after a few weeks he remaried and the step mother did not want the children. The elder boy was sent to a State priest bording school and the girl was kept at home to help and E was sent to the orphanage. When his father took him to the

orphanage he did not tell him where they were going and when the time to leave came father told him that he would just go to the toilet and come back immediately. He never turned back.

The counselling with D started upon his demand to come, after 3 years. During these three years we had a very friendly but not a close interaction. My attitude towards him was always constant, because my knowledge about his background and my interaction with him my empathic understanding always told me that the consistancy is very important for this youth as well as caring. Caring but not abusing, since some teachers being very sorry for him tried to recover by extra toffies which made him unsupportable.

During counselling my understanding of him was his search for the recovery of this history he wanted to go and ask to his father why he left him there and show him to his villagers as being an educated person. On the one hand the search for repair of the past, on the other recover the hurt self from the attitudes of the villagers seemed the most important aspects of his will to go to his birth place but he was not sure about if he was doing the right thing. He was in fact afraid of seeing his father and find out he was still worthless and the same for the part of the villagers not being accepted by them. I pointed out him my understanding to him and he agreed about them, we talked for a while about his worries and vulnerability. At the beginning of our sessions he was talking to me a lot without looking at me, I felt that he was ashaming from his background he told his history only to me in details. I never insisted him to tell more.

D attended 18 sessions of counselling once a week. At the end of our work his agression was diminished so that teachers and administrators were happy, he went to see his father and it was a very successful trip. When I ask myself what is the source of the health in this young person the answer was: 1. his ability, success as a student in academic, sportive and artistic areas which was helping him to keep up all the time, 2. his willingness to get closer to the others though unsuccessful time to time, 3. finding a self-object for himself everytime so that the self functions operated always without any major break.

Briefly, my counselling with D provided me an important experience to find out more about empathy and introspection and use of hermeneutical cycle. The value of this experience was also working with a gifted youth who was able to recover by using his talent from the unfortunate life.

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A RESEARCH ON THE OVEREXCITABILITY TRAITS OF GIFTED AND TALENTED STUDENTS IN TAIWAN

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ABSTRACT

The purposes of the study are (1) to create an overexcitabiltiy scale based on Dabrowski's Theory in verifying five OEs of G/T students in Taiwan, (2) to construct the norm of the scale, and (3) to compare the intensities of five OEs in terms of sex, age and different groups of G/T students.

2046 students from regular classes islandwide were chosen as the norm sample. 951 G/T students in Taipei City, the Capital of Taiwan, are selected to be the counterpart. Both groups of students contain 5th, 8th, and 11th graders.

A. Research Purposes

A series of researches about the emotional traits of the gifted individuals reported that many of them are idealistic, self doubted, sensitive to other people's feeling, moralistic, eager for knowledge, questioning everything, workaholic etc. They not only think but also feel differently from their peers Silverman (1993). These traits shed light on their intensity and different quality of their subjective emotional experience. According to Dabrowski (1964), these quiveringly alive traits are named overexcitabilities which cover five dimensions of elements: psychomotor OE (P), sensual OE (S), intellectual OE (T), imaginative OE (M) and emotional OE (E). Although many psychiatrists took these traits for granted as negative phenomena, Dr. Dabrowski held a positive attitude towards them. Moreover, he suggested that these traits were critical to one's emotional development. Unfortunately, the more intensive traits gifted individuals show, the less possibility they would be accepted, especially in school (Silverman, 1983). Owing to the lack of scale suitable for Taiwan students, the purposes of this research were to (1)construct an overexcitability scale and its norm;(2) compare differences between G/T students and their regular counterparts on five OE traits; and (3)explore five OE traits of G/T students in terms of age, category of giftedness and gender difference.

B. Research Background

a. History of overexcitability scale

In Dabrowski's Theory of Positive Disintegration, it mentions that people who display more significant OE traits have higher degree of development potential (DP). Piechowski further developed a formula describing DP = OE + D which suggested DP could be assessed and one of the main elements of DP is OE. In the very beginning, Dabrowski found OE traits of G/T individuals by interviewing and clinical observation and then Piechowski joined the research by using extra assessment such as viewing subjects' autobiography, verbal stimuli and neurological examination (Dabrowski & Piechowski 1977). Later on, Lysy & Piechowki (1983) created an overexcitability questionnaire (OEQ) which contains 21 open-ended questions. This version of questionnaire is widely used since researchers could gather more detail about subjects' OEs.

However, it is time consuming and it needs at least 2 trained recorders when scoring. Based on the shortcomings of open–ended questionnaire, In 1985, Dabrowski Study Group created another close-ended questionnaire named Self-Rating Questionnaire (SRQ).Not until 1999 did Falk et al construct a whole new OEQ-II which contains 50 close-ended items. It is reported that OEQ-II have quite good internal consistency (84-.89) and validity.

These quantitative questionnaire such as SRQ and OEQ-II are more time saving and easy scoring, however, they offer limit information about subjects' OEs in contrast with OEQ. However, once the number of research subjects is huge, quantitative questionnaires are quite convenient.

Since OEQ and OEQ-II are English versions, the researcher is afraid that the wordings and the description of some items are not that suitable for Taiwanese subjects. Therefore, one of the main purposes of this research is to construct an overexcitability scale named ' The Me Scale'. On the other hand, since OEQ and OEQ-II do not have norm, it could be problematic when explaining in what situation the subjects are overexcited. Therefore, this research is going to construct the norm of 'The Me Scale' based on Taiwan subjects.

b. Review of papers

Viewing some researches about overexcitabilities, researcher found that some papers show that gifted individuals display more significant T, E, and M OEs than S and P Oes (Silverman & Ellsworth 1981; Piechowski & Colangelo 1984; Sandal-Miller 1988; Lewis, Kitano, & Lynch 1992). However, the sequence of T, E, and M OE are not that consistent. Compared with non gifted counterparts, gifted individuals still show higher level on T., E, M OE or T. E OE (Piechowski & Colangelo 1984; Piechowski, Silverman & Falk 1985; Gallagher 1985; Ackerman 1993; Miller, Silverman & Falk 1994). Compared with gifted individuals, artists display more significant M and E OEs than gifted counterparts but show no significant difference on other Oes (Piechowski & Cunningham 1985; Piechowski, Silverman & Falk 1985).

As to the relationship between OE and creativity, Schiever (1985) reported that highly creative individuals show higher M, T, and E OEs than lower creative persons. In Gallagher's (1985) research, it found that high verbal creative students display significant M OE than their counterparts, and high figure creative students show higher level of P OE than their counterparts.

Some researches also found that male gifted individuals own higher level of T and P OEs than female (Lysy & Piechowski 1983; Miller, Silverman & Falk 1994), and the female show higher level of E OE than the male (Ammirato 1987; Sandal-Miller 1988; Miller, Silverman & Falk 1994; Piechowski & Miller 1995). As to the age difference, Piechowski & Colangelo (1984) and Piechowski & Miller (1995) found that elder gifted individuals show higher OE levels than younger ones. However, Manzanero (1985), Sandal-Miller (1988), Falk, Manzanero & Miller (1997)did not find that age difference had anything to do with OE patterns.

C. Research Methodology

a. Subject

The subjects include two parts. In the first part, 2046 5th grade students (726), 8th grade students (703) and 11th grade students (617) currently attending regular classes nationwide were selected as norm sample. In the second part, 951 gifted and talented counterparts in Taipei (Capital of Taiwan)were also included in this study.

b. Instrument

(1) The process of constructing ' The Me Scale'

The structure of 'The Me Scale' is built according to Dabrowski's theory. Therefore, five subscales are included. They are subscales of P, S, T, M, and E. The original version of the scale contains 91 items, in which 5 items are reversely scored in each subscale. The scoring method is classified into 7 levels. 1 means the trait described in the item is the least significant to me. On the other spectrum, 7 means the trait described in the item is very significant to me. The higher scores the subjects get, the more overexcited they can be.

The scale was administered to 120 5th, 8th, and 11th graders in regular classes for the first pilot study. After that, 75 items were reserved in which 5 items are reversely scored. Later on, the 75-item version was sent by e-mail to 9 experts (4 American experts and 5 Taiwanese experts) ,who are familiar with Dabrowski's theory, gifted education, statistics, or methodology, for expert evaluation (content validity). Moreover, 4 of the experts committee are Dr. Piechowski, Dr. Falk, Dr. Ackerman & Miss Lind. The English version of the scale was first translated by the researcher and then rechecked by Dr.

Ching-chih Kuo.

After the expert content evaluation, 66 items were reserved in which only one item was reversely scored. Then, second pilot test was administered to 220 5th, 8th, and 11th graders in the other regular classes. After 6 items were deleted, the final version of 'The Me Scale' contained 60 items in which non reversely scoring items existed and 12 items were included in each subscale (See table 2).

2046 norm sample were administered 'The Me Scale' later on and the percentile rank was constructed. To get the test-retest reliability, 206 5th, 8th, and 11th graders were employed one month later when the scales were totally returned.

(2) Reliability

'The Me Scale ' employed two kinds of reliability The coefficient of internal consistency (Cronbach alfa) is .710~.913. The coefficient of test-retest reliability is .702~.754.

(3) Validity

The validity of the scale employed expert content evaluation since criterion-related validity was absent and factor analysis was not that good.

(4) Norm

Since age and gender difference resulted in significant different OE patterns (p<.001) among norm sample, 7 kinds of percentile rank were constructed. They were percentile rank of 5th male/female graders, 8th male/female graders, 11th male/female graders, and that of the whole subjects.

(5) Method

The Me Scale was first sent to the norm sample by mail. At the same time, the researcher herself administered ' The Me Scale' to the gifted and talented subjects, so the ratio of returning is 100%. About one month later, all questionnaires of the norm sample were totally returned, too. Another month later, 206 regular subjects were purposefully selected to gain the test–retest reliability.

D. Main findings

a. Among the five OEs, G/T students display most T OE (19.3%), the followings are M OE (18.3%) and S OE (12.8%), and show the least P and E OE.

---------------------Insert Table1 and Figure 1 Here--------------

b. The Male G/T students show more significant P (p<.05, F=22.06) and T (p<.05, F=14.01) OEs than the female; female G/T students, on the other hand, show more significant S (p<.05, F=3.52)and E (p<.05, F=18.31) OEs than the male.

c. High school G/T students display a higher level of S (p<.05, F=7.02) and E (p<.05, F=12.83).OEs than elementary students; junior high school G/T students also display more significant E OE than elementary students do (p<.05). However, there is no significant difference between senior high pupils and junior high pupils on S and E OEs.

d. Academically gifted students are reported owing more significant T OE than talented students (p<.05, F=14.44).

e. Highly gifted students (IQ= or >137.5) own more significant T OE than ordinary gifted counterparts (p<.05, F=6.81).

f. The first three strongest OE of gifted students in sequence are T, E, and M OEs and for talented students are E, T, and S OE.

g. The first three strongest traits of each OE that G/T students show are as follows:

P OE1. Whatever I do, I want to win.

2. I like fast games.

3. I like the feeling of making the body move.

S OE1. I usually indulge myself in beautiful or significant scenery.

2. I like those beautiful delicate ornament very much.

3. If I taste something delicious, I could not stop eating.

T OE1. I usually disturbed by something unfair.

2. I usually explore every problem from A to Z.

3. I like intellectually challenging games such as jigsaw puzzle, crossword.

M OE1. I usually show some vivid image whenever I recall something.

2. I imagine something every common of its unusual usage or

application

        3. Others all say I am a person of imagination.

    E OE 1. If I kick an animal by accident, I would feel sad as if I hurt
someone else.

        2. I miss the place I had ever been quite often.

    3.I have strong emotional attachments to people.

------------------ Insert Table 2 Here-------------------

h. Some items of 'The Me scale', that are absent in OEQII or Adult Questionnaire, are shown as follows. Items with ◆◆ are traits that significantly characterise Taiwanese G/ T students:

◆ I like to describe something by using formula or symbols.

◆ There is an imaginative person in my mind talking to me quite often.

◆◆ I like intellectually challenging games such as jigsaw puzzle, crossword, or _____.

◆◆ I like to read or listen to the magic or fairy tales.

◆ I usually can't be calm. For example, I want to have a walk even during class.

◆ I feel lonely among people.

◆ I would talk with people even when it is not proper to talk.

◆◆ I usually miss the place I have ever been.

◆◆ I imagine something very common of its unusual usage or application.

◆ The keener the exercise is, the more I like it. For example, racing, speeding motorcycle, or _____.

◆ I like to read whatever books my classmates feel difficult to understand.

◆ I talk in quick speed.

◆◆ I feel guilty whenever I do something wrong.

◆ I can hardly bear the noise, even a tiny one drives me crazy.

i. G/T students exhibit more significant T, M, and S, OEs than regular students do. ($p < .001$).

j. G/T students display more significant OE traits than their regular counterparts on the following items:

Subscale	OE Traits
P OE	NONE
S OE	5. I like to listen to special sound such as the rhythm of the falling rain, sound of wind bell, speech of a person with weird accent, or_____.

	14. .I like physical contact with other person through hugging.
	47. I like special smell such as those of grass, flowers, gasoline, paint, or_____.
	57. I am sensitive to the taste of food. For example, I can tell the difference between Coke and Pepsi.
T OE	22. I like to analyze complicated issues into simple pieces.
	33.When I come across a difficult problem, I insist figuring it out.
	42.I like to read whatever books my classmates feel difficult to understand.
	55.Exploring knowledge makes me refreshed.
M OE	13.I like to imagine something few people would do. For example, what will it be when the end of the world come?
	19.I like to read or listen to the magic or fairy tales.
	27.I like daydreaming and enjoy it very much.
	31.My dream is so vivid that I can even recall the details.
	43.I usually imagine that toys or stuffs are alive and can talk.
	58.I usually pretend that I am a person of great importance.
E OE	32.I feel lonely among people.
	44.I usually have the feeling of fear and guilt without reason.
	54.I am usually moved to tears when watching TV or seeing a movie, even if others are not.

E. Discussion

The results show that G/ T students in Taiwan display more significant OE traits than regular students especially on T, M , and S OE. The results are part the same as those of Piechowski & Colangelo (1984), Piechowski, Silverman & Falk (1985). However, this study exclusively indicates that G/T students in Taiwan exhibit more significant S OE instead of E OE than regular students, which is not found in American's studies. Whether the abundant material environment is the cause needs further proof. On the other hand, whether Chinese students are not used to express their feelings that causes the result also needs further exploration.

When compared with academically gifted students, talented students do not show higher M OE. This result is quite different from the researches of Piechowski & Cunningham (1985)and Piechowski, Silverman & Falk (1985). The researcher suggests that subjects of talented individuals in this study are

still students instead of adult artists. Since art students emphasise more on learning than on creative development, they do not have enough time or do not pay a lot of attention in creative working.

From gender difference point of view, male G/T students show higher level of T and P OEs. The result is similar to that of Lysy & Piechowski (1983)and Miller, Silverman and Falk (1994). On the other hand, female G/ T students show higher level of E and S OEs. The results are part the same as the research of Ammirato (1987), Sandal Miller (1988), Miller, Sliverman & Falk (1994) and Piechowski & Miller (1995). However, their researches did not indicate that girls showed higher level of S OE than the male. To sum up, the pattern of OEs in terms of gender is quite similar to the American researches.

Age difference is another dimension concerned. The results show that elder G/ T students show higher S and E OEs than the younger, which are similar to the results of Piechowski & Colangelo (1984) and Piechowski & Miller(1995).However, the results are different from those of Manzanero (1985), Sandal-Miller (1988) and Falk, Manzanero & Miller (1997). That is because their researches show no difference between different age of G/T individuals.

To sum up, the research shows that G/T students in Taiwan do display significant OE traits than their regular counterparts. However, the OE patterns are not exactly the same as a series of American researches. The following researches of how to guide these G/ T students are worth doing.

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Table 1   The percentage of G/T students with overexcitabilities

Age	gender	P	S	T	M	E
5th graders	M (134)	14.2%	11.9%	30.6%	24.6%	9.0%
	F (221)	16.3%	10.4%	15.8%	21.7%	8.1%
8th graders	M (70)	14.3%	25.7%	40.0%	30.0%	14.3%
	F (192)	10.4%	14.6%	20.3%	19.8%	8.9%
11th graders	M (129)	4.7%	9.3%	10.9%	6.2%	10.9%
	F (205)	12.7%	12.7%	30.2%	22.5%	9.3%
Total	(951)	11.0%	12.8%	19.3%	18.3%	11.0%

Psychomotor OE

by percentile rank

Sensual OE

by percentile rank

Intellectual OE

by percentile rank

Imaginational OE
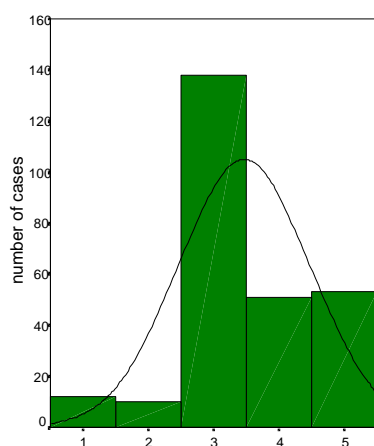
by percentile rank

Emotional OE

Psychomotor OE

Figure 1-1

Distribution of numbers of 5th G/T students

with OE traits

Foot notes:

5: > percentile rank 93 (overexcited)

4: percentile rank 84~93

3: percentile rank 16~84

2: percentile rank 7~16

1: < percentile rank 7

Sensual OE

Intellectual OE

Imaginational OE

Emotional OE

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Figure 1-2

Distribution of numbers of 8th G/T students with OE traits

Foot notes:

5: > percentile rank 93 (overexcited)

4: percentile rank 84~93

3: percentile rank 16~84

2: percentile rank 7~16
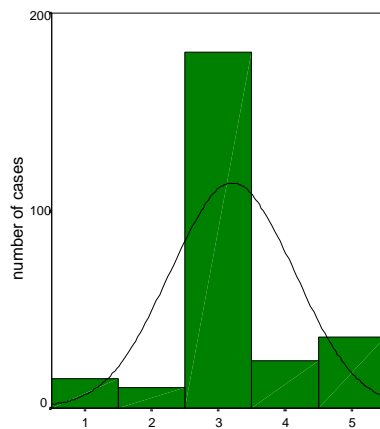
1: < percentile rank 7

by percentile rank

Psychomotor OE

Sensual OE

by percentile rank

by percentile rank

Intellectual OE

Imaginational OE

by percentile rank

by percentile rank

Emotional OE

by percentile rank

Figure 1-3

Distribution of numbers of 11th G/T students

with OE traits

Foot notes:

5: > percentile rank 93 (overexcited)

4: percentile rank 84~93

3: percentile rank 16~84

2: percentile rank 7~16

1: < percentile rank 7

Table 2   The degree of significance of G/T students' OE traits on
'The Me Scale'

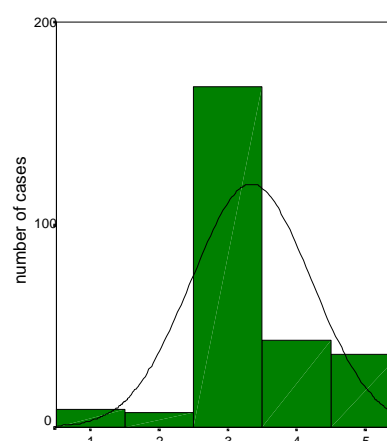| Subscales	OE Traits	L (n/%)	M (n/%)	H (n/%)	Missing	X2
	2.have a sudden impulse to take outdoor exercise	343/36.10	299/31.40	309/32.50	0/0	3.36
	7.have surplus energy	256/26.90	351/36.90	344/36.20	0/0	17.69***
	21.workaholic	341/35.90	352/37.10	257/27.10	1/.1	17.06***
	25.can't stand life without taking an exercise	399/42.00	283/29.8	268/28.20	1/.1	32.47***
Psycho-motor OE	26.can't be calm	503/52.90	232/34.40	216/22.70	0/0	164.11***
	29.like fast games	205/21.60	210/22.10	536/56.40	0/0	226.98***
	30.when competing against others, it is essential to be victorious	43/4.50	133/14.00	774/81.50	1/.1	1003.52***
	34.talk even when it is not proper	329/34.60	283/29.80	339/35.60	0/0	5.63
	39.like keener exercise	401/42.20	247/26.00	303/31.90	0/0	38.33***
	45.talk in quick speed	220/23.20	366/38.60	362/38.20	3/.3	43.77***
	46.have the impulse of jumping and moving of the body	287/30.20	304/32.00	359/37.80	1/.1	8.95*
	52.like sports because the movement feels good	144/15.10	260/27.30	547/57.50	0/0	271.54***
Sensual OE	1.like delicate ornament	127/13.40	272/28.60	552/58.00	0/0	294.48***
	5.like to listen to special sound	343/36.10	241/25.40	366/38.50	1/.1	27.96***
	9.like to touch fine texture of clothes	194/20.40	233/24.50	524/55.10	0/0	205.16***
	14.like physical contact with people	261/27.40	270/28.50	417/44.00	3/.3	48.55***
	15.when taste something delicious, couldn't stop eating	122/12.90	299/31.50	528/55.60	2/.2	261.97***
	23. like food with special taste	174/18.30	312/32.90	463/48.80	2/.2	132.10***
	40.being overeating or a shopping spree when get nervous or anxious	448/47.10	231/24.30	272/28.60	0/0	83.86***
	47.like special smell	291/30.60	239/25.10	421/44.30	0/0	55.45***

Subscales	OE Traits	L (n/%)	M (n/%)	H (n/%)	Missing	X2
	48.like walk on the floor with special texture	223/23.50	256/26.90	471/49.60	1/.1	114.55***
	56.can hardly bear the noise	359/37.70	292/30.70	300/31.50	0/0	8.45*
	57.being sensitive to the taste of food	339/35.70	245/25.80	366/38.50	1/.1	25.48**
	60.indulge oneself in magnificent views	132/13.90	200/21.00	619/65.10	0/0	438.86***
	6.like to think by formula or symbols	424/44.70	282/29.70	243/25.60	2/.2	57.37***
	11.like intellectually challenging games	167/17.60	252/26.50	531/55.90	1/.1	229.01***
	12.sit up late or restless before figuring out the answer	386/40.70	306/32.30	256/27.00	3/.3	27.22***
Intel-lectual OE	17.like to explore the causes and consequences of every problem from A to Z	105/11.10	326/34.40	517/54.50	3/.3	269.06***
	20.don't easily believe whatever other people say	114/12.00	320/33.70	516/54.30	1/.1	255.22***
	22.like to analyse complicated issues into simple pieces	124/13.00	316/33.20	511/53.70	0/0	236.23***
Intel-lectual OE	24.like to question everything	150/15.90	286/30.30	509/53.90	6/.6	208.58***
	33.when come across a difficult problem, insist figuring it out	179/18.80	347/26.50	425/44.70	0/0	99.71***
	42.like to read books other people feel difficult to understand	276/29.00	332/34.90	343/36.10	0/0	8.15*
	49.can't bear anything unfair	62/6.50	175/18.40	712/75.00	2/.2	762.53***
	50.think over everything of its logic	66/6.90	268/28.20	616/64.80	1/.1	488.85***
	55.feel refreshed when exploring knowledge	160/16.90	237/35.50	451/47.60	3/.3	136.08***
	8.an imaginative person talking to me quite often	414/43.70	181/19.10	353/37.20	3/.3	92.40***
	13.like to imagining something few people would do	271/28.50	210/22.10	470/49.40	0/0	116.64**
	18.being a person of imagination	140/14.80	293/30.90	516/54.40	2/.2	226.04***
	19.like magic or fairy tales	194/20.40	256/26.90	501/52.70	0/0	166.27***
	27.like daydreaming	311/32.80	219/23.10	419/44.20	2/.2	63.36***
	28.usually feel the existence of spirit and fairy	469/49.30	230/24.20	252/26.50	0/0	110.09***
Imagi-national OE	31.my dream is so vivid that I can even recall the details	222/23.30	291/30.60	438/46.10	0/0	76.79***
	38.imagine common thing's unusual usage	148/15.60	273/28.80	527/55.60	3/.3	236.06***
	41.usually shows vivid image when imagine	76/8.00	189/19.90	686/72.10	0/0	664.44***
	43.usually imagine that toys or stuffs are alive	287/30.20	242/25.40	422/44.40	0/0	55.36**
	53.usually imagine having my own kingdom	229/24.10	336/24.80	486/51.10	0/0	135.22***
	58.usually pretend that I am a person of great importance	225/23.70	288/30.30	436/45.90	2/.2	74.18***
Emotional OE	3.get nervous easily with physical syndrome	345/36.30	280/28.40	326/34.30	0/0	7.05*
	4.frequently worry about things	164/17.30	272/28.70	513/54.10	2/.2	201.84***

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Subscales	OE Traits	L (n/%)	M (n/%)	H (n/%)	Missing	X2
	10.have strong emotional attachment to people	85/8.90	236/24.80	629/66.20	1/.1	498.09***
	16.feel sad when kick an animal by accident	69/7.30	212/22.30	670/70.50	0/0	621.89***
	32.feel lonely among people	300/31.50	301/31.70	350/36.80	0/0	5.16
	35.usually miss the place I have ever been	95/10.00	194/20.50	659/69.50	3/.3	573.97***
	36.usually being emotional	243/25.60	309/32.50	398/41.90	1/.1	38.21***
	37.usually have the feeling of both crying and laughing at the same time	398/41.90	263/27.70	290/30.50	0/0	32.20***
	44.usually have the feeling of fear and guilt without reason.	337/35.40	249/26.20	365/38.40	0/0	23.12***
	51.feel guilty whenever doing something wrong	121/12.70	307/32.30	523/55.00	0/0	255.37***
	54.usually moved to tears when watching TV or seeing a movie	358/37.70	207/21.80	384/40.50	2/.2	57.75**
	59.become timid and shy in unfamiliar environment	194/20.40	242/25.40	515/54.20	0/0	189.14***

df=2   p<.05, **p<.01, ***p<.001

THE IDEAS THAT MOTHER´S OF GIFTED CHILDREN HAVE ON CHILDREN´S DEVELOPMENT: AN EXPLORATORY STUDY

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The present study compares the ideas of mothers of gifted or talented children and mothers of children with normal development on children's development in order to understand partnership on education programs and their children's own development as well. The results show that mothers of gifted children tend to value the direct interaction between children and the environment, while mothers of children with average abilities development tend to value the environment as playing the most important role on children's development.

In the last decade, we have been witnessing an increasing trend toward family centered early intervention programs. In the mean time, the scenery in education has been quite similar.

Clearly, tremendous changes have taken place so that parents play an active role in the assessment of their children's developmental abilities, in decision making and in the entire educational program. This family centered approach is not happening by mere chance. In fact, it has become recognized that the information parents give concerning their children's development is crucial, in order to get a better understanding of children's development. Therefore, according to some authors (e.g., Harris, 1994), parents are capable of giving adequate and trustworthy information concerning their children. Other authors (e.g., Dinnebeil & Rule, 1994), argue that the quality of the information given by parents has come to be valued, due to the degree of congruency between the estimates given by parents in comparison to the ones given by professionals concerning children's development. On the other hand, it has been argued that gifted and talented children should be identified as early as possible through a global and dynamic process (Bulkool & Souza, 1997). When that happens, the information given by the parents, teachers and other specialists becomes crucial.

It has to be taken into account that, nowadays, not only psychologists and other professionals from educational domains deal with the study of intellectual abilities. It has become clear that intelligence has to be dealt with from an interdisciplinary perspective in which various disciplines, such as, psychology, sociology, biology, engineering, medicine, computer science, biochemistry and philosophy, among others (Mettrau, 1995) become involved, in an attempt to get a better understanding of this matter. For this reason, parents can also be partners in this interdisciplinary team.

In this global and dynamic process, understanding the ideas that parents have regarding children's development, seems to be an attempt in trying to understand parents as educational partners in order to understand children's own developmental abilities and developmental and behavioural outcomes, as well. Therefore, it seems obvious that part of the task of professionals in the fields of developmental psychology and education should be related to the understanding of parents' beliefs or ideas concerning their children's development, in order to get a better understanding of the gifted child; to help define intervention goals; to work with parents on how to improve parental practices; and to better respond to child and family needs and priorities. The connection between the ideas parents have about children's development and education and their own educational practices (Gomes, 1998) cannot be ignored. For instance, significant others within the

family context are often tempted to relate the child's own emotional, intellectual and behavioural characteristics to parental educational practices.

The pertinence in understanding parents' ideas about children's development leads us through an important literature search in order to understand not only parents' ideas on children's development, but, as a consequence, to children's developmental outcomes.

Discussions on development have varied, so that emphases have been placed on different contributing factors for early characteristics of the child and later behaviour. In the literature it becomes clear that traditional attempts to understand development have been based on stable models of child development (Sameroff & Fiese,1992).

Sameroff & Fiese (1992), for instance, expanded the traditional views of development to include a broader model for children's development, through an integrated model that includes the child's behavioural characteristics, biological contributions and environmental regulation. By including terms such as environtype, phenotype and genotype, defined by Sameroff (1985), the environment, as referred by the author, is understood in terms of the community, the family and parental factors (i.e., parents' beliefs, values, expectations, family cultural issues, myths and family stories, etc.). Thus, the child's behaviour is understood within a specific regulation model, in which the child's behaviour at any given time is the result of transactions among the environtype (the result of external experience), phenotype (the child) and genotype (the result of biological organization) (see Figure 1) (Sameroff & Fiese, 1992).

The transactions that take place within each of these levels are carried out within codes. For instance, within the environtype, there are cultural codes, family codes, and parental codes. Within these codes we may find cultural, family and parental representations concerning children's development. However, in a broader sense, the term representations, as referred to in the literature, refers, essentially, to social representations of development, although, within this approach, parents' ideas about children's

Figure 1: Sameroff´s regulation model of development with transactions among genotype, phenotype and environtype (1985).
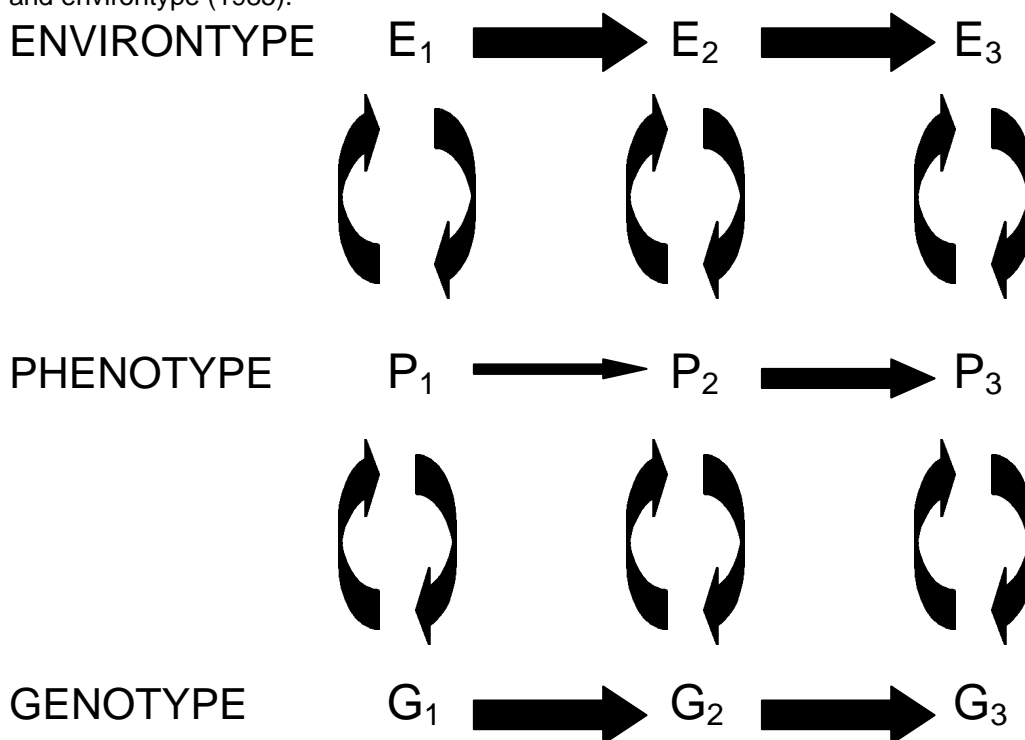
(from Sameroff & Fiese, 1992)

development may also be included. For instance, Goodnow (1988) argues that a more recent interest in parents' ideas has been marked by a cognitive emphasis, that is, by viewing parents' ideas as "an interesting form of adult social cognition". Within this perspective, it may be argued that some of the contributions of parents' ideas are related to socialization processes as well as to parents' expectations and attitudes regarding development, emotional aspects of behaviour, parental satisfaction, and even other emotional cognitive states (McGillicuddy-DeLisi & Sigel, 1992) of parenting.

In short, in an integrative model of development that incorporates features of the child's behaviour, biological contributions and the environment, parents' ideas about children's development are part of these transactions that influence children's development. Parents' ideas about children's development are part of parental codes.

But what are parents' ideas about development? Parents' ideas are what some authors, such as Sameroff (1985) refer to as family cultural issues, myths and family stories, which are part of parental codes, as mentioned above. Other authors, such as Palacios (1988), include aspects of adult cognition such as perceptions, beliefs, knowledge, suppositions and inferences, values and aspirations, expectations and attitudes. Briefly, research on parents' ideas about children's development deal with the understanding of how children become to be the way they are, and how children's competencies and behaviour are based on innate abilities or experience.

Thus, for the present study, our main goal is to investigate the differences between the ideas about development on mothers of gifted and talented children and mothers of children with average abilities. The assumption underlying this research is that if these two groups of mothers show differences in their ideas about children's development, that is, in the way they understand, interpret and attribute children's development, then their ideas may influence children's developmental and behavioural outcomes.

Methodology

Subjects

The sample comprises a total of 45 mothers, which are the target group of this study. These were mothers of 45 children, ranging in ages from 3 to 13 years (M = 8.8 years for the group of gifted children and M = 8.9 years for the group of children with average abilities). All children attended the same private school, Colégio Paulo VI, in Gondomar, Portugal, and their school level varied from kindergarten through 8th grade. The sample was divided into two groups: (1) 22 mothers of children previously identified as being gifted or talented (group 1) and, (2) 23 mothers of children with average abilities (group 2).

Because our gold was to study the children in an enrichment program, the sample in both groups did not have an equal number of boys and girls. The sample included 17 boys (77.3 %) and 5 girls (22.7 %) in group 1 and 17 boys (73.9 %) and 6 girls (26.1 %) in group 2. Therefore, children's sex was not one variable of interest. In fact, similar programs that work with gifted children seem to have larger groups of boys than girls. The enrichment program also has a greater prevalence of boys than girls.

For the same reasons as stated above, that is, our interest in studying the children in the enrichment program, other variables, such as family size and structure, social economical status and mothers' marital status, were not taken into account. Thus, the only variables of interest here refer to the children who are gifted or talented *versus* children

with average abilities. Efforts were made to include fathers, but a poor response rate, especially from the fathers in group 2, only mothers became the target group.

Mothers' ages ranged from 29 to 43 years (M = 37.9 years) in group 1 and 24 to 41 years (M = 38 years) in group 2.

Background of the subjects

The mothers and children of group 1 are part of a program called *Porta Aberta (PA)*, meaning "open door", which was initiated in 1996 in Colégio Paulo VI, a private school in Gondomar. The main goal of this program is to offer gifted and talented children and adolescents the possibility to participate – through and enrichment program – in alternative activities that a regular school is not always prepared to provide. The participation of the students in these alternative activities is, above all, an attempt to enrich their cognitive, emotional and social potentials.

For the present study, only the mothers of the children whose school level did not go beyond 8th grade were included. The children of group 1 were selected out of a larger group of 51 children and adolescents that were part of the program during this year.

The mothers and children of group 2 attended the same private school and were randomly selected from the same regular classes attended by the children in group 1.

Measures

To meet the goals of this study, two assessment instruments were used. The first, the Family Characterization Questionnaire, was designed in order to gather demographic data.

The second instrument, the *Beliefs About Development Scale*, was developed by Martin (1983) and was used in another study done by Gomes (1998) where it was translated into portuguese and used with a sample of portuguese mothers. For this previous study, several professional in linguistics and in child psychology assisted in the translation and in evaluating face validity with a portuguese sample.

The scale assesses "parents' general beliefs regarding the nature of children and how they change over time" (Martin & Johnson, 1992). It is a thirty-item scale in which all questions have three different response options. Each option is based on a different explanation of situations involving young children worded in everyday language. Each response option or explanation is also based on a different theoretical approach: Learning, Cognitive-Developmental and Maturational (see Table 1 for the definitions of the theories).

Table 1:Definitions of the theories on parents' general beliefs regarding the nature of children's development and how they change over time.

Learning	Changes in the child are shaped by the social environment (parents, teachers, peers) and the physical environment (toys, situations). The mechanisms that lead to change are direct instruction, association, reinforcement, reward, punishment, imitation, and modeling.

Cognitive-Developmental	The dynamic interaction between the child's existing knowledge and the environment is the key to development. Knowledge is the result of active processing on the child's part. The primary mechanisms responsible for learning and development (curiosity, exploration, discovery, self-regulation, experimentation) are internal to the child.
Maturational	Characteristics of the child emerge spontaneously as a result of a natural biological growth. The gradual unfolding of genetically based potential is the key to the child's readiness. The timing and patterning of behaviour changes are independent of training or experience.

(from Martin & Johnson, 1992)

Procedure

All questionnaires were given out to the mothers personally. All instructions were given verbally and directly to the mothers, together with an informed consent. The questionnaires were completed at home and returned during the months of January and February of 2000. Only one mother of group 1 failed to return the questionnaire.

Results

The data presented here have to do with the responses given by the 45 participant mothers to the *Beliefs About Development Scale*. The results are presented according to the different approaches and in relation to group 1 or to group 2.

In group 1, an average of 35.47% of the mothers selected, as a first option, answers based on a cognitive-developmental approach. As second option, an average of 38.18% of the mothers selected answers on a cognitive-developmental approach. The Learning and the Maturation perspectives show lower percentage scores as first and second options (see Table 2).

In group 2, an average of 38.97% of the mothers selected, as a first option, answers based on a learning approach, and, as second option, 46.04% of the mothers selected answers based on a cognitive-developmental approach. In this group of mothers (group 2) the maturation approach has lower percentage scores (see Table 2).

Table 2 : Percentages of mothers in the two groups for the selected answers as first and second options for each theorical approach.

	Group 1	Group 2
First option		
Learning	33.39%	38.97%
Maturation	31.14%	29.84%
Cog.-Dev.	35.47%	31.19%

Second option		
Learning	32.61%	30.95%
Maturation	29.21%	23.01%
Cog.-Dev.	38.18%	46.04%

Discussion

The small size and the diversity of the sample, and the fact that parents' ideas about children's development were measured only by one instrument and at one point in time, limits the conclusions that can be drawn from this study. However, taken as a whole, the methodology and data presented provide an interesting picture of the importance of parents' ideas about development and their influence on children's developmental and behavioural outcomes.

The goal of this exploratory study was to investigate the differences between the ideas about development of mothers of gifted and talented children and mothers of children with average abilities. The assumption underlying this research was that, if these two groups of mothers show differences in their ideas about children's development, that is, in the way they understand, interpret and attribute children's development, then their ideas may influence children's developmental and behavioural outcomes.

In fact, we have found differences on mothers' ideas about children's development. The mothers of talented and gifted children selected answers based on a cognitive-developmental approach as first and second options, that is, for these mothers the key to development is the direct interaction between the child's existing knowledge and the environment. The mothers of children with average abilities selected answers based on a learning approach as a first, and, as a second option, they selected answers based on a cognitive-developmental approach. That is, for these mothers, children's changes are understood to be shaped by the social and physical environment.

According to these results, it may be concluded that mothers of gifted and talented children show ideas which may be interpreted to be of a more evolutionary educational perspective, which may be due to a cognitive system that is more active, reflexive and more selective of incoming information (Palacios, 1988). On the other hand, the mothers of children with average abilities seem to have ideas which lack clear and stable milestones on both their traditional ideas and on their own personal cognitive organization (Palacios, 1988). It also seems important to conclude that the mothers of gifted and talented children see their own ideas on development being reinforced by enrichment programs, which may add what Palacios (1988) refers as being the direct interaction between the child's existing knowledge and the environment.

Although the children's sex is not taken into account as a variable in this study due to sample size, some researchers argue that the child's sex as not being important in determining mothers' ideas about development (e.g., Castro, 1994), while others, such as Martin e Johnson (1992), using the same scale that is also used in the present study, refer that the child's sex is related to mothers' ideas on development. In their study, they found that mothers of girls selected answers based on a learning approach, while mothers of boys selected answers based on a cognitive-developmental approach.

Other studies with research done comparing mothers' educational level (e.g., Gomes,1998), show differences between mothers with low and high educational levels.

Palacios (1988) argues that, when there are differences on parents' ideas about development according to educational level, the influence must be indirect, that is, in the case of parents with higher education, it must be related, essentially, to more expanded ways of thinking. Thus, in the present study, the fact that most mothers in the groups have an education at a College level may also explain why mothers of talented and gifted children selected answers based on a cognitive-developmental approach, as first and second options, and why mothers of children with average abilities selected answers based on the same approach as second options.

The main goal of this study was accomplished. The overall findings suggest that there are differences in the ideas about development when the two groups of mothers are compared. These differences may be attributed to the mothers' different parental experiences. The fact that these two groups of mothers may have very different experiences as their children grow up, due to the children's different abilities, should not be disregarded. In most cases, gifted children go through their different developmental milestones, such as walking and talking very early in life and they also learn different skills, such as, writing and reading, earlier than most other children as well. In such cases, parents also have to learn to deal with their children's abilities and skills earlier and they also learn to expect more from their children's development and earlier in time. When their children are identified as gifted, they begin to have even higher expectations and feel that they can also do more in order to improve those abilities. In fact, several research studies have shown that, frequently, most parents overestimate their children's developmental abilities (e.g., Sheehan, 1988). Other studies show that mothers tend to give higher test scores to their children when asked about their performance on a Piaget test or on the *Stanford-Binet Intelligence Scale* (e.g., Miller).

With findings such as these, we are also tempted to conclude that children may have better outcomes when their own parents have higher expectations.

The results of this study are also very encouraging for future research in this field. It seems pertinent to argue that this "chain of relationships" from parents' ideas, to parents' behaviour, to child outcomes (Iverson & Segal, 1992), when dealing with gifted or talented children, deserves more attention.

The brief historical overview at the beginning of this study provided a look at the importance of family involvement in educational programs. A theme that has been repeated throughout this study is the importance of parents' ideas about children's development. We believe that it is of extreme importance for professionals in developmental psychology, education and other fields to understand these ideas, in order to have a better understanding of the gifted child; to help define intervention goals; to help parents deal with educational issues at home, and to better respond to child and family needs and priorities. Only by knowing more can we act better.

Mettrau (1995), for instance, is concerned with the way teachers should become more and more familiar with educational issues with which they deal on a regular basis, such as, the concept of intelligence, in order to understand and know more about their own intellectual functioning as well as their students' intelligent behaviour has to avoid labelling themselves and their students. We believe we can borrow this idea from Mettrau and argue that only by knowing more can we act better. After all, asking parents about their children and their developmental abilities provides professionals with a wealth of important information.

On the other hand, another goal of parent involvement is to make parents better teachers of their child and to become more aware of their child's needs and potentials (Gomes, 1998). The gains should always work both ways if we are to talk about family centered programs.

Programs that provide opportunities for family involvement are providing professionals and parents with gains for a dynamic and global intervention service.

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THE INTERNATIONAL EDUCATION POLICY FOR GIFTED CHILDREN

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ABSTRACT

This article deals with the current situation concerning educational policies for gifted children. We then deal with the current state of these educational policies in our schools before going on to consider some final ideas on the lack of implementation of these policies, concluding with a proposal for action aimed at providing these children with the education they need.

INTRODUCTION

In recent years the education of gifted children as pupils with special educational needs has undergone considerable dynamism, leading to a great number of publications and research which has led the educational authorities in the various countries to establish legislation which takes into account these pupils.

Educational systems need to bear in mind and cater for all kinds of pupils. Society, as a whole, cannot afford to neglect those children who have special educational needs and who stand out from the rest whether as a result of being gifted or through being below average in terms of ability.

This article provides an important contribution to the state of the art as regards awareness of international educational policies and offers a broad perspective thanks to the position of each member of the Symposium that took place during the XIV World Council For Gifted and Talented Children held in Barcelona in 2001.

EDUCATION AND GIFTEDNESS

1.- Intellectual Definition of Gifted

In agreement with Gagné (1995), the term *gifted* would appear to be a satisfactory label for those who are naturally highly skilled, skills that are partially innate, which could be interpreted as 'gifts' of nature, and which are developed fairly naturally through the maturing processes, as well as through daily use and/or informal practice. According to this author, for a student achieving academic success, for example, and having *talent* in any given subject, this *talent* might attributed both to the learning and practice maintained as well as to intellectual level. On the other hand, a student achieving low academic success and with an IQ of above 130 will be assessed as *gifted*, but not academically talented.

In our view there are three criteria for defining intellectual giftedness (Benito y Moro, 1997):
1.- Intellectual giftedness is characterised by an intellectual performance significantly above the average **(Criterion A)**.
2.- General intellectual capacity is defined with the intelligence quotient (IQ equivalent to or above 130, obtained from the assessment of one or more normalised intelligence tests) linked to greater maturity in information processes, a high degree of motivation towards learning, creativity, preciousness and development of talent **(Criterion B)**.
3.- Intellectual giftedness must manifest itself during the developmental stage, meaning that it should be apparent from birth to the age of 18 **(Criterion C)**.

Macotela states that (1994), children with special educational needs are those who show deviations in comparison to average children. Approximately 4% are between 2 and 3 standard deviations below the average (IQ between 55 and 70) and above the average (IQ between 130 and 145). The deviation is such that the subject requires modified or special school practices to reach maximum ability (Kirk and Gallagher, 1983) since the standard educational procedure applied to the majority is inadequate for them (Kaufmann, 1981).

2.- Measures of intelligence

Although the most recent conceptions on gifted people or intelligence increasingly refer to multidimensional models, the tests generally used in the identification of gifted children refer to measurements of general intelligence.
According to Renzulli being gifted at school can also be termed as being gifted at learning lessons or doing tests. This is the type most easily measured by IQ or other cognitive skill tests, and for this reason is also the most frequently used in the selection of students for admittance into special programmes. Skills shown by people in IQ and skill tests are exactly the most commonly evaluated kinds of skills in school learning. In other words, the games that people play in skill tests are similar in nature to the games

that teachers use in most classroom learning situations. Research has revealed that students who have a high score in IQ tests are usually those who get top marks in school. Research has also shown that these classroom learning skills or the ability to do tests normally remain stable over the years. The results of this research should lead us to some obvious conclusions on school giftedness: it exists to varying degrees; it may be identified through standardised assessment techniques. We should therefore do everything in our power to bring about the necessary changes aimed at students who have the ability to do their schoolwork with a high degree of success and comprehension.

As the regards the use of tests in the identification of intellectually gifted children (Benito, 1999), despite the criticism levelled at the predisposition and limitations of intelligence tests (Snyderman and Rothman, 1988) they are still amongst the most useful (Borland, 1989), they offer the best measure of intellectual skill (Gallagher, 1975; Snyderman and Rothman, 1988) as well as the most accurate identification of gifted children (Sattler, 1982). Individual intelligence tests are also extremely useful for identifying children who are underachievers (Davis and Rimm, 1985; Whitmore, 1981), young gifted children at school age (Robinson and Chamrad, 1986), gifted children with associated traumas (Kauffman and Harrison, 1986) and in decision making as regards early admission and acceleration (Feldhusen and Baska, 1989).

According to Wilson and Grylls (1992) IQ tests normally show acceptable levels of reliability and validity when well designed and used in the hands of qualified psychologists under adequate assessment conditions (Benito, 1999).

When choosing tools, tests or assessment techniques, the use of multiple approaches is vital. However, we should not only use various techniques in the assessment of a single variable, but should also ensure that these come from varying sources in so far as this is possible, as Fernández-Ballesteros (1980) has pointed out. It needs to be stressed that in the case of assessing gifted children, the most commonly recommended psychometric tool for measuring intelligence is the Stanford-Binet, Terman-Merrill, Forma L-M (Silverman and Keartney, 1989; Benito, 1992) since it has the lowest ceiling and can measure extreme scores, which modern tests fail to do. The results that tests of intelligence tests provide us with should be complemented with the information obtained from other additional techniques or assessment information from different sources, such as parents, teachers and so on.

A trustworthy diagnosis requires the intellectual status of the individual to be accurately defined, through the use of reliable tests of the fundamental cognitive factors, in other words tests of fluid and crystallised intelligence, as well as verbal, numerical and spatial skills (Benito, 1990).

According to scientific literature on the subject, diagnostic assessment should be carried out taking the following aspects into account (Feldhusen and Jarwan, 1993; Verdugo, 1994; Benito, 1997):

1. Assessment should be performed only if there are sufficient reasons for doing so. Assessment and identification procedures for gifted children should be based on the most reliable concepts and up to date theories available on human skills, talents and abilities.

2. The pupil's parents and tutors should provide their authorisation for assessment to be carried out and have the right to participate in and appeal against any decision that may be taken.

3. Assessment should only be performed by fully qualified professionals.

4. Identification should be seen as an on-going process. Even when several tests are available, it should not be assumed that assessment has conclusively and unequivocally identified the gifted child. Giftedness is a combination of emerging skills which develop over time and require on-going assessment as the child matures.

5. Tools, tests and classification scales should be selected taking into account the reliability and validity established for their use in identification processes.

6. Identification should be diagnostic by nature, bearing in mind values, skills and abilities as well as problems, weaknesses and needs.

7. Empirical validation should be used to verify that the identification-selection system is working as desired. Are the children selected following the programme adequately? Are we leaving out any children who should be taking part? Are we selecting children who perform at high or extremely levels in the long term?

8. An effort should be made to ensure that all children have the same opportunities to be identified in the programs. Do we find gifted and talented children among both sexes, among the disabled, among minorities and culturally different groups, as well as among those who may be performing below their potential (low performance) and therefore do not display their skills and abilities? The necessary tools and procedures are now available to ensure that all children and youngsters have an equal chance of being identified and of course of being provided with suitable programs.

The future of education should be built on the solid foundations of theory and research. Identification procedures lend themselves to scientific validation and theory is the result of rigorous scientific research. These two factors together should and must be used to identify these pupils.

The results of assessment should be reflected in an individual profile in which the educational approach required needs to be established. Programs and services should be linked to the special talents, skills and abilities of gifted children, as should their special problems and requirements.

The definition, classification and educational strategies adopted imply a rethinking of the decision making process. In this regard, it is important to promote the training of professionals in the needs involved in catering for the intellectually gifted.

3.- Why is legislation necessary for gifted children and why must it be applied?

The 'Functional Guide' issued by the National Resource Centre for Special Education at the Ministry of Education (1990), states that *"one of the key ideas in education is that it must stem from the previous ideas and experience of pupils. Should we neglect this starting point, we are likely to be offering our pupils activities that are not tailored to their level of learning, either because these activities focus on something they already know or because they are far removed from what the pupil is capable of achieving even with the help of others. Both circumstances may lead to the same negative consequences for pupils:*

1.- Not learning, not changing, not making progress.
2.- Creating possible adverse reactions or lack of interest, and therefore reducing the pupil's motivation to learn".
Real progress is only possible if the children receive adequate education for their level of skills and abilities, a level for which they are prepared. True learning involves broadening our minds. When too much or too little is asked of children, they learn very little (Robinson and Olszewski-Kubilius, 1997).

Difficulties in terms of social and school adaptation are evident in these pupils. These difficulties are even greater in children with an IQ of between 130 and 145, this being the level where in statistical terms 85% of gifted children are to be found (Alonso, 1993 and 1996).
Low performance or failure at school is an extremely common problem. At times, it may manifest itself as apathy or depression, at others as a refusal to do set tasks, and at others as open rebellion. This low performance and failure at school may be influenced by sensitive areas such as dysynchrony, subtle learning disorders and by TDAH.
Although intervention in these cases is clearly necessary, preventing these problems from appearing is far more important. Real progress is possible only if children are offered teaching which is adequate to the level of their skills and abilities, to a level to which they are prepared.

EDUCATION FOR INTELECTUALLY GIFTED CHILD IN THE SPANISH EDUCATIONAL SYSTEM

1.- Retrospective vision and current state

The White Papers for the Educational System Reformation was the first official paper published in 1989 on which it was stated that there was another special educational need: the students called "gifted" (Article X, Section 20).
In 1991, the National Center of Resources for the Special Education from the Ministry of Education and Science, published a document titled : "La educación de los alumnos superdotados" (Gifted Students' Education) on which the existence at international level of several educational strategies was recognized and on which the strategy of differentiated curriculum was considered as the most appropriate for Spain.

As introduction, it is required to start with looking back at early February in 1993, when Mr. Hunault suggested that the Culture and Education Committee of the European Council should present a report on how is the real situation of the gifted students in the school systems. On march 24 -1993, once named Mr. Xavier Hunault as the communication presenter of such a Committee, he presented a

"Project for making the report on the gifted children in the school systems and preliminary suggestions on this question". After several discussions and procedure, Project of Recommendation and so on, the Recommendation 1248 was positively voted by the Assembly (1994).

Before the publication of the Royal Decree no 69611995, any educational strategy in Spain designed for gifted students was out of the Spanish educational system according to the at that time in force Governmental Orders and Royal Decrees, so that, for instance, among the educational interventions, the possibility of implementing the acceleration was indicated as a "inappropriate" method of schooling children without being in their proper age.

It has been mainly from coming into force the Royal Decree when an increasing number of teachers from all levels of Primary Education to University Education has recognized the ample and different needs of the gifted population. Little by little, research works are being made supported by different Institutions and Universities.

The Royal Decree no. 69611995, of april 28th 1995, regulating the education of pupils with special educational needs, in its Chapter two, deals with the Educational needs associated with individual conditions of intellectual giftedness.

The educational care of pupils with special needs linked to the individual condition of being highly gifted shall specially see to promoting a balanced development of the different types of abilities mentioned as the general objectives of the different stages of education.

The Ministry of Education and Science shall determine the procedure to be followed for assessing special educational requirements linked to the personal condition of being highly gifted, as well as the type and scope of the measures to be taken for suitably meeting those requirements.

The order of april 24th 1996, regulates the conditions and procedure for implementing, as an exception, a flexible compulsory schooling period for pupils who have special educational needs associated with individual conditions of intellectual giftedness.

To suitably meet the educational needs of pupils who are intellectually highly gifted, it is required to identify and asses accurately and from an early age their needs, as well as to serve them by implementing an apropriate educational service. Such educational services shall include such specific curriculum actions as shall be required to ensure the full and balanced development of their abilities from a school environment as normal as possible.

In accordance with the Final Provision no. One of this Order, the provisions of this Order shall apply to every school in Spain which provides ,Primary or Compulsory Secondary Education.

The purpose of this Order is to regulate the conditions and procedure for adopting, as an exception a flexible compulsory schooling period for pupils who have special educational needs associated with individual conditions of intellectual giftedness.

The mentioned individual conditions of intellectual giftedness, which involves having an exceptional potential for learning and academical achievement, as well as the special educational needs coming from such a condition, shall be identified by a psycho-pedagogical assessment of the pupils.

The general criteria are the following:

1. The schooling period may be made flexible by both advancing the age of starting the child's compulsory schooling and by reducing the length of time of an educational cycle.

2. Authority may be granted, as an exception, for reducing the'compulsory schooling period by up to two years. Under no circumstances may the two-year reduction of the period take place during the same educational level or stage.

3. Any curriculum decisions that may be taken, with the relevant authorisation, for cutting down the duration of an educational level or stage, shall be subject to a continuous assessment process, and may be cancelled if the pupildoes not achieve the proposed objectives, in which case the pupil shall go through the relevant level or stage in the number of years foreseen for pupils in general.

4. When a pupil is foreseen to require a flexible schooling period, the parents or guardians shall be kept informed on the subject and their prior agreement in writing shall be requested before taking any decisions.

Requirements and conditions:

1. Schooling in the first year of Primary Education may start one year earlier when the psycho-pedagogical assessment of a pupil found to be highly gifted intellectually leads to expect such measure to be suitable for developing a balanced personality and the pupil's social skills, and on the condition that the pupil has acquired, overall, the abilities foreseen in the objectives for Infant Education.

2. In the Primary Education leves, the schooling period may be cut down by one year when the psycho-pedagogical assessment, upon the pupil being shown to be highly gifted intellectually, leads to expect the measure to be suitable for developing a balanced personality as well as the pupil's social skills, and the pupil has acquired, overall, the abilities included in the objectives for the cycle he should take. Those pupi1s who have started compulsory schooling a year early may not benefit from the provisions of this Paragraph.

3. In the Compulsory Secondary Education stage, the schooling period may be cut down by one year when the psycho-pedagogical assessment, upon the pupil being shown to be highly gifted intellectually, leads to expect the measure to be suitable for developing a balanced personality as well as for the pupil's social integration, and the student has acquired, overall, the abilities included in the objectives for the cycle or course he should take.

Conclusions:

1. Pupils who have special educational requirements because they are highly gifted intellectually shall attend ordinary schools. Any decisions taken in respect of such students 'in the Curriculum Project for the relevant stage shall form part of the ordinary measures aimed at taking into account diversity among pupils.
2. Such curriculum adjustments as may be made for these pupils shall in any case promote full and balanced development of the abilities foreseen in the general objectives for compulsory education.
3. The educational measures aimed at meeting special educational requirements of pupils who are highly gifted intellectually may include adjusting the curriculum by extending this or adopting a flexible compulsory schooling period and making the relevant individual adjustments in the curriculum.
4. When any of the above-mentioned special curriculum measures are foreseen to be taken, the pupil's parents or guardians shall be kept informed on these, and their written consent shall be requested for taking the measures. The student shall likewise be informed on the subject.

2.- Why is the training of teaching staff essential? Research into the change of attitude of teachers

The success of an educational programme depends to a large extent on the teaching staff, as it is known that teachers who do not have adequate training in the teaching of intellectually gifted children often display a lack of interest and/or may even be hostile towards this type of children. By contrast, teachers who do have proper training and experience with gifted pupils tend to be enthusiastic and are interested in working with these pupils.

Research was carried out into this issue by the Spanish Centre for aiding the progress of gifted children in co-operation with the Education Council at The Castile and León Regional Government (1996) among a total of 2 032 people (teacher training students, teachers, psychologists, educationalists, careers advisers, from 1992 to 1996). This research revealed that the attitude towards these pupils, both on the part of the teacher training students as well as trained teachers, changed as their knowledge increased. This was influenced to a great extent when a Royal Decree was passed that encompassed various ministerial orders and resolutions and created a legal framework that had been lacking up that point (Alonso and Benito, 1996; Benito, 1999).

Training in Spain is carried out in the following ways:

- Initial training is provided in Teacher Training Schools and University Faculties of Education and Psychology.
- On-going training is provided through courses run in Teacher Resource Centres, Postgraduate courses and PhD courses.

CURRENT SITUATION OF GIFTED CHILDREN IN SPAIN

Gifted student's mother (Spain)

Since the promulgation of the Royal Decree 696 in 1995, gifted children in Spain enjoy a number of measures focussed on improving their education. Among the Systems of Intervention, the Minister of Education points out the following: Acceleration, significative curriculum adaptation within the classroom and enrichening programmes both in and out regular lessons.

We all hoped that these educational vias, once regularised, would put an end to the problems faced by these children for many years. Unfortunately the meetings and occassional encounters with parents and visits to gifted children's associations all over Spain proved this to be quite different.

This is the result of a survey carried out in order to rate the above:
The survey was done among 46 families with gifted children from the Centro Huerta del Rey and it was completely anonymous so as not to put any presser on parents'answers.

The result may seem slightly slanted coming from a private Centre, but in it is, in fact, truly representative as the people who have taken part in it are from many different regions in Spain: Andalucía, Cantabria, Castilla-la Mancha, Castilla y León, Cataluña, Galicia, Madrid, Navarra y Pais Vasco.

- 74% of the participants were boys and 26% were girls.
- It ranged from Infants (2%) to Higher Education (2%) with a majority of Primary School students (57%) and Secondary School students (39%).
- Public Schools (37%), In Concert (52%) and Private (11%).
- Rural Schools (24%) and urban schools (76%).

The Acceleration "consist of allowing to forward the student one or more courses so as to adequate his/her learning possibilities to his/her capacities and intelectual pace". (Pérez, Domínguez y Díaz, 1998) whenever the child requires so.

- According to the survey, 33% of children have enjoyed the acceleration of course whereas a 67% have not.
- The majority of these accelerations were carried out during Primary School, 93%, and only a 7% during Secondary School.

Note that there is a long way to go to increase the number of children "accelerated" which is still rather low.
- Paradoxically, 73% out of the 33% of children who have been "accelerated" course, are not undergoing the neccessary curriculum adaptation.

This beneficial acceleration, we believe, increases their intelligence and thus the children should continously undergo a curriculum adaptation according to their capacities. Even though most educational centres understand this, they hardly ever comply with the requirement.

The curriculum adaptation consist of the designing of individual educational programmes to be applied within the ordinary school timetable (Benito,1999).

- It is very significant that 83% of the children interviewed are not receiving an adequate curriculum adaptation, no matter the environment, whether it is rural or urban, or the type of school, public, inconcert or private.

A high percentage of scholars are not being offered this educational right, to the detriment of both their intelectual and socio-emotional levels.

- The curriculum adaptation of half of this very low 17% of children is being done in a wrongly way, only 25% is being properly done.

Among the reasons given by the professionals to justify this lack of curriculum adaptation are the following:
- 12% of the children recognised as gifted were not considered so by the educational team.
- 12% stated they did not have the neccessary personnel.
- 14% promised to take the neccessary steps to ensure the adaptation would be done, but they simply ignore it afterwards.
- 20% did not have the means to carry it out.
- 20% claimed these children did not need it as, in their opinion, there are many more children as intelligent or even more than the children involved in the programme.
- 22% simply lack sympathy towards this particular matter.

In fact, most of them argued several of the above in order to skip the curriculum adaptation. In short, this would mean added work for them.

These conclusions show that there is an important need to train professionals on this subject, in some cases their incompetence is jeopardising seriously the education of these children.

Although it is true that some teachers are trained through the CPR on the education of children with exceptional capacities, most of these professional show no interest whatsover. It should be the professionals themselves to claim to the appropriate Oficial Institutions for the resources needed to achieve the previous. These children cannot be condemned to not receiving the adequate education they require, That would be sheer negligence.

The attitude from parents whose attemps to get the right education for their children have failed is the following:

- Only 26% of them persist on fighting to get the school to apply this educative via on their children.
- 29% of the parents find a new school for their children.
- A great majority of parents,45%, give in trying altogether.

The number of times parents said have moved their children to another school for being gifted were:

- 60% have not moved.
- 19% have moved once.
- 21% twice.

As we can gather this is a rather high and worrying percentage, 40% of parents had to move their children to a different school for the simple reason of them being gifted children. This is quite relevant at indicating the inconveniences these children have to overcome at school, sometimes close to xenophobia.

Low perfomance at school

This lack of adjustment between the classes and the gifted children's intelectual capacity results in them "desconecting", thus begining to have gaps of knowledge that usually leads to their school failure (Alonso y Benito, 1996).

- Many of these children are bored in class, 50%. 32% claimed they were not and 18% said that only sometimes.
- The information obtained is rather significant. 15% of the students interviewed had failed at least a subjet.
- It is also significant the stage they begin to fail subjects. There is none in Primary School, but in Secondary School there is a great majority,86%, of children who begin to fail and 14% continue doing so in High School.
- Regarding the difficulties these children encounter, there is 43% of them who have trouble to finish a course in Secondary whereas 57% said they do not.

Finally we asked the interviewed families whether they believe their children were receiving in their Schools an education according to their capacities. The answer gives a clear idea of the chaotic current situation of gifted children in Spain:

- 89% of parents reckon their children are Not receiving the right education for their capacities.

Conclusion

We have clearly observed that the current situation of gifted children is really alarming for in spite of the legislation by the Ministery of Education and the Local Government, it is not, in fact, being applied in the school, thus jeopardising these children's education.

If these alternative educational vias are not put into practice, children will fail school, greatly as a consequence of having cut their learning eagerness. What future is, then, awaiting these children condemned to failure for "not being part of the main stream"?

Parents'concern about this matter can be easily observed in the result of this survey. Most of us feel hepless and unprotected by a system that does not comply with its commitments. We are tired of fighting and claiming what our children have right to. All children seem to have the right to an education accord to their capacities except gifted children.

Many have suffered, year after year, an inadequate education at school, thus limiting their wish to learn and many have given in in the proccess. ¡It is not fair! We must not allow future generations to go through the same. They are only children. Let us not condemn them for the simple fact that they are gifted children.

EDUCATIVE POLITICS FOR GIFTED IN BRAZIL

Secretariat of Special Education, MEC (Brazil)

Having a gifted student in school implies to live challenging and ambiguous contexts. They are challenging because the innovation, curiosity and the wide range of interests of the gifted student alter the static routine of the school, requiring teachers, pedagogical technical support and more dynamic technologies; they are ambiguous because in certain moments this explosion of action and activity goes toward the irritability, the conflict, the question, the resistance to rigid patterns and lack of security, requesting emotional support from the school and specific pedagogical orientation to the presented behavior.

The educative attention to the gifted and talented student implies to arouse the need for propitiate better school conditions, stimulation of student's interests for his/her full development, by teachers and educative authorities.

All efforts in the educative attention of the gifted and talented student will suppose a benefit for the student and for the society in which he/she lives in.

The student met in his/her potentials will be confident and will understand his/her role in the building of the society as a citizen. In this way, the gifted and talented students will be able of work in the technical, scientific, cultural and artistic development of the country.

There are still many countries that, due to different reasons, don't have an educative politics for gifted students. In Brazil, that politics is based on the law:

1. Federative Constitution of Brazil – Chapter III: About Education, Culture and Sport – Section I – About Education.
Art. 205 – The education, law of all people and obligation of State and family, will be promoted and stimulated with the collaboration of society, looking for the full

development of the person, his/her preparation in order to be a good citizen and his/her qualification to work.

Art. 206 – The teaching will be given according to the following principles:

II. Freedom for learning, teaching, researching and divulging the thought, the art and the knowledge.

Art. 208 – The duty of State regarding Education will be carried out by the guarantee of the:

V. access to the highest levels of the teaching, of the research and the artistic creation, according to the every student's ability.

2. Law of Directions and Bases of the National Education nº 9394/1996 – (LDBEN).

Art. 58 – Special Education is understood to be, according to this law, the modality of school education, preferably offered in the regular system of teaching, for students with special needs.

§ 1º When it is necessary, there will be specialized services, in the regular school, to meet the peculiarities of the special group.

3. National Directions for the Special Education into the Basic Education 2001 – Resolution of the National Council of Education.

Art.5º. Students are considered students with special educative needs when they show, during the educative process:

III – high capacities/giftedness, easiness for learning that allows them to quickly dominate concepts, procedures and attitudes.

That policy, in operational terms, shows us:

a) Who are the gifted students? They are students who show a notable achievement or high potential in the capacities: general intellectual capacity, specific academic aptitude, psychomotor capacity, creative or productive thought and special talents for art (World Council for Gifted).

b) Where are they attended? They are attended in common classes in order to deepen or enrich the school curriculum; in classes of resources in order to enrich or deepen in interesting issues for them; in community institutions, because there are not any schools that have all the necessity attention to the diverse potentials of the students.

c) How are they attended in an educative way? In the pedagogical aspect, by a methodology of deepen or enrich, and by the acceleration/advance in the year and, in a psychological way, by group dynamics.

What the Resolution that trains National Curriculum Directions for the training of Basic Education Teachers says about the training of the teacher is that, at a high level, contents about gifted students with special educative needs are explained in the initial training of all teachers.

In Brazil there is not any curse about giftedness at a graduation level, but there are some in the specialized curses (postgraduate education): in the Rio de Janeiro State University (eyewitness methodology) and in the Lavras University – Minas Gerais (semi-eyewitness methodology).

In order to facilitate the work to the teachers who already work with these students, the SEESP/MEC made the Human Resources Capacitating Program for giftedness, like a continuum training, making two books with seven parts.

Book 1 – Giftedness and Talent:
Part I – *Giftedness and Talent Characteristics – Considerations.*
Part II – *Giftedness and Talent: Aptitudes, Interests and Specific Abilities.*
Part III – *Giftedness and Talent: Some relevant aspects.*
Part IV– *Giftedness and Talent: Implantation, identification and attention procedures.*

Book 2 – Giftedness and Talent:
Part V – *Giftedness and Talent: Education and Methodological Aspects.*
Part VI – *Giftedness and Talent: Think and Create.*
Part VII – *Giftedness and Talent: Education of Human Values.*

That is a concrete action that intensifies the initial actions in 1973. This program defend the issues about giftedness are attended, strengthening so the human, universal and constitutional right about these students are attended for the development of their potentials.

The good teacher must know how to work with the diversity of his students, to considerate the contradiction and the conflict as interactive forms. These aspects are the soil fruitful for a real pedagogical work.

The student's personal growth must receive the same attention, given his/her cultural formation. Who teaches is in charge of this and he/she must contribute also to the student's general formation, so his/her action is wider and more opened.

The good educator should be connected with the social, political and economical context, so some behaviors must be always present in his/her teaching:

- To have enough sensitivity to detect and to understand the individual differences;
- To arouse, to encourage and to develop capacities and potentials;
- To get the confidence from the students through a mature relationship;
- To adopt a democratic position without forgetting the issue of the discipline;
- To define a coherent work plan in collaboration with the students;
- To know the content well;
- To transmit systemized knowledge;
- To build a bilateral canal with the students;
- To prepare the student against the life difficulties;
- To prefer dialoguing than criticizing;
- To work the psychological side of the students.

The gifted education is an important and serious task. It must be object of continuos studies and thoughts.

The educative practice following this line don't limit itself to a simple work, contrary it has a wide dimension, a incredible magnitude and, above all things, an art. It is a difficult art, but it is extremely satisfying.

So, parents begin to work their human resources, defining policies and promoting the training, in a way that will support the development of a new Culture, Education, Science and Technology.

CURRENT TRENDS OF TEACHER TRAINING ON GIFTEDNESS IN ROMANIA

Centre for Teacher Training of Romania

Historic approach

Current trends of Romanian teacher training (TT) on giftedness is very depending to the global reform of education at national level. As a transition country, Romania is developing one of the major reform of education in its history.

After 1989 the reform took place in the absence of a coherent education policy. Various issues were approached in isolation, not within a winder perspective of education, in relation with precise objectives and pedagogical methodologies.

During 1990-1994 some changes were implemented in curriculum and textbooks. The project of reforming pre-university education, co-financed by Romanian Government and World Bank, was put into practice beginning with 1994. Two new important structures were founded: National Council for Curriculum, National Council for Teacher Training. Reform of curriculum and management in universities were started as well and were supported in the frame of grant giving system based on national competitions.

The most evident changes were put into practice especially after 1997, in a configuration that has enabled the implementation in Romania of a comprehensive reform. This reform is one which covers all sectorial components of the pre-university and university education system: curriculum, textbooks, teacher training, school management, assessment, professional standards, education financing. One of the most successful output of the reform is the new national curriculum at pre-university level.

Unfortunately, a coherent and comprehensive reform on education for able people is not yet implemented at national level. But all the progressive changes what are happened during the current reform and especially the requirements of the new national curriculum behave like an implicit force in favour of designing and implementing special provision for able students at local and institutional levels.

Current legislation as concern to giftedness

Title II, Chapter I, Art. 16: *Able pupils and students proving high academic proficiency can attend and two years of studies, during one scholar/ academic year.*

Title II, Chapter I, Art. 24(2): *High-schools can have one or more studying profiles. According to this, under approval of Ministry of Education, there can be organized special classes for very able children.* Title II, Chapter VI, Art. 49(1): *Centers for Psychological and Educational Assistance function in all counties and Bucharest; they ensure the scholar and professional counselling as well.* Title I, Chapter IX, Art. 59(2): *High-school graduates who in last 2 year of studies gained national subjects contests, artistic or sport contests on international, world or Olympic level, can register for university admittance without contest, at those faculties having in their curricula the known subjects.*

Title IV, Chapter I, Art. 141: *The Ministry of Education ensures the identification and appropriate academic provisions for very able students.*

Current legislation as concern to New National Curriculum. Links to teachers training

The structure of pre-university curriculum

      A. Curriculum – nucleus (core curriculum)   70%

      Compulsory curriculum (offered by National Educational Authority).
Tested curriculum (the basis for the national standards of testing students' performances).

      B. Curriculum at the decision of school   30%

      B.1. Extended curriculum (school follows the suggestions made by central authority)   70%+30%

      B.2. Full time curriculum – nucleus (school, do not approach 30% curriculum, but only 70%)

      B.3. Curriculum made in school (cross curricular activities offered to interested students; recommended teaching methods: projects, team-learning, team searching, etc.).

      Required methodological materials for teachers and students (curriculum support) and special training courses.

      New directions implemented by National Curriculum:

      1. The most important are not what teacher teaches but what student learns!

      2. Active learning by more personal involvement!

      3. More flexible curriculum!

      4. Curriculum adapted at the day by day reality!

      5. Contents selection by "not more but better" and by "what is the most worth for future"!

      6. Differentiated and personalized curriculum!

      7.General task commitment for curriculum design, improving and evaluation!

Main consequences for the giftedness

- The transition to a new outlook on curriculum requires a comprehensive program for staff training, as well as renegotiating responsibilities at all educational policy levels: national, regional, local, institutional. One of immediate consequences is the founding of *National Centre for Teacher Training*, June, 2000, restructured June, 2001. The main functions of this centre are elaborating and developing standards for TT programs and certification, methodologies for tt program accreditation, of TT programs.

- The *New National Curriculum* offers multiple ways to adapt curriculum for meeting gifted students' special needs. Teachers ask support and special training for curriculum made in school, including differentiated curriculum.

- Research in universities on giftedness and differentiated curriculum were started.

Ph.D dissertations on giftedness

- Teaching special courses on giftedness in several universities as initial teachers' training.

- Initiating of a new structure in frame of Ministry of Education: *National Centre of Excellence,* May, 2001. This centre started its activity with special programs for very able pupils in math, physics, chemistry, biology and geography. It is a hope to enlarge the vision on giftedness of this centre in the future.

- NGOs working in the field of giftedness, providing teachers training and counselling (ex.: RO-Talent, which is an association for able people educational and social assistance).

- Initiating of a special Series: *Talentum* in one of the most known publishing company in psychology and education, Polirom.

Study case: Project of research
The strategy of teachers' training and counselling in the field of giftedness
(made in the faculty of Psychology and Educational Sciences, University "Al.I.Cuza" Iasi).

1. Supported by:
Romanian Council of Scientific Research in Universities (CNCSIS) and World Bank grant.
Centre "Education 2000+" of the Foundation for an Open Society, Romania.

2. Main target:
To improve the ability of working with able students in the frame of Romanian system of education.

3. Objectives:
To make a preliminary diagnosis of the teacher's level of knowledge and practice in the field of giftedness (national survey).
To realize a methodological guide for teaching able students (4 volumes).
To elaborate and develop differentiated curricular materials.
To develop teacher training courses in the field of giftedness.

National survey focus on:
1. How do teachers perceive the able student's major needs?
2. Teachers' desired administrative strategies to differentiate the curriculum.
3. Teachers' major difficulties.
4. Teachers' suggestions to improve the curriculum for able students.
5. Strategies in-action.

6. Teachers' self image on their competence working with able students.

7. Teachers' preferences for training forms in the field of giftedness (initial, in job, summer courses, exchange, workshops, etc.).

8. Teachers' attitudes towards different rewards, corresponding to different work: with ablest students in homogeneous classes, with able students in regular classes, with common students, etc.

National survey general outcomes:

This investigation leads only to a preliminary diagnosis of the status of education for able students.

The teacher's knowledge in the field of the theory of giftedness is very narrow.

Teachers' approach in the practice of differentiated education is empirically.

Teachers' state of spirit concerning the promotion of curricular projects for able students became visibly positive. The outcomes make clear that teachers have generally accepted to involve themselves in differentiated education.

State of art on teacher training policy (SWOT)

Strengthens
• Law frame opening
• Institutional reform beginning (new educational structures)
• Special task for Local Authorities (50% job in the field of gifted education for one school *inspector* in each local *inspectorate*).
• Research in universities.
• Teaching courses on giftedness in universities.
• NGOs on giftedness.

Weaknesses
• Few initial and in-service TT.
• Few incentives for teachers.
• Few experts in giftedness.
• Gap of communication between experts in giftedness and education policy makers.
• Lack of gifted's parents associations.
• Myth: Gifted children are only the owners of International Olympiads (academics) & gifted students' teachers are only the International Olympiads owners' teachers.
• Narrow image on giftedness phenomenon in school practice.

Threats
• Less economic capacity for national integration and rewards for able people.
• The main incentive for gifted students, including Olympiads: go abroad.
• Brain drain.
• More and more strength on „Olympiad teaching-learning style".
• Bad management of human resources.

•   Influence of „anti-gifted programs" movements from abroad, including the ideology of anti-elitism.

Opportunities
•   Increasing interests on giftedness field at national, local and institutional levels of policy of education.
•   Few elitism accusations over the special provision for able students.
•   Openness to international programs for teacher training.

The Ministry of National Education, universities and schools, some NGO's are currently working on a complex project aimed at developing initial and in-service teacher training which is expected to enable a more flexible and efficient approach of teaching and learning. The new curriculum framework provides many new working possibilities that have not been used previously or have been used to a less extent, such as counselling and mentoring activities, team teaching, working on multiple intelligences and talents, differentiated curriculum. The structure of evaluation students results and didactic assessment strategies are more consistent with the opportunities provided by the curriculum framework. A new program for elaborate and develop professional standards for teachers is started. This standards will refer to the special needs and differentiated teaching for able students.

If I take into account some opinions and expectances expressed by school teachers during a recent meeting-debate on teaching for able students, I can consider that now, there are pedagogical and social premises to require a more courageous policy of education related to giftedness at all levels, including also the international level.

RECOMENDATION OF COUNCIL EUROPEAN 1248 (1994)

Committee on Culture and Education, Council of Europe

1.The Assembly reaffirms education as a fundamental human right, and believes that it should, as far as possible, be appropriate to each individual.

2.Whereas for practical purposes education systems must be set up so as to provide adequate education for the majority of children, there will always be children with special needs and for whom special arrangements have to be made. One group of such children is that of the highly gifted.

3.Gifted children should be able to benefit from appropriate educational conditions that would allow them to develop fully their abilities, for their own benefit and for the benefit of society as a whole. No country can indeed afford to waste talents and it would be a waste of human resources not to identify in good time any intellectual or other potentialities. Adequate tools are needed for this purpose.

4.Special educational provision should, however, in no way privilege one group of children to the detriment of the others.

5.The Assembly therefore recommends that the Committee of Ministers ask the competent authorities of the states signatory to the European Cultural Convention to take account of the following considerations in their educatioal policies:

I.- legislation should recognise and respect individual differences. Highly gifted children, as with other categories, need adequate educational opportunities to develop their full potential;

II.- basic research in the fields of "giftedness" and "talent" and applied research, for instance to improve identification procedures, should be developed in parallel. Research on the "mechanisms of success" could help to tackle school failure;

III.- meanwhile, in-service teacher training programmes have to include strategies for identifying children of high ability or special talent. Information on gifted children should be made available to all those who deal with children (teachers, parents, doctors, social workers, ministries of education, etc.);

IV.- provision for specially gifted children in a given subject area should preferably be arranged within the ordinary school system, from pre-school education onwards. Flexible curricula, more chances of mobility, enriching supplementary material, audiovisual aids and project-oriented teaching styles are ways and techniques to foster the development of all children, whether highly gifted or not, and enable the identification of special needs at the earliest possible time;

V.- the ordinary school system should be made flexible enough to enable the needs of high performers or talented students to be met;

VI.- any special provision for highly gifted or talented students should be administered with discretion, to avoid the innate danger of labelling, with all its undesired consequences to society.

6.There is a need to clarify the notion of "giftedness" by an operational definition that is accepted and understandable in different languages. Therefore, the Assembly further recommends that the Committee of Ministers consider the setting-up of an ad hoc committee for this purpose including psychologists, sociologists, and educationalists of all relevant specialisations.

Assembly debate on 7 October 1994 (31st Sitting) (see Doc. 7140, report of the Committee on Culture and Education, Rapporteur: Mr Hadjidemetriou).

Text adopted by the Assembly on 7 October 1994 (31st Sitting).

EUROPEAN SOCIAL CHARTER

European Social Charter Secretariat

The European Social Charter is a 40-year old international legally binding treaty protecting the economic and social rights of millions of Council of Europe nationals. It is a complement to the Council of Europe's other major human rights treaty, the European Convention on Human Rights, which guarantees civil and political rights. As with the Convention, everyone is somehow affected by the Charter

even from before birth right into old age. The rights protected under the Charter cover a wide spectrum: health, social protection, housing, employment, equality, and rights linked to the movement of persons. In the context of the Barcelona Conference, participants should be aware that many Charter provisions are directly focussed on the safeguarding of children's rights, whether in the context of work, protecting their health or promoting their education.

The European Social Charter of 1961 has evolved over the years: 4 rights were added to the original 19 fundamental rights in a Protocol in 1988. A further Protocol in 1991 amended some of the features of the control mechanism and an entirely new Protocol was devised to enable collective complaints to be lodged against states. Finally, a revised Charter, containing the 19 original rights with some modifications, and the four additional rights of the 1988 Protocol, as well as a further eight new rights, entered into force in 1999. This revised Charter currently operates in parallel with the original Charter: as more and more states choose to ratify this newer instrument it will gradually replace the 1961 Charter.

The Secretariat of the European Social Charter assists the Committees who are responsible for the mechanism for monitoring Contracting Parties' compliance with the Charter articles they have chosen to accept. 29 states have to date agreed to be bound to submit regular reports on either the Charter or the revised Charter: a further 12 countries have signed but not yet ratified one or other of the two instruments.

The reports submitted by states are based on a Form for Reports containing a wealth of questions that need to be answered in full. The European Committee of Social Rights (ECSR), made up of 12 independent experts, studies the reports provision by provision, country by country and makes a legal assessment to judge conformity with the Charter requirements. These conclusions may be positive (ie. the situation is in conformity) or negative (ie. the situation is not in conformity). Alternatively, the Committee may decide to defer a conclusion for lack of information. Both the national reports and the conclusions are public.

On the basis of this Committee's negative conclusions, individual recommendations may be addressed to states by the Council of Europe's Committee of Ministers, asking states to change their legislation, regulations or practice which are found not to be in conformity with the Charter.

Conference participants will wish to learn more about Articles 7, 16 and 17 of the revised European Social Charter all of which have a direct bearing on the protection of the rights of all children, therefore including gifted and talented children. In addition, more information on the Collective Complaints Protocol which acts as a complementary control mechanism to highlight certain problems and to emphasise the need for change may proove useful to participants.

By way of introduction to the protection afforded to children under the Charter, Article 7 provides the basis for protecting them within the context of work. According to the requirements of the revised Charter, the minimum age for entry into the labour market is 15. If states allow children to carry out work outside the obligatory school periods, a list of prescribed tasks, or light work must be drawn up by states. States are

urged to be exceedingly vigilant in their supervision of the practice of light work: several cases suggesting the exploitation of children in the labour market have come to light during the Committee's assessment of this provision. States must ensure that all children receive equal attention and that any strictly limited working periods do not interfere with their school time or take up too much of their holidays.

The very wide scope of Article 16 makes a short explanation of its relevance to this conference a little difficult. The essence, however, is that a state must provide and subsequently maintain a solid foundation on which a family may thrive, in which a child may grow without being deprived of his or her natural potential to develop. The article itself is dedicated to the protection of family life and states are expected to ensure that a family benefit system (including child allowances), consultation and advice services for families, as well as basic child minding facilities and institutions (creches, home help services, etc.) are widely available, either free of charge or at a cost.

It is, however, Article 17 of the revised European Social Charter which has the most bearing on the theme of the Conference, as it provides the right of children and young persons to social, legal and economic protection. Paragraph 1 of this article asks all states who have accepted it "either directly or in co-operation with public and private organisations, to take all necessary mesasures designed to ensure that children and young persons have … the education and the training they need …".

In identifying the measures to be taken to adhere to this provision, states are asked to reply to Question G of the Form for Reports, which is to indicate compensatory measures (educational, …) taken to protect children and young persons with special needs.

Caselaw on this provision is in the process of being developed as the first national reports on the revised European Social Charter are now being submitted. The following states have to date accepted to be bound by all of Article 17: Estonia, France, Ireland, Italy, Lithuania, Norway, Romania, Slovenia and Sweden. Bulgaria has accepted paragraph 1 but not paragraph 2 of Article 17. The ECSR is currently analysing states' conformity with this provision and the conclusions of its assessment will be published in the course of 2002.

Should there be evidence to show even at this stage that there is a violation or violations of this or other provisions, a separate course of action may be followed. Allegations of breaches of the Charter may be submitted to the ECSR under the Protocol providing for a system of collective complaints.

There are certain strict guidelines as concerns who may lodge a collective complaint and how the complaints should be lodged. In brief, a complaint may be lodged by either national and international employers' organisations and trade unions, European NGOs having consultative status with the Council of Europe and included on a list drawn up for this purpose, or national NGOs, if the state concerned has made a declaration authorising them to do so and if they are particularly competent in their field of activity.

A collective complaint must be lodged in writing in one of the official languages of the Council of Europe (English or French) (or in certain specific cases in a non–official language or one of the languages of the defendant state), and must be signed by an authorised representative of the complainant organisation.

The complaint is examined by the European Committee of Social Rights, which first decides on its admissibility. Should this be the case, the Committee then decides on the merits of the complaint. Its decision is contained in a report which it forwards to the Committee of Ministers. At the end of the procedure, the Committee of Ministers adopts a resolution. If appropriate, it may recommend that the state in question take specific steps to bring the situation into line with the Charter.

The object of this summarised presentation of the European Social Charter, an instrument which is undoubtedly new to most, is to give participants an insight into its potential. The key Charter words to remember, particularly with regard to children are promote and protect as opposed to exploit and endanger. States having chosen to be bound by Charter provisions must abide by its ground rules. Although there is a mechanism in place to monitor compliance in law and in practice in each state, an additional system has been devised to enable others to pinpoint irregularities. For those participants who consider that there may be room for improvements in any countries' education systems for highly gifted and talented children, this information may be highly interesting. The Charter's Protocol providing for a system of collective complaints may offer a way of bringing about changes that may be necessary for the well-being of gifted and talented children.

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CONCLUSION

Once each of the participants had made their contributions at the Symposium held in Barcelona in 2001 during the XIV World Council for Gifted and Talented Children, as we have previously pointed out, and picking up on the words of Josep Varela M.P.: 'seven years after the report issued by Hadjidemetriou M.P. and the rapidly changing society we live in', it is proposed that the work of the Symposium together with the Conclusion Recommendation be presented to the Commission on Education, Science and Culture of the Parliamentary Assembly at the Council of Europe, which collects the requests and requirements of this group of children. A copy will also be forwarded to the Secretariat of the European Social Charter:

1.- Even though current legislation in the varying countries takes into consideration the education of these children, the truth is that very little attention is paid to these gifted children who have special educational needs. Thinking that these children are capable of looking after themselves is a huge mistake. These children and youngsters require a variety of services and support. All too often, the kind of education they are provided with bores them and leads them to take a strong dislike

towards school. The lack of investment in education strategies from an early age creates poor or non-existent study habits. These habits are exhaustingly difficult to correct when the right motivation does appear and thus it is essential to provide the proper motivation from the very outset. Research indicates that low levels of performance can be seen at an early age and that children begin to display their potential during their first three years. Real progress can only be achieved if children are offered adequate teaching for their level of skills and abilities. <u>Merely passing laws is not enough; they need to be put into practice</u>. It is essential to continue working to raise awareness of gifted children as pupils who learn in a different way and require a specially adapted educational approach.

2.- Following the Recommendations of the Council of Europe 1248 (1994) on the need for these pupils to be identified at an early age and the need to adopt strategies for them, research has been carried out that has led to the creation of a Screening Test published by the Spanish Ministry of Education, and which is validated in six countries, including Spain. The method is efficient and cost-effective and enables the detection of gifted children in underprivileged sectors. We therefore feel that this test should be given in all schools and made available to paediatricians, if we really want to do something to benefit these children and not simply talk about what could or should be done.

3.- The psycho-educational material available for these pupils is still scarce and is frequently not used in the classroom. We should also insist on the development of assessment tools adapted to these pupils.

4.- Another aspect which we consider to be important is not only an awareness and understanding of the diversity of these pupils (in psychometric terms their intellectual level ranges from an IQ of 130 to over 200) but also assessment, educational strategies and treatment which takes account of this diversity. This awareness and understanding of the diversity of these pupils makes it necessary to give equal consideration to assessment, educational strategies adopted as well as to the treatment of gifted children with associated disorders (learning difficulties, attention deficit, physical disabilities, hyperactivity, etc.). Research is a key factor in this respect, as is training in identification by skilled experts as well as socio-educational intervention catering for gifted children who have associated disorders, not only in terms of their 'deficiencies', but also of their intellectual giftedness.

5.- As we have pointed, an educational programme depends to a large extent on the teaching staff, since teachers who have not received training (both basic as well as on-going training), are often disinterested and/or hostile towards this type of pupil, whereas it has been seen that the attitude of teachers who are trained and experienced in working with gifted children changes as they gain in knowledge.

It is therefore important to carry on working in the field of awareness raising and training not only as regards people involved in education but also for specialists in early attention (Paediatricians), who play a key role in terms of observing the progress of these children.

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A STUDY ON KOREAN PRESIDENTIAL DECREE OF THE PROMOTION ACT OF EDUCATING FOR THE GIFTED AND TALENTED

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We suggested this paper to the Ministry of Education and the Ministry of Education is going to prepare the Presidential Decree referring to this paper.

INTRODUCTION

In order to encourage the gifted and talented and support them, Korean National Assembly passed "the promotion act of educating for the gifted and talented" on December 28, 1999. Korean Government decreed this act on January 28, 2000 to enforce from March 1, 2002. To give the government advice, we reviewed the promotion act of educating for the gifted and talented and suggested Korean presidential decree of the promotion act of educating for the gifted and talented as follows.

The contents of the promotion act of educating for the gifted and talented and its Implements

Lawmaking background

For three decades, Korean Ministry of Education had spent his educational policies in pursuit of equalization. Under this school system, the gifted and talented students were neglected with their teachers and the learning programs didn't stimulate their intelligent abilities, their creative power, and their scholastic potentials. In order to prepare 21st century of creative knowledge-based society, it is necessary to identify and foster the creative potential, the gifted and talented in virtue of the promotion act of educating for the gifted and talented.

Major contents of the Act

Section 1 (Purpose) self-realization of the gifted and talented and contribution to the development of society and nation

Section 2 (Definition) definitions of terms used in this act
"The gifted and talented ", "the education for the gifted and talented", "the educational facility for the gifted and talented", "the school for the gifted and talented", "the class for the gifted and talented", "the educational institution for the gifted and talented", "the research institution for the education for the gifted and talented"

Section 3 (Duty of the Government)
- The discharge of Government's duties
- The Government's encouragement of the local autonomous entities

Section 4 (The Promoting Committee of the Education for the gifted and talented)
- establishment of the Central Promoting Committee of the Education for the gifted and talented (the Central Committee) and the City/Provincial Promoting Committee of the Education for the gifted and talented (the City/Provincial Committee)
- formation, function and management of the Central Committee and the City/Provincial Committee

Section 5 (Selecting students of the education for the gifted and talented)
- identification of the students of the education for the gifted and talented
- selection and screening of the students of the education for the gifted and talented
- criteria and processes of distinguishing, screening, selection and reports

Section 6 (The foundation and management of the school for the gifted and talented)

Section 7 (The establishment and management of the class for the gifted and talented)

Section 8 (The establishment and management of the educational institution for the gifted and talented)

Section 9 (The standards for the foundation/establishment of the educational facility for the gifted and talented)

Section 10 (The designation and placement of schools or classes for the gifted and talented)

Section 11 (Acknowledgment of completion) Acknowledgement of the regular courses

Section 12 (Appointment and upgrading the quality of teachers)

Section 13 (Contents of education & textbooks)

Section 14 (Financial aid) Financial aids of Government & the local autonomous entities

Section 15 (The educational institution for the gifted and talented)

Contents entrusted by the Presidential Decree

Section 4 (The Promoting Committee of the Education for the gifted and talented)
- The matters relevant to formation, function and management of the Central Committee and the City/Provincial Committee under the Sub-Section 1 are decided by the Presidential decree.

Section 5 (Selecting students of the education for the gifted and talented)
- The matters relevant to criteria and processes of distinguishing, screening, selection and reports under Sub-Sections 1 and 2 are decided by the Presidential decree.

Section 9 (The standards for the foundation/establishment of the educational facility for the gifted and talented)
The standards for the foundation/establishment and methods for the management are decided by the Presidential decree.

Section 10 (The designation and placement of schools or classes for the gifted and talented)
- If the principal doesn't have any special reasons from the Presidential decree, he/she should admit a student of the education for the gifted and talented under the regulation of Sub-Section 2.
- The matters relevant to designation and placement of the school and class for the gifted and talented under the regulations of Sub-Sections 1 and 2 are decided by the Presidential decree.

Section 11 (Acknowledgment of completion)
- The matters relevant to acknowledgment of completion under the regulation of Sub-Section 1 are decided by the Presidential decree.

Section 12 (Appointment and upgrading the quality of teachers)
- The matters relevant to appointment of teachers for the educational facility for the gifted and talented are decided by the Presidential decree.
- The matters relevant to education and training under the regulation of Sub-Section 2 are decided by the Presidential decree.

Section 13 (Contents of education & textbooks)
- The matters relevant to writing, screening, approval, publication, supply and price-fixing of the textbooks for education for the gifted and talented are decided by the Presidential decree.

Section 15 (The educational institution for the gifted and talented)
- The matters relevant to organization, management and expenditure under the regulations of Sub-Section 1 are decided by the Presidential decree.

Basic concepts for the Presidential Decree

1. The Promoting Committee of the Education for the gifted and talented (section 4)
  (1) The Central Committee
    a. Assignment : Ministry of Education

    b. Numbers of members : 9　15

    c. Organization of members: at least one of assigned ministries and assigned experts
    d. Function : deliberation and decision of

- establishment and abrogation of the educational facility for the gifted and talented
- academic standards of the educational facility for the gifted and talented
- standard identification and selection of the gifted and talented
- establishment and abrogation of the educational institution for the gifted and talented

  (2) The City/Provincial Committee
   Function : deliberation and decision of

- conducting of the school for the gifted and talented
- conducting of the class for the gifted and talented
- establishment and abrogation of all the educational institution for the gifted and talented except for the offices of education, universities, national and public research institutions, government agencies
- regulation of employment teachers in the class and the institution for the gifted and talented

2. Selecting the students of the education for the gifted and talented (Section 5)
  All the students for the gifted and talented selected by

- committee of screening for the gifted and talented of the educational facility for the gifted and talented by standard identification and selection of the gifted and talented suggested by the Promoting Committee of the Education for the gifted and talented

3. The standards for the foundation/establishment of the educational facility for the gifted and talented (Section 9)
  (1) National school for the gifted and talented
  a. Fields : science, physical science, artistic, human and social field
  b. Numbers : one school of each field
  c. Objects : junior and senior students
  d. Numbers of each class : less than 20 students a class

  e. Numbers of classes : 3　4 classes a school

  f. Transfer to other general school : permission
  g. Assignment : assigned ministries (e. g. Ministry of Education or Ministry of Science and Technology)
  h. Relation to university and college: entrance contract with distinguished universities and colleges

i. Teachers :
- having master or doctor of the gifted education or assigned majors.
- being treated and payed them as the same of the professor
- being separated interchange of personnel with public schools

j. Curriculum : following the school regulations with autonomy

k. Grade : no grade level

l. acknowledgment of completion : follows by the school regulations

m. Ratio of teachers to students : about 1 teacher to less than 7 students

(2) The class for the gifted and talented
  a. Concept : managing the class for the gifted and talented by the government or self-governing bodies, e. g. provinces, cities, and local educational agencies
  b. Selection of students : selected by school belong to the class referring to standard identification and selection of the Committee
  c. Acknowledgment of completion : decision by the City/Provincial Committee
  d. Teachers : decision by the City/Provincial Committee among the teachers with teacher's certification

(3) The educational institution for the gifted and talented
  a. Concept : the educational facility for the gifted and talented managed by the offices of education, universities, national and public research institutions, government agencies and nonprofit foundations
  b. Selection of students :
- its committee of screening for the gifted and talented in case of the offices of education, universities, national and public research institutions, government agencies
- nonprofit foundations are deliberated on the City/Provincial Committee
  c. Acknowledgment of completion : decision by the City/Provincial Committee in case of nonprofit foundations
  d. Teachers :
- the educational institution for the gifted and talented established by the offices of education, universities, national and public research institutions, government agencies : admittance by its screening Committee among the teachers
- nonprofit foundations : admittance by the City/Provincial Committee among the teachers with teacher's certification

(4) The educational institution for the gifted and talented
  a. Types of establishment:
  (Type 1) one educational institution under Ministry of Education
  (Type 2) independent educational institution under assigned Ministries
  b. Fields : science, arts, athletics, literature and society
  c. Assignment : assigned Ministry
  d. Function:
- planning the educational policies of the gifted in the assigned field
- researches of the gifted and talented
- training of the teachers for the gifted and talented

(5) Teacher's license, appointment, teacher's training
- teacher for the gifted and talented of school, class, and institution managed by nonprofit foundations

a. Teacher's license:
  - teacher, having teacher's license of elementary or secondary school, granted a master degree in major of gifted education
  - teacher, having teacher's license of elementary or secondary school, mastered a program of gifted education in teachers' training institution
  - teacher, having a master or a doctor, mastered a program of gifted education in teachers' training institution
  - experts and masters of related field

b. Appointment
  Appointed by assigned minister

c. Teacher's training
  - regular teachers' training every five years
  - a sabbatical year every seven years

- teacher for the gifted and talented of school, class, and institution managed by the offices of education, universities, national and public research institutions, government agencies
  - teacher, being an expert of assigned field, approved by the director of institution
  - regular teachers' training every five years
  - a sabbatical year every seven years

(6) The establishment of all-out plan on the education for the gifted and talented (section 3, sub-section 1)
The Central Promoting Committee of the Education for the gifted and talented should establish all-out plan on the education for the gifted and talented and report to the assigned minister every five years

Conclusion and suggestions

1. Ministry of science and technology, Ministry of information communication, ministry of culture and tour as well as Ministry of education should participate the Central Promoting Committee of the Education for the gifted and talented and co-work.
2. The educational facility for the gifted and talented, which consists of the specialists for the related field, should have the right and the autonomy of identifying and selecting the gifted in order to find and educate the gifted.
3. It is desirable of the national school for the gifted and talented to be established in each field instead of integrated fields.
4. The school for the gifted and talented should be established by related government, such as Ministry of Science and Technology, as well as Ministry of Education.

5. The school for the gifted and talented and the educational institution for the gifted and talented could be transformed and admitted from the current organization practicing similar functions.
6. The educational institution for the gifted and talented should be established in the form of independent construction.
7. Professors and specialists of related field as well as secondary teachers could be the teachers for the educational facility for the gifted and talented.

The Promotion Act of Educating for the Gifted and Talented

<This act was passed the Korean Assembly Plenary Session on December 28, 1999>

Section 1 (Purpose) This act aims for helping self-realization and contributing to the development of society and nation through the education which enables the gifted and talented to develop their potential abilities early according to the Articles 12 and 19 of the basic act of education.

Section 2 (Definition) The definitions of terms used in this act are as follows.
1. "The gifted and talented " is a person who has particular abilities and needs the specific education for developing those potentials.
2. "The education for the gifted and talented" is the teaching the brilliant with contents and methods pertaining to the individual abilities and talents.
3. "The educational facility for the gifted and talented" refers to school, class, and institution for the gifted and talented.
4. "The school for the gifted and talented" is the courses under high school, established and managed by this act.
5. "The class for the gifted and talented" is established for the brilliant and managed by the schools under high school, based on the act for elementary and secondary education.
6. "The educational institution for the gifted and talented" is attached organ to universities, carrying out the education for the talented.
7. "The research institution for the education for the gifted and talented" is the center for research, development and support of this education to be managed efficiently.

Section 3 (Duty of the Government)
 • The Government has to adopt the following measures to promote the education for the gifted and talented.
1. The establishment of all-out plan on the education for the gifted and talented
2. The improvement and spread of contents and methods about the education for the gifted and talented
3. The development and spread of implements for distinguishing the gifted and talented
4. The employment and training of the teachers in charge of the education for the gifted and talented
5. The establishment and management of schools and classes for the gifted and talented

6. The financial aid for the education for the gifted and talented
7. Other measures to promote the education for the gifted and talented
   - The Government can urge the local autonomous entities to expand their budgets for the education for the gifted and talented if necessary.

Section 4 (The Promoting Committee of the Education for the gifted and talented)
   - For the deliberations of particulars about the education for the gifted and talented, the Central Promoting Committee of the Education for the gifted and talented (the Central Committee) is affiliated with the Ministry of education, and the City/Provincial Promoting Committee of the Education for the gifted and talented (the City/Provincial Committee) with the City/Provincial Offices of Education.
   - The matters relevant to formation, function and management of the Central Committee and the City/Provincial Committee under the Sub-Section 1 are decided by the Presidential decree.

Section 5 (Selecting students of the education for the gifted and talented)
   - The students of the education for the gifted and talented are selected on the basis of the criteria for distinguishing the brilliant. They are chosen among persons under high school, who have a distinguished talent or potential ability to the following fields.
1. General intelligence
2. Special aptitude for learning
3. Ability of creative thinking
4. Artistic talent
5. Physical talent
6. Other special talents
   - The superintendent of education chooses the students of the education for the gifted and talented under Sub-Section 1 through the screening of the City/Provincial Committee, but he/she can entrust or consign it to the head of an educational facilities for the gifted and talented.
   - The matters relevant to criteria and processes of distinguishing, screening, selection and reports under Sub-Sections 1 and 2 are decided by the Presidential decree.

Section 6 (The foundation and management of the school for the gifted and talented)
In order to carry out the education for the gifted and talented, the Government can choose some school under the existing course of high school and change it into the school for the gifted and talented, which may otherwise be newly founded and managed.

Section 7 (The establishment and management of the class for the gifted and talented)
For the execution of the education for the gifted and talented, the Government or self-governing bodies can establish and manage the class for the brilliant in the whole/part of the courses of schools under high school.

Section 8 (The establishment and management of the educational institution for the

gifted and talented)

To give the students an education for the gifted and talented, the Government allows that the offices of education, universities, national and public research institutions, government agencies and nonprofit foundations assigned to science/technology, art and athletics can establish and manage the educational institutions for the talented.

Section 9 (The standards for the foundation/establishment of the educational facility for the gifted and talented)

The standards for the foundation/establishment and methods for the management are decided by the Presidential decree.

Section 10 (The designation and placement of schools or classes for the gifted and talented)

- If a student of the education for the gifted and talented wants to enter the school for the gifted and talented or the one that has the classes for the gifted and talented, a guardian can require the superintendent of education in the city/province to designate and place him/her in a certain school.
- When the superintendent of education in the city/province is asked for the request of Sub-Section 1, he has to designate and place the appropriate school. If he intends to appoint and place the school for the gifted and talented or the one that has the classes for the brilliant in other cities/provinces, he/she has to confer the superintendent of education concerned.
- If the principal doesn't have any special reasons from the Presidential decree, he/she should admit a student of the education for the gifted and talented under the regulation of Sub-Section 2.
- The matters relevant to designation and placement of the school and class for the gifted and talented under the regulations of Sub-Sections 1 and 2 are decided by the Presidential decree.

Section 11 (Acknowledgment of completion)

- The whole/part of the courses for the brilliant which a student of the education for the gifted and talented finished in the educational facility for the gifted and talented should be acknowledged as the courses correspondent to the regular school education.
- The matters relevant to acknowledgment of completion under the regulation of Sub-Section 1 are decided by the Presidential decree.

Section 12 (Appointment and upgrading the quality of teachers)

- The matters relevant to appointment of teachers for the educational facility for the gifted and talented are decided by the Presidential decree.
- The Government and the local autonomous entities should offer the regular education and training for upgrading the quality of teachers in the educational facilities.
- The matters relevant to education and training under the regulation of Sub-Section 2 are decided by the Presidential decree.

Section 13 (Contents of education & textbooks)

- The principal concerned chooses the contents of education for the gifted and talented.
- The matters relevant to writing, screening, approval, publication, supply and price-fixing of the textbooks for education for the gifted and talented are decided by the Presidential decree.

Section 14 (Financial aid)
The Government and the local autonomous entities can support the school and class for the gifted and talented in the expenses of facilities, management, experiments and training, and other expenses.

Section 15 (The educational institution for the gifted and talented)
- The Government can establish or appoint the educational institution to carry out research, development and aid assigned to the education for the gifted and talented.
- The educational institution for the gifted and talented performs a task of the following paragraphs.
1. The fundamental study about the education for the gifted and talented
2. The study on the policies of education for the gifted and talented
3. The study and development for distinguishing the gifted and talented
4. The research and development of methods and materials for the education for the gifted and talented
5. The research and development of supporting systems for the education for the gifted and talented
6. The research and development of materials for the teachers training and the execution of training
7. Other works assigned to the education for the gifted and talented
- The matters relevant to organization, management and expenditure under the regulations of Sub-Section 1 are decided by the Presidential decree.

The Subsidiary act

This act will be enforced from March 1, 2002.

WHAT IS SCHOOLWIDE ENRICHMENT?
AND HOW DO GIFTED PROGRAMS RELATE TO
TOTAL SCHOOL IMPROVEMENT?

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> ***With accurate experiment and observation to work upon,***
> ***imagination becomes the architect of practice.***
> John Tyndall

Over the years we have been asked countless questions about the purpose of the Schoolwide Enrichment Model (SEM). Is it a model for gifted programs? Is it a model for general school improvement? Will it water down services to the gifted? How does it deal with the "severely and profoundly" gifted? Are you saying that all students are gifted? How does the model deal with underachieving (unmotivated, non-creative, at-risk, etc.) gifted? Is the SEM in favor of (or against) grouping? Are you in favor of (or against) acceleration? If we are using SEM do we still need a gifted program? Isn't the SEM just a politically correct way of dealing with the question of giftedness [or equity]? Is the SEM just for elementary schools -- what about pre-school? Middle school? High school? The list goes on and on. And critics of the model have taken more than a little liberty in adding their own surplus interpretations to the purpose and meaning of the model. The answers to these questions and interpretations are both simple and complex. An attempt was made to deal with some of the above questions and commentary by other writers in an article entitled *Reflections, Perceptions, and Future Directions* (Renzulli, 1999b).

The structure and implementation procedures used in the SEM – the "how-to" of the model -- have been described in detail elsewhere (Renzulli and Reis, 1997a; Renzulli and Reis, 1997b). This brief article discusses what the model is and what are the major goals toward which the SEM is directed – the big picture, so to speak! These larger concerns are important for both current users of the model who need to answer questions such as the ones raised above, and for prospective users who should consider the big picture before making decisions about whether or not SEM is the best choice for their school or program. We will begin by briefly describing, then describe schoolwide enrichment and conclude by examining how the SEM relates to total school improvement.

WHAT IS THE SCHOOLWIDE ENRICHMENT MODEL?

AN INTEGRATED CONTINUUM OF SPECIAL SERVICES

The Schoolwide Enrichment Model is an organizational plan for delivering enrichment and acceleration through an *integrated* continuum of services (see Figure 1). The word "integrated" is emphasized because maximum payoff is achieved when a service provided through one component of the model allows students who show superior performance or advanced interest to escalate their experience through options that might be available through other service delivery components. Services provided by the model range from general enrichment for both wide-ranging and targeted subgroups to highly individualized curriculum modification procedures for rapid learners and first-hand investigative opportunities for highly motivated individuals and small groups. The model also includes a broad array of specific grouping arrangements based on commonalities in abilities, interests, learning styles, and preferences for various modes of expression.

Figure 1. The Integrated Continuum of Special Services
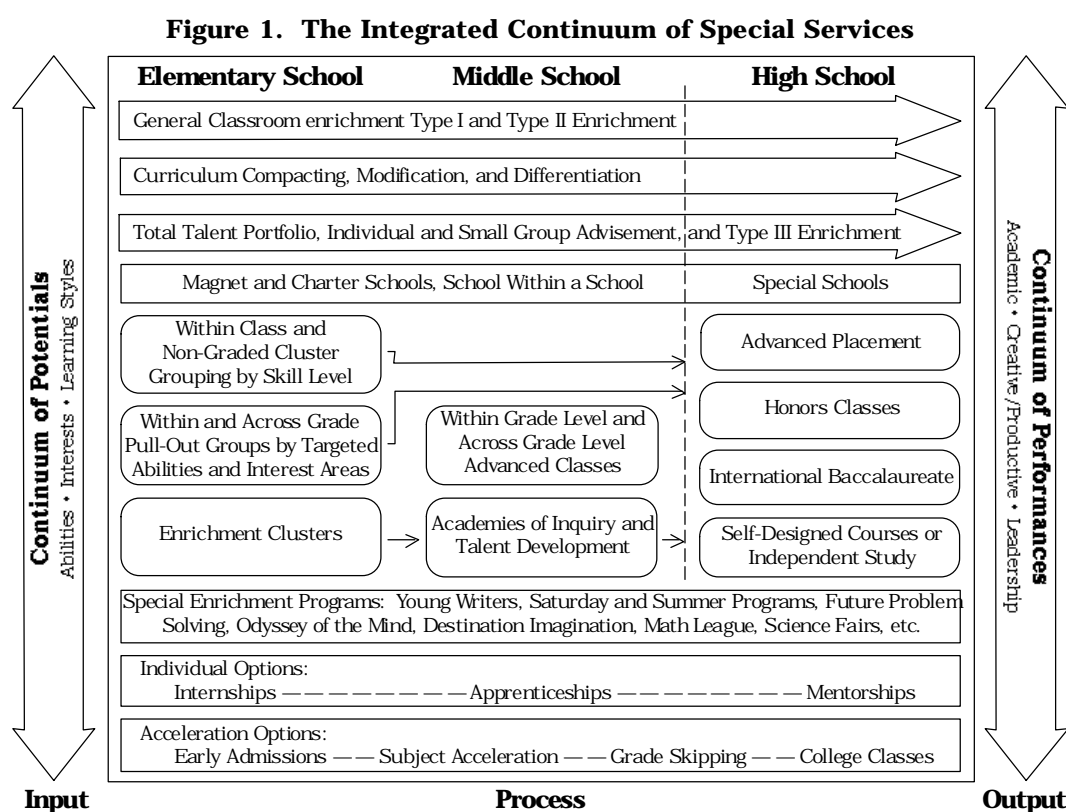
Services based on the Enrichment Triad Model form the core of the enrichment dimension of the SEM, but the model also includes various acceleration options (e.g., grade skipping, enrollment in college classes) and numerous supplementary program options that provide opportunities for talent development in specialized areas (e.g., Math League, Invention Convention, National History Day Competition, to mention only a few of the hundreds of available options). Other components of the model include performance-based assessment of student strengths, individual and group counseling, and various special placement options (within and outside the school) based on high degrees of proficiency and potential.

Figure 1 provides a graphic overview of the integrated continuum of services. The arrow on the left-hand side of the figure, Continuum of Potentials (Input) is intended to convey the broad range of abilities, interests, and learning styles that exist in any population and subpopulation of students. Even in highly targeted groups (e.g., advanced math students), there is always a range of abilities, interests, and learning styles, and this range requires that differentiated learning experiences must be provided to accommodate individual differences. Although it has become somewhat of a cliché, there are in fact as many differences in a selected group of students as there are between gifted students and the population in general.

The arrow on the right hand side of Figure 1, Continuum of Performances (Output) is intended to point out the range of performances that will result from differentiated learning experiences. When considering this range of performances, we should take various modes of expression into consideration as well as levels of ability. Graphic, dramatic, artistic, spatial, and other forms of expression should be considered in addition to traditional written and spoken expression styles. We should also take into consideration various levels of evaluation criteria when providing feedback related to student achievement and creative productivity. Traditional, norm-referenced evaluations (e.g., test scores, letter or number grades, rubrics) may suffice when evaluating standard and advanced lesson learning activities, but creative/productive products need to be considered by using alternative modes of assessment [(see, for example the Student Product Assessment Form (Reis & Renzulli, 1982)]. And the assessment of creative products should always take into consideration evaluation by internal criteria (Bloom, 1956) as well as external criteria. Placing value on internal criteria helps students develop a sense of what *they* think is important and unique about their work. We would not, for example, foster the uniqueness of a writer such as Langston Hughes if his writing was evaluated with the external criteria typically used to evaluate standard English.

The center section of Figure I (Process) represents many of the organizational methods for delivering services to students. An important consideration is that any and all services provided through various organizational approaches are integrated or interconnected so that an experience in one organizational setting can be capitalized upon by connecting it with options from another organizational component. Let us assume for a moment that one component of a comprehensive program offers general enrichment for all students in the regular classroom. Let us further assume that two or three students have had a remarkably positive reaction to, for example, a Type I (general exploratory) presentation and demonstration on robotics. We might want to

form a special enrichment cluster for these students, or arrange for a mentorship experience, provide them with Internet access toe explore robotics, or information on a national or international robotics competition. The most advanced students might subsequently be provided with a summer mentorship experience on a college campus or in an internship at a robotics manufacturing company.

Another example of integrated services deals with the most advanced students in a particular subject area. Let us assume that there are eight or ten primary age students across two or three grade levels that have demonstrated extremely high achievement in mathematics. Classroom teachers should ideally be providing curriculum compacting services for such students, and teachers should be using the time gained through compacting to provide within-class acceleration and mathematics enrichment opportunities. But equally important is the need to arrange a special grouping situation that allows these students to interact with their mathematically able peers on a regular basis. Both compacting and cluster grouping will be further enhanced if the classroom teachers and the person(s) providing instruction to the special group are in close communication about the respective activities in classroom and special group situations.

These few examples of integrated services from the continuum presented in Figure 1 are little more than common sense; and yet a good deal of the time and energy of previous decades has been devoted to arguments about the supremacy of one approach over all others. It is our hope that emphasis in the future be devoted to answering questions about how we escalate learning options for our most potentially able students within and among interconnected services rather than what is the one best approach to providing for the gifted. It is also our hope that there will be an integration between and among the three main considerations of special programming -- identification (Input), programming (Process), and output (Product). One of our biggest challenges for the future is to create logical and defensible relations between where and in which ways a young person is "located" on the continuum of potentials (identification) and how this information can guide us in making the most appropriate decisions for maximizing this person's assets (programming).

RELATIONSHIP BETWEEN GIFTED PROGRAMS AND TOTAL SCHOOL IMPROVEMENT USING THE SCHOOLWIDE ENRICHMENT MODEL

The Schoolwide Enrichment Model focuses on applying the know-how of gifted education to a systematic plan for total school improvement. Based on the belief that "a rising tide lifts all ships," our goal is to increase challenge levels for all students and to promote an atmosphere of excellence and creativity in which the work of our highest performing students is appreciated and valued. This plan is *not* intended to replace existing services to students who are identified as gifted according to various state or local criteria. Rather, the model should be viewed as an umbrella under which many different types of enrichment and acceleration services are made available to targeted groups of students, as well as various subgroups of students within a given school or

grade level. And the plan purposefully creates specific types of involvement for the entire faculty of a school in order to: (1) utilize the many and varied talents that exist on any faculty, (2) provide a vehicle for the development of the faculty's gifts and talents, and (3) minimize the "us-and-them" mentality that exist in many places where efforts are not made to create specific vehicles for bridge building between special and regular program personnel. The centerpiece of the model is the development of *differentiated* learning experiences that take into consideration each student's abilities, interests, learning styles, and preferred styles of expression.

The overall mission of the SEM is to escalate the level and quality of learning experiences for any and all students capable of manifesting high levels of performance in any and all areas of the curriculum. As part of this mission, the model provides guidance for the development of challenging and appropriate educational opportunities for all young people, regardless of differences in demographic and economic backgrounds or differences in the rates, styles, and levels at which they learn. We believe that true equity can only be achieved when we acknowledge individual differences in the students we serve, and when we recognize that high-achieving students have as much right to accommodations in their schooling as do students who are experiencing learning difficulties. We also believe that equity is not the product of identical learning experiences for all students; rather, it is the product of a broad range of differentiated experiences that take into account each student's unique strengths.

The SEM is based on a broadened conception of giftedness (Renzulli, 1986; Renzulli, 2000) that focuses on the many kinds of aptitudes, talents, and potentials for advanced learning and creative productivity that exist in all school populations. The goal is not to certify some students as "gifted" and others as "non-gifted," but to provide every student with the opportunities, resources, and encouragement necessary to achieve his or her maximum potential. In the SEM, the "language" of the model is that of *labeling the services, not the student*. Examples of labeled services are: a special mini-course for all fourth graders in how to access the Internet; an advanced placement course in chemistry; a multi-grade cluster group in mathematics for high-achieving students; a special enrichment cluster for all students interested in filmmaking; assigned time in a resource room to work on a research project; and curriculum compacting for students who have already mastered the material to be covered in an upcoming unit of study.

Young people display or have the potential to display their individuality and uniqueness in many ways. Some students learn at faster rates and higher levels of comprehension than others. Sometimes this learning may be in one or two subjects, and in other cases it may be across the entire curriculum. Similarly, some students are more creative or artistic than others, and still others may demonstrate potentials for excellence in leadership, organizational skills, or interpersonal relations.

We believe that the many and diverse talent potentials of young people can be enhanced through the broad *continuum of services* described earlier. These specified activities might take place within regular classrooms on an individual or small group basis, in special grouping arrangements that are purposefully formed because of advanced achievement levels, high levels of interest in particular subjects or problems, or strong motivation to pursue the development of a common product or service.

Advanced opportunities can also take place outside the school in special internship or mentorship situations, in magnet schools or special-theme high schools, at cultural institutions, in summer programs or programs offered by colleges or universities, or anywhere else where highly capable and motivated youth can gain knowledge and experience that is not ordinarily available in the regular school program. We also believe that all regular curricular material should be subject to modification according to the learning rates and learning styles of individual students.

A total talent development model should give special consideration to schools that serve young people who may be at risk because of limited English proficiency, economically limited circumstances, attendance at poor-quality schools, or because they just learn in a different way from the majority. We believe that it is in these schools and among these student populations that extraordinary efforts, indeed heroic efforts, should be made to identify and cultivate the high-level talents of young people, talents that historically have gone unrecognized and underdeveloped.

GOALS OF THE SCHOOLWIDE ENRICHMENT MODEL

A Specialist in Every School. For as long as we can remember, there have always been five main goals that have guided our work. The first goal is that there should be at least one enrichment specialist in every school in the world! Although this is obviously a very ambitious goal, we will not develop the gifts and talents of our most potentially able young people unless there is a person(s) on the faculty of every school who has the task specific responsibility and specialized training that will guarantee that certain highly targeted services are provided. Just as all teachers are capable of teaching "a little art" or "a little music" or "a little physical education," we also know that these specialties can only be covered in *advanced* ways when a well trained person with a focused commitment provides opportunities, resources, and encouragement that are above and beyond what most classroom teachers can provide. [Note: The specific responsibilities of the enrichment specialist in SEM programs have been described in Schools for Talent Development (Renzulli, 1994)]. We also believe that unless the enrichment specialist is guided by a logical but practical model, whether it be SEM or another model, a program is almost always in imminent danger of ending up being a random collection of haphazard activities that are subject to the whims of uninformed decisions makers, impromptu practices, or the latest flavor-of-the-month fad that a self-proclaimed expert has said is "good for the gifted." Although having an enrichment specialist in every school has budgetary implications, we have always told administrators and boards of education that a specialized service that is the responsibility of everyone inevitably ends up being the responsibility of no one. If we want to see our most potentially able young people challenged, the buck has to stop somewhere!

A Strong Research Base. If we were to make a list of the fields of human knowledge that are the most enduring over the centuries and that have the highest

respect among communities of scholars, that list would be directly related to the amount and quality of research associated with each field. A second long-standing goal so far as "the big picture" is concerned is that services for developing the gifts and talents of young people should rest on the strongest research base possible. Our field will not gain respect or support unless dedicated scholars are willing to take the time to study what they stand for. It is not accidental or coincidental that one of the nation's most enduring and effective programs, the Johns Hopkins (and other universities) Center for Talented Youth is based on the most highly respected research that has been conducted in our field. We are also proud of the fact that every aspect of the SEM, whether it is an instrument to assess student learning styles or the effectiveness of a specific practice such as Curriculum Compacting or Enrichment Clusters, has been examined in one or more research studies; and these studies, like the Johns Hopkins studies, have been reported in the field's most respected research journals. Unfortunately, our field has been the victim of far too many unverified practices. It is difficult to advocate for the value of special services or gain financial support without an underlying body of research that informs policy makers, administrators, and parents that a specified service produces results that have been documented in a research setting. A lack of research also makes the field vulnerable to almost anything being peddled by new-age gurus, seductive storytellers, parent panderers, or anyone who has a slick product to sell or wants to fatten up their speaking fees. This is not to say that there are not potentially good ideas that should be considered. But if persons offering such ideas do not have the veracity to provide us with some data about "what works," then we will never know if the idea has merit, and a worse-case scenario is that we may fall prey to practices that are counter-productive. If we want to be *gifted* consumers, we must be bold enough to ask anyone who presumes to stand behind a podium the tough questions: Show me your research. Where can we find the data that supports what you are saying? Is what you are recommending based on replicable and verifiable practices rather than anecdote or a single charismatic individual? Can you give me the names and locations of numerous successful implementations? Is there evidence that what you are recommending works in different kinds of schools and in communities with varying demographics? If we want the field to grow and prosper, we must begin asking these tough questions.

A Broadened Conception of Human Potential. Conceptions of giftedness range from specific and very focused viewpoints to broader and more flexible views of human potential. The specific and focused point of view is generally associated with assessment based on scores from cognitive ability tests (IQ, achievement, aptitude), whereas the more flexible approaches take non-test criteria into account in addition to those characteristics measured by standardized tests. A third goal of our work is to encourage everyone involved in gifted education to examine various theories about what makes giftedness (See, for example, Sternberg and Davidson's landmark book entitled *Conceptions of Giftedness).* Where one stands on the "Who are the gifted?" question is essential in both constructing an identification system and providing a service delivery model that is logically related to conception and identification.

The foundation of the SEM is a broadened conception of human potential called the Three-ring Conception of Giftedness (Renzulli, 1978, 19xx). This research-based view of potential for high levels of performance and creative productivity is strongly supported by leading theorists, researchers, and contributors to the literature on both intelligence and giftedness. Such well-known scholars as Howard Gardner, Robert Sternberg, Mihaly Csikszentmihalyi, and Benjamin Bloom (to mention only a few) have all made compelling arguments for a much broader conception of giftedness.

Also relevant to the conception of giftedness issue is where one stands regarding the purposes of special programs. In articles dealing with the Three-ring Conception, a distinction was made between lesson-learning giftedness (also referred to as schoolhouse giftedness) on one hand and creative/productive giftedness on the other. *Both* types are important, and a comprehensive programming model should provide services that accommodate both advanced academic progress in traditional curricular situations and various services specifically designed to promote creative productivity.

Because of the central role that a broadened conception of giftedness plays in the rationale underlying SEM, it is strongly recommended that persons considering this model first examine and reach consensus on their position regarding the nature of human potential. If such an examination results in a more traditional view of giftedness (i.e., primarily based on cognitive ability test scores), then other service delivery models should be examined. If, on the other hand, the majority of persons in a school or district decide that a more flexible view of potential is commensurate with their beliefs, then a plan for identification and a programming model consistent with these beliefs should be explored. As everyone who has ever worked in the field is aware, there is no "perfect" identification system -- each has its advantages and disadvantages, and there are always trade-offs that need to be made to bridge the gap between one's theoretical orientation and practical requirements such as state regulations, resource availability, and strong opinions on the parts of parents and people in the power structure. The more flexible view of human potential will never produce an identification plan that is as precise and tidy as a test score cut-off approach. To be certain, there will be a little less tidiness in a more flexible identification process, but the trade off for tidiness will result in identifying and serving potentially gifted young people who seldom get a chance when administrative expediency overshadows what research and common sense have told us about the nature of human potential. Persons interested in exploring an identification plan that blends both test score and non-test score information are referred to an article entitled *A Practical System for Identifying the Gifted and Talented* (Renzulli, 1990).

Educational Experiences Grounded in a High-End Theory of Learning. One of the major criticisms of the gifted education movement is that it consists of a collection of activities that lack a unifying theoretical foundation. A fourth goal is that a majority of experiences guided by the SEM should be based on a theory of learning that places a premium on inductive or investigative activity rather than accelerated information transfer and accumulation. This theory of learning has been described in detail in an

article entitled *The Definition of High-end Learning* (Renzulli, 1999a), and includes a description of The Enrichment Triad Model, which continues to serve as the theoretical core of our work. It should also be mentioned, once again, that our concern for creative/productive giftedness is incorporated into the underlying theory.

Advanced knowledge acquisition and the use of higher level thinking skills is important, but the real payoff so far as a high-end learning theory is concerned is the *application* of knowledge and authentic methods of inquiry to first-hand investigative activities and the pursuit of creative endeavors. Related to this assumption is the interconnectedness of services provided by the model. Thus, for example, a presentation on fashion design or depletion of the ozone layer above the Earth (Type I Enrichment), or training in brainstorming or how to design a questionnaire (Type II Enrichment) are valuable experiences in and of themselves; but the best payoff from such activities is maximized when individuals or small groups decide to follow-up these general enrichment experiences with self-selected investigative and creative involvements that are guided by the specification for Type III Enrichment. Even Curriculum Compacting, that part of SEM that accommodates students who can cover material at accelerated levels, plays into the enrichment end of the model by allowing advanced students to "buy time" for possible Type III investigations.

Since the learning theory underlying this work is readily available at our web site, I will not spell it out again here. It is, however, worthwhile mentioning that all persons involved in gifted education should examine where they stand on issues related to the nature of learning in general, and in particular, the differentiated principles that should guide learning in special programs for persons with extraordinary potential. Indeed, the very essence of our field should be grounded in the ways in which we define differentiation and the principles that form our theories.

Common Goals and Unique Means. A final goal is that a model should possess certain identifiable dimensions based on common goals and unique means for achieving these goals**.** Programs for the gifted that have consistently produced demonstrated results and that have endured over relatively long periods of time have almost always been based on a specified model. Before describing what makes a model a model, it is worthwhile pointing out that there are two categories of models that guide special services, these categories being theoretical (or pedagogical) models and organizational (or administrative) models. When most people are asked what "model" is being used to guide their special program they almost always answer in terms of organizational models. Although we believe that both types of models play important roles in guiding program quality and effectiveness, theoretical models should be the first and most essential consideration in program planning.

Theoretical models consist of the principles and derivative experiences and activities that are designed to accomplish particular kinds of learning. Theoretical models usually draw upon the work of leading philosophers, researchers, and learning theorists, and they are located somewhere on a continuum of learning theories ranging from highly didactic or prescriptive learning on one end to highly inductive or investigative learning on the other. The work of Pavlov, Thorndike, and Skinner are examples of didactic theories, whereas inductive or constructivist theories are

represented by writers such as Dewey, Pestalozzi, Piaget, and Montessori. Theoretical models should be the first and most important consideration when examining the quality of services for gifted students, and we have briefly summarized in the section above the high-end learning theory that underlies the SEM.

Organizational models are concerned with how we group students, move them around between and among various service delivery options, plan schedules and events, allocate time blocks, assign teachers, and do other things that contribute to the efficient and effective use of student time and human and material resources. Examples in this category are pullout programs, full-time special classes, cluster grouping, after school programs, Saturday programs, grade skipping, advanced classes, college courses, special schools, and differentiation in the regular classroom. Organizational models are obviously important, but they do not tell us why, what, and how we present learning experiences within any of the organizational models mentioned above that are *qualitatively* different from the learning experiences that take place in regular education (Covering more material faster is a quantitative rather than qualitative difference in learning. Rapid coverage of larger amounts of material certainly has value and should be an option in special programs, but the pedagogy and the role of the learner generally are the same as in regular education). A special class for gifted students could, for example, be very didactic or prescriptive in its approach to learning, or it could be an environment in which students engage in self-selected investigative activities using the authentic methods of practicing professionals, even if their methodology is at a more junior level than adult scientists, writers, or other professionals. The most important consideration is that students in the special class are thinking, feeling, and doing what real world investigators and problem solvers do as opposed to being consumers of knowledge who are mainly involved in accumulating information and practicing thinking skills, albeit at a faster level. The same theoretical distinctions can be made for all of the types of organizational models listed above. It's not when or where we do it, or even with whom we do it. The key issue is *how* we do it!

We believe that what makes a model a model is that the services provided are based on sound theory and research, that it is replicable in a variety of situations, and that it is capable of generating outcomes that can be evaluated by independent investigators. We also believe that to be effective a model must have two salient features. The first feature is that there should be consensus about the underlying learning theory and service delivery procedures on the part of the majority of persons who are responsible for providing services. Without agreement on common goals, persons providing services can do whatever they want to do, and this approach may end up with people actually working at cross-purposes with one another. The second feature of a model is that each school or program develops its own unique means for delivering services, so long as the means are consistent with the agreed-upon underlying theory and common goals. This feature prevents models from becoming too prescriptive, and at the same time, allows the creativity of program personnel and the availability of unique local resources to be brought to bear on the program. It also allows for program modification and renewal, and the infusion of new ideas and resources, so long as any and all modifications are compatible with the goals of the model.

CONCLUSION

At one time or another we have all been drawn into arguments about what is the best "way" to develop the gifts and talents of young people. Indeed, a good deal of the professional time and energy of the past century was devoted to arguing about whether acceleration was better than enrichment, or whether full-time classes for the gifted were better than pull-out programs or enrichment in the regular classroom. It is our hope that in the new century we will first pay greater attention to examining theoretical models underlying services to gifted students, and second, realize that *all* of the organizational models have value, so long as they are well grounded in one or a combination of theoretical models. The most important message with which we would like to conclude is, regardless of the model you choose, you are better off with an organized rather than random collection of practices. As Bob Dylan, once said, *If you don't stand for something you're liable to fall for anything!*

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ACCELERATION AND ADVOCACY: THE CHALLENGE CONTINUES

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ABSTRACT

Despite the positive evidence supporting acceleration, widespread resistance to both the concept and practice still exists amongst teachers and administrators. Whilst acceleration is not a panacea for all gifted students, it is a most effective procedure for carefully selected individuals.

Advocacy is an essential component of the acceleration process with advocates playing a critical role supporting and promoting the rights of gifted students.

This paper will discuss the continuing challenges associated with acceleration and advocacy.

INTRODUCTION

Controversies continue to abound in the area of gifted education, particularly around the topic of academic acceleration.

Despite positive appraisals, the impact of the research literature on educational decision-making seems limited and there continues to exist great reluctance to employ accelerative procedures. However, whilst acceleration is not a panacea for all gifted students, it is a most effective procedure for carefully selected individuals.

It should be stressed that acceleration provisions do not automatically accommodate the learning needs and styles of gifted learners, nor do they always permit greater depth and breadth of curriculum access. Fortunately, in Australia, as elsewhere, a growing number of educators and teachers are recognising the value of combining acceleration with additional extension and enrichment programs, thereby enhancing the quality of education for gifted students.

Advocacy can be a critical and vital force in promoting acceleration as an appropriate procedure for the gifted student. An effective advocate should be informed, organised, assertive, persistent, flexible and possess a steadfast and positive regard for the selected individual. Advocates may be parents, teachers, relevant professionals, mentors or significant adults in the child's life. Advocacy can act as a force that champions the rights of outstanding human potential.

DEFINITIONS OF ACCELERATION AND ADVOCACY

ACCELERATION

Throughout the life-long journey of a gifted child, accelerated learning options are a necessary and vital component of their education. Some educators describe acceleration as a way of progressing through school or the curriculum at a faster than normal pace.

Feldhusen (1989) stated that

…acceleration is a misnomer; the process is really one of bringing gifted and talented youth up to a suitable level of instruction commensurate with their achievement levels and readiness so that they are properly challenged to learn the new material (p.8).

Rogers (1990) contended that acceleration refers to any program adaptation that reduces the time a student remains in a sequential grade setting, and/or advances the level of curriculum attained in a given time or at a particular age.

VanTassel-Baska (1992a) wrote that many educators and parents have a faulty understanding of acceleration:

…acceleration should refer to the rapid rate of a child's cognitive development, not the educational intervention provided. What we provide in the name of acceleration is appropriate curriculum and services at a level commensurate with the gifted child's demonstrated readiness and need (p.68).

Davis and Rimm (1994) contended that

…acceleration implies moving faster through academic content, which typically includes offering standard curriculum to students at a younger-than-usual age or lower-than-usual grade level (p.105).

There has been a burgeoning of options for acceleration over more recent years with Southern and Jones (1991) identifying fifteen different options for the acceleration of gifted students.

ADVOCACY

The role played by advocates who positively promote the rights and needs of gifted students is becoming more prominent in the policy and practice of gifted education.
Gifted children need strong, responsible advocates who can make a difference (Silverman and Leviton, 1991).

The process of advocacy is multifaceted. Tannenbaum (1980) described it as organized persuasion of the highest order. It may be driven by an individual, small group or the wider community. Its audiences may include federal, state and/or local governments, administrators, policy makers, teachers, other professionals, parents and the general public. Once an issue or need has been identified, awareness and concerns are raised, hopefully, leading to strategic and active intervention.

In the area of gifted education, this may begin with case-conferences, highlighting the needs of a gifted child and progress to the establishment of gifted networks, parent oganisations, national and world-wide associations, senate inquiries and government lobbying. Advocacy can be vitally effective in both the determination of policy and the adoption of educational practice.

AN OVERVIEW OF RESEARCH

ACCELERATION

The fundamental premise underpinning the use of acceleration is that the pacing of educational programs must be responsive to the competencies and knowledge of individual children (Robinson, 1983; Benbow, 1991; Southern, Jones & Stanley, 1993; Maker, 1996). Acceleration is a practical means of matching gifted students' educational needs, facilitating the development of study skills and independent learning as well as establishing more realistic self-concepts and achievement motivation.

The following positive benefits of acceleration have been advanced by researchers (Feldhusen, Proctor & Black, 1986; Southern & Jones, 1991: Clark, 1992; Davis & Rimm, 1994; White, 1995):

- Increased learning efficiency
- Increased learning effectiveness
- Recognition of abilities and accomplishments
- Increased options for academic exploration
- Exposure of student to a new peer group
- Administrative economy
- Increased productivity.

Some writers have advanced a number of negative consequences that may result if a gifted student is not accelerated (Hollingworth, 1942; Passow, 1958; Marland, 1972; Stanley, 1979; Southern & Jones, 1991; Gross, 1993; Silverman, 1993; Lynch, 1994; Mills, 1994; White, 1995).

These include:

- Lower academic expectations
- Reduced learning motivation
- Lower achievement and productivity
- Unfulfilled academic potential
- Educational frustration and boredom
- Poor study habits
- Apathy toward formal schooling and drop out prematurely
- School avoidance
- Behavioural and emotional problems
- Difficulties adjusting to peers who do not share advanced interests and concerns.

Acceleration, as an educational arrangement for the intellectually gifted, has proven to be overwhelmingly beneficial on both academic and psycho-social grounds. Strong, positive endorsement for accelerative practices also comes from gifted students and their parents (Benbow, 1983, 1991; Janos, Robinson & Lunneborg, 1989; Rogers, 1990; Silverman, 1993; Merlin, 1995; Winner, 1996). Given all the positive evidence supporting acceleration, Borland (1989) and Benbow (1991) expressed dismay that it is not a favoured means of providing an education for gifted students that is commensurate with their abilities.

However, Cornell, Callahan, Bassin and Ramsey (1991) stipulated that more precise and rigorous research is still necessary to convince sceptics that acceleration practices are effective and desirable. These authors have provided useful guidelines for future research to address continuing concerns and to promote the value of acceleration.

Academic Performance

Positive benefits of acceleration have been noted for both short-term and long-term academic performance in most reviews (Benbow, 1991; Southern & Jones, 1991; VanTassel-Baska, 1992a, 1992b; Lynch, 1994; White, 1995). In fact, it is difficult to find a single research study showing acceleration to be educationally detrimental (Benbow, 1991).

Successful programs of acceleration, most notably resulting from the basic talent search model developed by Stanley and others in the 1970s, have demonstrated a significant positive impact on the learning of gifted students (Benbow & Stanley, 1983; Kulik & Kulik, 1984, 1992).

A broad-based research program has emerged in gifted education, committed to understanding the long-term effects of the educational acceleration of gifted children (Robinson & Janos, 1986; Brody & Benbow, 1987; Brody & Stanley, 1991; Swaitek & Benbow, 1991). Kulik (1992) argued that the most effective acceleration programs were those programs that involved substantial curriculum adjustment. Recent investigations continue to report positive educational and cognitive outcomes from acceleration (White, 1995; Sayler, 1996).

Social and Emotional Development

Despite the amount of positive evidence in favour of acceleration, concerns about socio-emotional adjustment of accelerated students persist. These negative opinions are difficult to reconcile with what is known about the social and emotional development of gifted children (Colangelo, 1991; Silverman, 1993).

Intellectually gifted children have been found to manifest advanced social maturity, high levels of social self-esteem, healthy adjustment and seek older friends (Janos & Robinson, 1985a, 1985b; Schneider, 1987; Robinson & Noble, 1991; Gross, 1992; Sayler, 1996).

The existing evidence suggests that acceleration has no detrimental effects on social and emotional development (Daurio, 1979; Robinson, 1983; Paulus, 1984; Gallagher, 1985; Rogers, 1990). However, Southern and Jones (1991) stressed that the evidence concerning the impact of acceleration on social and emotional development is not as convincing as are the findings of its influence on academic development. They pointed out that contradictory evidence from numerous early-admission studies and difficulties in defining appropriate socio-emotional measures, make it hard to draw clear conclusions.

Following a comprehensive review of the literature, Cornell et al., (1991) concluded that it is unwise to debate whether acceleration has beneficial or adverse effects on affective development. Rather they argued that research should be directed towards determining which students are likely to experience desirable outcomes and which students might suffer detrimental consequences.

ADVOCACY AND ACCELERATION

A literature review yielded a paucity of published empirical research that has been directed to advocacy and its role in promoting acceleration. Successful advocacy involves committed individuals having a strong belief in the rights and needs of gifted students and having an ability to positively promote the need for understanding, recognition and on-going support for these students.

Riley (1999) stated that there are two important aspects to effective advocacy; education and communication. She offered the following basic principles emphasising " the role of education in advocacy.

- Know your stuff!
- Meet and get to know the players.
- Understand the gifted child.
- Determine the bottom line (with regard to educational provisions).
- Share what you know.

Communication Is the Key"(p.45).

Case-conferences are excellent forums to advocate for the gifted student who has been identified as a potential candidate for acceleration. They can involve parents, teachers (present and future), school principal and external advocates
(for instance, psychologist and/or educational consultant). Each individual member can contribute a unique and diverse perspective which can encourage creative solutions. As team members, all participants are more likely to own and support solutions if they are directly involved in the problem-solving and decision-making processes. Teamwork is essential at all stages of the advocacy process when promoting the value of acceleration for the individual candidate.

SUGGESTIONS FOR PRACTICE

ACCELERATION

Although the evidence supporting acceleration is overwhelming in terms of academic performance, and generally positive in terms of social and emotional development, acceleration is not appropriate for all children. An examination of many issues is necessary before the decision to accelerate a student is undertaken.

The recommendations described below refer specifically to one common form of acceleration, grade skipping or advancement. Grade advancement decisions should be based on a detailed profile of the gifted students who are candidates for acceleration.

- There should be a comprehensive psychological evaluation of the child's intellectual abilities, academic achievement and social-emotional adjustment by a psychologist.
- Intellectually, the child should have an IQ of 130 or higher to have a level of cognitive development above the mean of the desired grade.
- Academically, the child should demonstrate skill levels above the mean of the desired grade.

- Socially and emotionally, the child should have demonstrated an absence of any serious adjustment problems. Additionally, the child should indicate a high degree of task commitment and motivation to learn.
- Physically, the child should be in good health. The child's size should be considered because competitive sports may be viewed as important in later years.
- The parents must have positive attitudes towards acceleration and the child should not feel under pressure to move ahead.
- Parents should act as advocates and be strongly committed to work in partnership with the school.
- The receiving teacher(s) must be enthusiastic about acceleration and be willing to assist the child adjust to the new situation.
- The child's advancement should occur at natural transition points such as the beginning of a new school year.
- Grade advancement should be arranged on a trial basis. During the trial period counselling services should be available to the child and teacher as needed.
- Care should be taken to avoid creating excessive expectations from grade advancement. The child should not be made to feel a failure if the placement is not successful.

ADVOCACY

Basic Characteristics of Effective Advocates

Successful advocacy requires the understanding of some basic principles (Mitchell, 1981). These include mutual respect, sharing of ideas, the ability to communicate and listen to the views of others and a passionate belief in the person, issue or cause.

Effective advocates of gifted students need to be
- Informed
- Organised
- Committed
- Persistent
- Patient
- Flexible
- Assertive
- Maintain a steadfast belief in the child and / or children.

In addition, the value of teamwork in the advocacy process should be stressed. Parents and educators need to be proactive in their concerns rather than reactive to problems. Often a unified group voicing of shared concerns and working together is more effective than a lone voice.

CONCLUDING COMMENTS

Acceleration is not a panacea for administrators and teachers responsible for providing differentiated programming for gifted students whose educational needs are not being adequately met in the regular classroom. It is, however, an appropriate alternative for many gifted students. If implemented thoughtfully, acceleration can provide long-term

academic benefits for gifted children without detrimentally affecting their social and emotional development.

Acceleration can be justified on both theoretical and empirical grounds. As VanTassel-Baska (1989) argued "of all the interventions schools provide for the gifted, acceleration is best supported by research" (p.15). Most importantly, students who have been accelerated, and their parents, view acceleration as a positive option.

In an attempt to identify individual children's responses to acceleration, Mackenzie-Sykes (1998), using a multiple case-study design, investigated the factors associated with the successful acceleration of gifted children from the perspectives of students, parents and teachers. In general, teachers and parents held very similar opinions regarding acceleration. While both groups expressed positive views about certain aspects of acceleration, they also shared several negative opinions. Teachers were found to be more uncertain about the social and emotional benefits and were generally less supportive of acceleration than parents.

Acceleration provides a great challenge for advocates. Despite positive evidence from research and the highly encouraging direct experiences of teachers, parents and students, acceleration is not a widely popular or practiced process. Effective advocacy can act as a powerful vehicle to enhance and promote the rights of gifted and talented children. As parents and educators in the field of gifted education, we must continue to use a collaborative voice to advocate on behalf of the gifted and talented children in our direct care and also for those in different countries and cultures around the world.

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MENTORING FOR TALENT DEVELOPMENT WITH AT-RISK POPULATIONS

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ABSTRACT

This article describes several programs developed to serve at-risk populations in Manitoba, Canada. In these initiatives, mentoring – in combination with Creative Problem Solving and career awareness – has been employed effectively (1) in the Lost Prizes project, to turn around the lives of talented but troubled youth, (2) in Northern Lights, to support needy Aboriginal young people, and (3) in Second Chance, to reduce recidivism among Aboriginal inmates. Currently, through the Mentoring At-Risk Students and the Please Let Us Take Off projects, pre-service teachers are providing encouragement, information, and direction to children and youth at risk for school failure, dropping out, alienation, and gang involvement.

Unfortunately, many talented young people underachieve and work far below their potential. Some high-ability students see school curriculum as irrelevant (Baum, Renzulli & Hébert, 1995), and large numbers rebel and run afoul of the educational system. In their eyes, schools are uncaring places with rigid discipline and attendance policies that force out nonconformists (Radwanski, 1987). A report by Statistics Canada (1991) showed clearly that bright youth can be very much at risk – they often become bored, discouraged, and unproductive. More than 30% of the school dropouts surveyed had averages of A or B, and only 8% identified problems with academic work as their main reason for quitting.

The Economic and Social Cost of Things Gone Wrong

Disadvantaged young people often fail, even though they possess the ability to succeed (Scott, 1988; Vito & Connell, 1988). In school, such individuals are frequently referred to as "underachievers", but the term "at-risk" more accurately signals the long-term consequences of educational failure (Eggen & Kauchak, 1994). In the U.S., a male who drops out of high school will earn – over the course of a lifetime – approximately a quarter of a million dollars less than one who graduates. Adjusting for inflation, families whose primary breadwinners did not complete grade 12 earned 30% less in 1987 than they did in 1973 (Mishel & Frankel, 1991). It has been estimated that dropouts from the graduating class of one large, urban school district lost an estimated $200 billion in earnings over a lifetime, resulting in more that $60 billion in lost taxes (Catterall & Cota-Robles, 1988).

Levin (1989) suggested that the annual cost of addressing the dropout problem is approximately $25 billion, while Forbis-Jordan and Lyons (1992) have speculated that related costs run in the vicinity of $71 billion in lost tax revenue, $3 billion in increased costs due to welfare and unemployment, and $3 billion in costs related to crime. Canadian statistics indicate that the cost of allowing 11,000 poor youth to leave school early over a 20 year span would be $23 billion in lost income and productivity, $9.9 billion in lost taxes, and $1.4 billion in unemployment and social assistance payments (Canadian Council on Social Development, 1991).

It's not just lack of productivity. At-risk young people, blocked from legitimate paths to success and positive attention, often turn their talents toward unsavoury pursuits. There are few services for the "tough bright" who don't fit comfortably into our educational system (Peterson, 1997). Troubled youth with strong interpersonal skills might, if things go wrong, turn their abilities toward gang involvement and criminal activity. One of the major conclusions to arise from the First World Conference on Gifted Children in London, England in 1975 was that talented individuals whose needs are not met can become severe social problems. Many at-risk youth, lacking role models and left to make it on their own, head in unfortunate directions. Some of the major unsolved crimes have very likely been committed by talented individuals, who make it on their own all right, but not precisely in socially-desirable fashion. In fact, any "success" they experience may come at great cost to other individuals and to society in general (cf. McCluskey & Walker, 1986).

In our province of Manitoba, it has been estimated that about $1.4 million a day – or $1,000 a minute – is spent on at-risk children and youth (Manitoba Department of Finance, 1995-96). And although it may be impossible to quantify, there is undeniably also the social cost of what might have been. "What is the 'cost' of a symphony unwritten, a cure not discovered, a breakthrough not invented? In today's complex world, and in preparing for tomorrow's certainly more complex one, we can scarcely afford to waste 'talent capital' of any sort" (McCluskey & Treffinger, 1998).

In an effort to respond to some of the issues, needs, and challenges, we – along with a number of colleagues – have designed and put in place a series of initiatives that have utilised mentoring as a major program component. These include:

Lost Prizes

Lost Prizes, a project that ran from 1993-96, was a shared venture among Lord Selkirk, Agassiz, and Interlake School Divisions. Its goal was to "reclaim" at-risk, talented high-school dropouts. Their talents notwithstanding, the young people in question had essentially been lost to the system. Most had withdrawn and were doing next to nothing: At best, they were floating aimlessly; at worst, they were in trouble with the law. Several were involved in serious substance abuse. Our hope was to reconnect with these individuals, awake dormant creative potential, and motivate them to do something more meaningful with their lives.

Using the Talent Identification and Development in Education (TIDE) model (Feldhusen, 1995), school teams identified and selected high-school dropouts who were deemed to possess talent in the Artistic, Academic-Intellectual, Vocational-Technical, Interpersonal-Social, or other domains. In the first part of the program, a facilitator worked directly with the participants in an off-site classroom setting. The classes featured information sessions, career exploration, and CPS training. Using CPS tools (Isaksen, Dorval & Treffinger, 1994, 1998; Treffinger, Isaksen & Dorval, 1994), the students learned to make reasoned educational, career, and life decisions and considered how to move from their "current reality" to a "desired future state". Individual Growth Plans were mapped out to help identify and work toward goals. Participants completing this segment of the program received one high-school credit.

In the second phase, students gained experience in the world of work through on-the-job placements. More specifically, they had an opportunity to encounter and resolve some real-life problems with the help of caring members from the business community. It goes without saying that a real effort was made to match interests to the work site. Students completing this segment of the program received a second credit. Entrepreneurs were eager to provide training grounds for the young people. In actuality, the business partners were not expected to offer traditional work placements as such, but rather to serve as "philanthropic mentors" to guide and support the students in tangible fashion. Members of the business community took their newfound mentoring roles seriously; many bonded with and literally "adopted" the students. By working cooperatively with the educational system, business partners had a real impact – they deserve credit for going that "extra mile" with some rather difficult cases.

The outcomes of Lost Prizes have been documented in depth elsewhere (McCluskey, Baker, O'Hagan & Treffinger, 1995, 1998; McCluskey, McCluskey, Baker & O'Hagan, 1997). To summarise succinctly, over the three-year life of the project, many formerly disillusioned, disenchanted, and disconnected dropouts turned their lives around. Once their talents were identified, appreciated, and nurtured, 57 of the 88 participants (65%) responded by returning to high school, entering post-secondary programs at university or community college, or obtaining employment.

Northern Lights

A second three-year initiative of Agassiz, Lord Selkirk, and Interlake School Divisions, Northern Lights was an attempt to address the plight of Aboriginal youth (cf. McCluskey, McCluskey, Baker & O'Hagan, 1997). In Manitoba, proportionally few Native or Métis students complete high school. To illustrate, in one of the partnering divisions, a longitudinal review of the academic histories of 23 Aboriginal youngsters who entered in kindergarten showed that only one made it all the way through the system. In another, only one of 25 Aboriginal students who left their reserves to attend high school graduated.

Although they have long had the will to help, teachers in the region have not been particularly successful in meeting the needs or helping to unlock the abundant talent of the majority of Aboriginal students. Perhaps overemphasising the "problems" has caused educators to miss picking up on the strengths. The premise underlying Northern Lights was that, with appropriate encouragement, enrichment, and opportunity, many high-ability Aboriginal students will develop their gifts and become contributing members of their communities in particular and society in general.

Northern Lights ran from September, 1996 through June, 1999. Although it started out very similar to Lost Prizes, early into the first go-around it became clear we were failing to reach many of the at-risk Native youth. Since substantial modifications were obviously required, Aboriginal social workers and teacher assistants were hired to connect with the students and their families. As well, because mentoring had such a positive impact in earlier endeavours, and because so many of the youth were "crying out" for this type of support, the work placement component was increased from four to five weeks. It's early to begin drawing conclusions, for the project just finished up not that long ago. However, after adjustments were made to smooth out the early bumps in the road, some encouraging trends emerged: Future research reports will be able to point to improved Aboriginal graduation rates, and to an increase in the number of young people entering training programs and/or seeking and finding employment.

Second Chance

It has been found that each inmate costs the taxpayers of Canada $51,047 (Corrections Services, 1991). The problem is exacerbated by the fact that criminal acts tend to be repeated – a large proportion of federal inmates have had previous terms of incarceration. Gendreau, Madden, and Leipciger (1977) found that 65.6% of inmates in our country have re-offended. Canfield and Drinnan (1991) feel that the recidivism rate is higher for Aboriginal populations.

Planned, designed, and implemented in the early '90's, Second Chance provided pre-release support – in the form of CPS training and intensive mentoring – to Native inmates in the provincial jails (Place, McCluskey, McCluskey & Treffinger, in press). Some had been jailed for assault, physical or sexual abuse, break and entry, drug offences, or even juvenile murder. Of the 31 offenders, 18 had previous convictions.

Once again, many employers embraced the mentoring role in an exemplary, dedicated manner, and – when offered trust, direction, and encouragement – the inmates responded. People who had given little to anyone to that point in their lives gradually began to demonstrate responsibility, creativity, and initiative. Of course, there were no magic solutions – this was, after all, an extremely high-risk population. One year after the project's end, it was found that

40% of the participants had re-offended. However, the recidivism rate was much higher – 90% to be precise – among inmates in a matched control group who served their time, unsupported, until they were returned to society to fend for themselves. The alarmingly high recidivism in the non-treated condition is an indictment against the present practice of "warehousing" prisoners through the system, only to have them re-offend ad infinitum. The results of the Second Chance project suggest that there are alternatives.

MARS AND PLUTO

Recently, some systematic, sweeping ventures have used large numbers of fairly sophisticated mentors to help a multiplicity of high-risk students. For example, in a program at the California State University, Fresno (CSUF), education students are asked to mentor at-risk elementary children from local school districts (Meyer, 1997). That is, mentoring is one mechanism being used to address issues of culture and diversity, lack of parental support, disadvantaged socio-economic conditions, transient life-styles, and low academic skills. By all accounts, it has been an empowering experience for both the mentors and mentees. For students of education, what better training than to bond and interact with an at-risk student? They're not just reading theory, they're right in the trenches. And many of the at-risk youngsters, in desperate need of time, attention, and direction, respond quickly and positively.

Responding to its mandate to address urban, inner city, and Aboriginal issues, the Bachelor of Education Program at The University of Winnipeg has recently introduced two related mentoring projects, MARS and PLUTO. As indicated at the beginning of this piece, these undertakings target emotionally-needy children and youth, many of whom are involved (or at risk for becoming involved) with gangs. We feel our mentors bring something quite unique to the scene. In the first place, drawn as they are from the University's population of pre-service teachers, they already possess certain skills to go along with altruistic attitudes. We've also upped the ante somewhat by choosing these individuals from a group that has completed a specially-designed 300-level course, At-Risk Children and Youth. This course is designed to familiarise the pre-service teachers with key concepts in the field, such as the "circle of courage" (Brendtro, Brokenleg, Van Bockern, 1990), talent spotting and nurturing the of troubled youth, celebrating survivors, resilience, gangs and gang prevention, attention-deficit/hyperactivity disorder, managing conflict in the classroom, bullying prevention, and diversity. It also introduces CPS and Life Space Crisis Intervention (LSCI) (Wood & Long, 1991), a strength-based intervention that helps caregivers to: (1) recast problems as learning opportunities (i.e., shift from "crisis management" to "crisis teaching"), (2) rethink the conflict cycle (i.e., understand the stressors, triggers, and phases of aggression and explore techniques for de-escalating counter-aggression), (3) decode the meaning of

behaviour, and (4) recover after a crisis. Obviously, these sorts of skills will be useful for professionals "in the trenches". More in-depth courses are also being offered on both CPS and LSCI.

Pre-service teachers who elect (and are selected) to serve as mentors, do so for a minimum of one university term (as part of what amounts to a credit Mentoring Practicum). Throughout this experience, they have support not only from Faculty, but also from a Mentoring Coordinator who is available to provide on-going advice and assistance. Once things are up and running in earnest, The University of Winnipeg should be able to provide well over 50 mentors annually for our community and agency partners. And since the projects are sustainable, the waves of mentors will be available year after year.

Further, our mentors (who are asked to keep detailed "reaction logs") and faculty will be positioned to gather some rich data to help gauge the impact of the projects. Among other things, pre- and post-measures of achievement levels, accomplishments, behavioural incidents, drop-out rates, and self-concept of the "mentees" will be considered. MARS and PLUTO, then, will provide: (1) tangible support and meaningful relationships for at-risk children and youth, (2) real, hands-on experience for university pre-service teachers, (3) training opportunities for pre-service and in-service teachers, as well as for community and agency partners, and (4) objective information about the effects of mentoring in developing the talents of troubled young people. The abundance of concrete data generated and disseminated should help point the way for program modifications and future endeavours.

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LOGICAL THINKING AND INVESTIGATION SKILL OF GIFTED CHILDREN
(The Relationship between Gifted Education Program & Scientific Thinking of Children)

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ABSTRACT

The purpose of this study was to examine gifted children's logical thinking and investigative skills in terms of gender, duration of attendance, and starting age of registration in the gifted program. KEDI's Logical Thinking and Investigation Skill test was used to test 123 elementary children participating in CBS KAGE program. Five percent of first-graders, 14% of second-graders, and 17% of third-graders were in transition or formal operation stage. The study shows that logical thinking ability is influenced by gender. Investigative skill is affected by the length of attendance and age of registration in the gifted program.

I. Introduction

Recently, the needfulness of the gifted education comes to the fore in the two facets: individual and social. Individual aspect focuses on giving the education opportunities to develop the potential ability ultimately. Social facet is to have the global competitiveness of the country in the highly developed society. The gifted children who have the interests and abilities in science should have the firm opportunities of the comprehensive education in the science and it is necessary to develop a scientific potentiality. (Korea Education Development Institute, 1990)

The numerous gifted programs, regarding the gifted, originality, EQ, brain evolvement, etc., are given to children in these days. It is, however, little known that what will be the influences of the programs on cognitive and emotional development of children. Thus, what to carry out the research for the evaluation of the programs is to find out the right way to increase the quality of the gifted programs as well as to examine the effect of the programs

This study will investigate the influences of the intensive gifted education programs on scientific logical thinking abilities and investigation skills for children. In addition, it will support the idea to parents, instructors, and policy-makers who are interested in the gifted and talented education for developing and applying the gifted program.

II. Theoretical Background

The purpose of assessment is to identify how much the program participate to its goal regarding creative problem-solving ability, logical thinking ability, knowledge concerning the main subject, assignment tenacity, investigation skills, and extension of communication skills of the relative fields. It is expected an increased effect of education and an improved quality level by examining an operating procedures of program and evaluation of its effect.

The education program was almost always evaluated formally and/or informally. However, it is hard to evaluate the gifted education program due to its characteristic. First, it is difficult to select and/or fix alternative control group consisted of the gifted. Second, advanced thinking ability including originality is hard to measure. Third, for the extremely high-able children, it is critical to compare with the groups adequately due to the sealing effect and the regression to the mean. Forth, a standardised test for the gifted is rarely found.

The qualification of the gifted education program is as follows: firstly, it is surely for the gifted; secondly, it is proper for the psychological character of the gifted to distinguish the instructions and study methods, and the studying contents different than general one; thirdly, instructors should be professional.

These qualifications are examined in detail as follows:

1. Education Philosophy

The gifted education is the right one to cultivate appropriately the potential ability of the gifted with boundless growth possibility. The gifted should have a chance to study professionally with his or her own ability and interest and to investigate his or her idea comprehensively. They also develop their abilities through challenge and stimuli in the similar group of children.

To design and provide the education methods and contents to proper for a characteristic of desire, study, and motive of the gifted is to sufficiently grow his or her individual cognitive, emotional, and social development and contribute to improve individual and social welfare.

2. The Goal of Education

(1) To develop their critical, creative thinking ability and problem-solving skill by motivating children who are verified as the gifted with comprehensive thinking for a specific subject.
(2) To absorb a basic notion of each single subject and, at the same time, to increase a thinking ability of the given topic.
(3) To encourage his or her interest and concern, and to extend his or her investigation behaviour autonomously.
(4) To prepare the ground for being a creative and productive professional.

3. The Procedure of Evaluation

The detailed method of the gifted examination should be applied according to an age range respectively. The followings are the method applied in this research in Korea.

(1) Child who has the outstanding ability in intelligence, originality, and assignment tenacity comparing with a group of children of that age can be recommended.

(2) Administration of Psychological Test: 1) Checklist of the gifted behaviour characteristic and 2) Individual Intelligence Test (KEDI-WISC: Korea Education Development Institute).

(3) According to a result of psychological test, the gifted education professional, parents and their child perform a mutual interview; then, the professional and his or her parents will evaluate a characteristic of cognition and originality.

(4) Through the collected information, parents, their child, and the professional will decide whether to attend a program.

4. The Education Contents and Methods

(1) Creative Problem-Solving Program based on a main subject

The contents that are independent from the normal education curriculum consist of numbers, science, language, and thinking ability program. The classes are organised with the independent contents from normal curriculum according to age, ability, and interest.

(2) Special Ability Program

This program is for the children who attend the problem-solving program of the main subject, and who have a undivided attention and exceptional abilities in the specific fields such as thinking ability, composition, mathematics, philosophy, science, etc. It provides an accurate program according to their characteristics and ability levels to satisfy their desire of knowledge and cooperate with the professional personnel in the fields to have an opportunity of a direct discipline.

(3) Project

The project shall be performed with a group of children, who has a same interest. It is also disciplined to do creative works and research activities by cooperating with the professionals. Children, then, present the completed works and reports on the specific journals or to a group of professionals.

5. Instructing and Studying Methods

The conditions of qualification are as follows:

(1) Operating individual education based on ability, interest, and concern of the gifted
(2) Administering and organising a group based on age, ability, and interest
(3) Performing a creative problem solving on a subject that requires advanced thinking ability
(4) Providing a chance to do an positive and active performance with discussion- and student initiated class
(5) Teaching by a professional instructor who took a special training in the gifted education

There are the numbers of institutes and organisation for the gifted education that perform an intensive learning program for the gifted. It is important to choose an authenticated program that meets the above-mentioned qualification to accurately evaluate an effect of the gifted education program. Thus, this study examined the effect of the gifted education by the intensive studying program for the gifted at Korea Academy of Gifted Education Center (KAGE Center) of Christian Broadcasting System Cultural Center, Seoul, Korea since 1990.

The above-mentioned qualified children take a gifted education program with a goal of education that is the development of thinking ability and creative problem solving. It is expected that the period of education influences on the thinking ability and the creative problem solving skill. Advanced thinking ability and creative problem solving are evaluated partly by scientific thinking ability. Thus, it assumes that the more attending the class for long periods, the more the scientific thinking ability is developing.

This study will identify giftedness and generalised character on scientific thinking. It will also represent an influence of this education program on development level of scientific thinking ability by measurement and assessment tools.

Hence, through this evaluation, it will provide an idea for developing and administering the gifted education programs to parents, instructors of education, policy-maker who are interested in the gifted and talented education.

As performing an assessment research for an effect of gifted education programs, the most difficult point is to choose a control/comparative group. In addition, it is much harder to find out the children who have the similar conditions with the different experiences in terms of the education contents and methods and to make them as a subject of the research. To solve this problem, children were selected by the same standard and assessed according to the period attending the same program comparing with the difference of the development level of scientific thinking ability. Because the members of two comparative groups are similar in an individual variable concerning various background and study experience and only different in the attending period, it is the proper method to assess the effect of the program. Jung (1993) applied this method to his research; Callahan (1993) reported that it is the very convenient and adequate one.

III. Materials and Methods

1. The Research Subject

The subjects were the children who are attending the gifted education program at CBS KAGE Center with IQ 130 and above and high score of the behavior characteristic checklist of the gifted, and living in Korea including Seoul.

The population of grade was as follows: 63 for the first, 36 for the second, 24 for the third, 7 for the forth, 4 for the fifth, 2 for the sixth grade at the primary school, and 10 for the first grade at the middle school; totally 146 children. For the statistics of data, total number of children was 123 except the forth, fifth, sixth grade of the elementary school and the first grade of the middle school.

As the table 3-1 shows, the subjects for the duration were divided into academic grade and gender. According to the distribution chart, the number of students of long-period attending group is 60 and the duration is from 13 to 87 months; averagely 31.6 months, which is about three years of duration. The number of short-term attending children is 63, and the duration is about 12 months; averagely 4.52 months. The difference of the two groups for the attending period of intensive education program is authentic statistically. (t=10.6, p<.001)

Table 3-1. Distribution of grade and gender according to the duration

(N=123)

		Duration	
		Below 12 Months	Over 13 months
First Grade	Male	21	15
	Female	14	13
Second Grade	Male	12	17
	Female	2	5
Third Grade	Male	7	6
	Female	7	4
Total sum		63	60

2. Tool of Measurement

The applied tools were the Test of Scientific Thinking Ability including investigation skill and logical thinking ability developed by Korea Education Development Institute (KEDI, 1994) to assess the gifted in science.

(1) Test of Scientific Thinking Ability

The test was a paper-and-pencil exam and consists of two sub-tests: logical thinking ability and investigation skill.

1) Test of the investigation skill

Investigation skill test is the standardisation edition, done by KEDI, of IPST (Integrated Process Skill Test) originally developed by J.R. Okey, K.C. Wise, and J.C. Burns. It measures a series of abilities that scientists solve scientific matters. These abilities have described as critical ability, problem solving skill, scientific thinking, and, recently, science process skill, and others. The test of investigation skill consists of seven sub-elements: operation definition, hypothesis validation and declaration, variable confirmation, experiment planning, construction of datasheet, formation of graphs, and induction of conclusion. It has 40 items with 40 as a full marks.

2) Test of the logical thinking ability

The test is the standardised one, done by KEDI, of GALT (Group Assessment of Logical Thinking) originally developed V. Roadrangka, R.H. Yeany, and M.J. Pedila. This tool was originally for the middle school students to assess the ability of scientific thinking and reasoning; however, KEDI adapted and modified the test, made the standard applied from the fifth grade of elementary school. The sub-components are conservation logic, ratio inference, variable control, probability inference, correlation inference, and combination inference; total numbers of items are 21 with full scores of 21.

3. The Procedure of Research

The test of logical thinking ability and investigation skill was administered at CBS KAGE Center in the early 1996. The tests were progressed as a paper-and-pencil exam individually to orient children after the class by the author. The time was limited 45 minutes for the investigation skill, and no time limits applied for the logical thinking ability due to the different ability of thinking.

4. Data Analysis

The SAS$^{®}$ System, Release 6.12, SAS Institute Inc., USA was used. To identify general matters of the subject of investigation, frequencies and its percentile(s) were calculated. In comparison with two different groups that have different education-attending periods of thinking ability, mean, standard deviation, simultaneous variable analysis, t-test, and two-way ANOVA were calculated. Hence, correlation coefficient was calculated to grasp the relation between scientific thinking ability and education program attending periods.

IV. Results

1. Development of Investigation Skill

(1) Grade

With the comparison of developmental level of investigation skill in terms of grade, the skill was improved at a higher grade: first grade (Mean=12.59, SD=5.97), second grade (Mean=17.03, SD=6.78), and third grade (Mean=21.83, SD=6.57) (F=21.84, p<.001).

To compare with the sub-categories of the investigation skill of grade, as the figure 4-1 indicated, the higher grade showed the more developed level of the following components: operation definition, validation of hypothesis and declaration, variable confirmation, experiment planning, and induction of conclusion except formation of data sheet and graph.
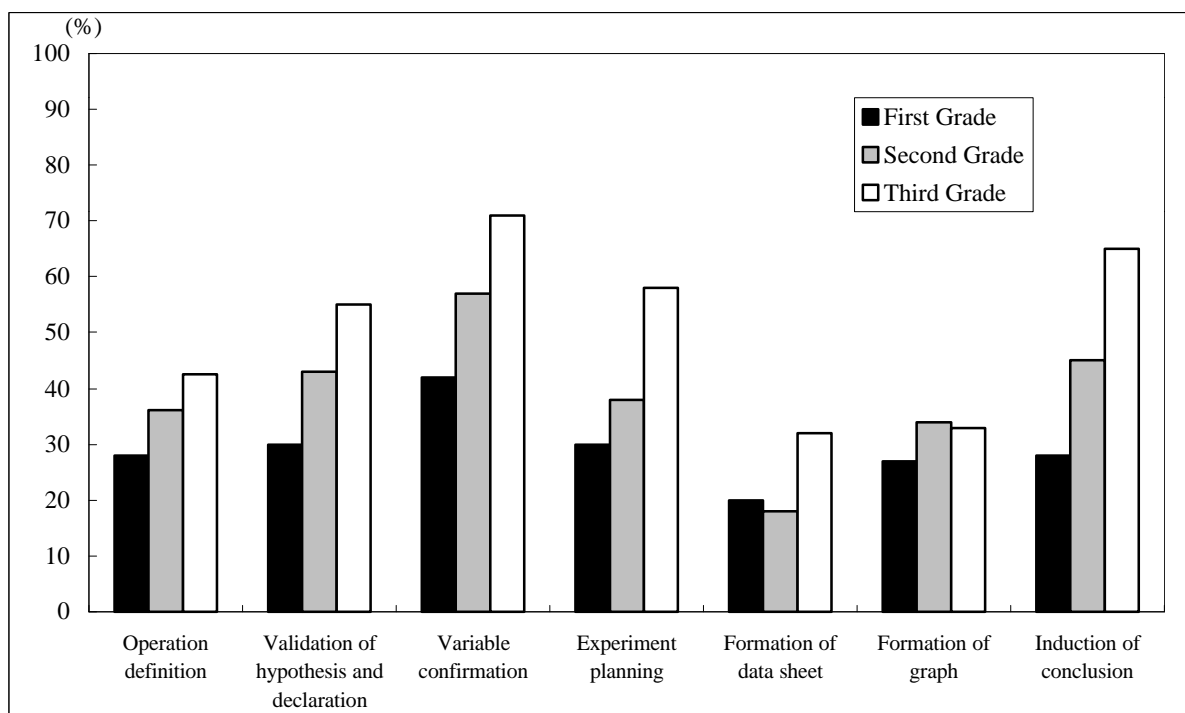
Figure 4-1. Development level of sub-categories of the investigation skill of grade

(2) Gender

The result of gender and grade indicated that females of the all years showed have higher scores than males. However, the figures are not valid statistically.
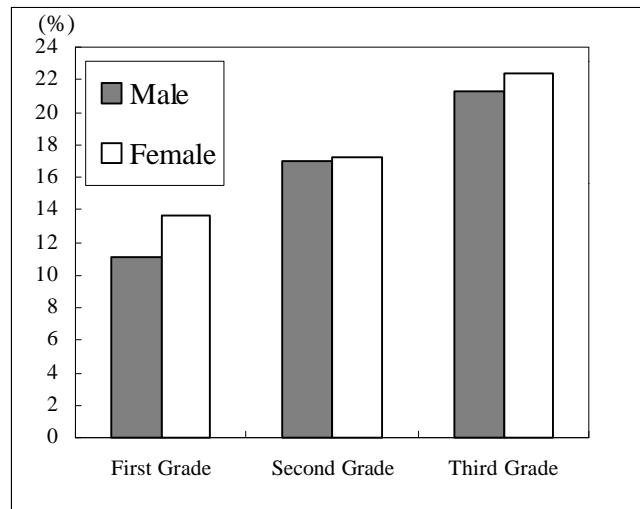
Figure 4-2. Comparison the scores of investigation skill for grade and gender

(3) Duration

Table 4-1 presented the developed level of investigation skill. The group with longer duration of attending the education program has more developed skill.

Table 4-1. Comparison of the development level of investigation skill for duration

(N=123)

	Variables	N	Mean (SD)	T value
Duration	Below 12 months	63	13.46 (7.61)	-3.23***
	Over 13 months	60	17.58 (6.43)	

***p<.001

These figures indicated the statistically valid difference. Children with the longer period of attending education program (M=17.58, SD=6.43 had the higher figures than the short-termed children (M=13.46, SD=7.61). According to the correlation of Spearman, a relationship between the duration and the development level of investigation skill was valid as r=35 (p<.001); it means that long duration stimulates the development of investigation skill.

Table 4-2. Comparison of the investigation skill of grade and duration

(N=123)

Variables		N	Mean (SD)	t value
First Grade	Below 12 months	35	10.17 (5.23)	-3.16 **
	Over 13 months	28	14.64 (5.63)	
Second Grade	Below 12 months	14	14.57 (8.18)	-1.78 *
	Over 13 months	22	18.59 (5.35)	
Third Grade	Below 12 months	14	20.57 (6.71)	-1.12
	Over 13 months	10	23.60 (6.26)	

*p<.05   **p<.01

Table 4-2 indicated the scores of the investigation skill according to the duration of each grade. For the first and second grades of the primary school, the differences of scores were valid statistically according to the duration. The first grade with a long-term duration (Mean=14.64, SD=5.63) accomplished higher development skill compared with the short duration children (Mean=10.17, SD=5.23) (t=-3.16, p<.01). For the second grade, the long-term attending students (Mean=18.59, SD=5.35) showed higher development level than the short-term participants (Mean=14.57, SD=8.18) (t=-1.78, p<.05). Although it did not indicate as a statistically valid figure, the long duration children of third grade showed the higher scores of the skill than the short duration.

That is, regarding the development of investigation skill, the long duration children presented the higher level of development than short-term children. It means that the gifted education program increased the investigation skill efficiently.

Table 4-3. Comparison of the scores in the sub-categories of investigation skill of duration

(N=123)

Items		Mean (SD)	t value
Operation definition	Below 12 months	3.36(1.75)	-1.85 *
	Over 13 months	3.84(3.89)	
Validation of hypothesis and declaration	Below 12 months	2.45(1.60)	-2.47 **
	Over 13 months	3.06(1.35)	
Variable confirmation	Below 12 months	3.71(2.63)	-1.88 *
	Over 13 months	4.47(2.20)	
Experiment planning	Below 12 months	2.54(1.87)	-0.29
	Over 13 months	2.63(1.74)	
Construction of datasheet	Below 12 months	1.17(1.23)	-1.98 **
	Over 13 months	1.57(1.21)	
Formation of graphs	Below 12 months	1.59(1.32)	-1.58 *
	Over 13 months	1.93(1.25)	
Induction of conclusion	Below 12 months	1.74(1.44)	-1.84
	Over 13 months	2.16(1.31)	

*p<.05   **p<.01

Table 4-3 indicated the level of development in the sub-categories of investigation skill. According to the result, the more duration is longer, the more higher level of development children achieved in the each item of operation definition, validation of hypothesis and declaration, variable confirmation, construction of datasheet, and formation of graphs. In the operation definition, the longer duration children (Mean=3.84, SD=3.89) showed higher scores in the investigation skill than the short duration (Mean=3.36, SD=1.75) (t=-1.85, p<.05). In construction of datasheet, the higher scores were obtained by students with long duration (Mean=1.57, SD=1.21) rather than students with short duration (Mean=1.17, SD=1.23) (t=-1.98, p<.01). For the formation of graphs, the long duration students (Mean=1.93, SD=1.25) had higher scores than the short duration students (Mean=1.59, SD=1.32) (t=-1.58, p<.05). In the hypothesis validation and declaration, the long period-attended children (Mean=3.06, SD=1.35) had higher scores than short period-attended (Mean=2.45, SD=1.60) (t=-2.47, p<.01). In the items of the variable confirmation, high scores of the investigation skill development were accomplished by children attended for long-term duration (Mean=4.47, SD=2.20)

than the short-term duration (Mean=3.71, SD=2.63) (t=-1.88, p<.05). All the sub-elements except the experiment planning and the induction of conclusion were influenced on the development of investigation skill of the duration, and thus, children attended for the long duration achieved higher level of investigation skill than the short duration-attended children.

This study showed the same conclusion of the research reported by Jung (1993), that children attended a longer period of education performed higher achievement in the items of hypothesis creation, variable control, operation definition experiment planning, data analysis, and so on; and, especially, in the items of hypothesis creation and variable control, they obtained a statistically valid difference as 5% and 1%, respectively.

(4) Relationship among duration, grade, gender, and investigation skill

It is indicated in table 4-4, comparison of the scores of investigation skill of duration and gender. The major effect of the duration was indicated (F=8.52, p<.05); however, it did not present the major effect of gender and the correlative effect between duration and gender.

Therefore, the most influenced factor on developing the investigation skill is the duration of attending an intensive education program.

Table 4-4. Simultaneous variable analysis for test of investigation skill of duration and gender

(N=123)

Variables	DF	SS	MS	F
Duration	1	425.85	425.85	8.52 *
Gender	1	55.87	55.87	1.12
Duration×Gender	1	26.12	26.12	0.52
Error Variable	119	5950.41	50.00	
Total Sum	122	6556.65		

*p<.05

Table 4-5 presented the result of simultaneous variable analysis for test of investigation skill of duration and grade. According to this result, there are the major effect (F=22.39, p<.05) of the duration (F=10.23, p<.05) and the grade. But the correlative effect between the duration and the grade. That is, the difference of the mean of the duration and the grade was valid in terms of statistics.

Table 4-5. Simultaneous variable analysis for test of investigation skill of duration and grade

(N=123)

Variables	DF	SS	MS	F
Duration	1	376.35	376.35	10.23 *
Grade	2	1647.18	823.59	22.39 *
Duration×Grade	2	8.85	4.43	0.12
Error Variable	117	4303.98	36.77	
Total Sum	122	6556.65		

*p<.05

2. Development of Logical Thinking Ability

(1) Grade

Test of logical thinking ability was developed for the gifted students from the fifth grade of elementary school to the third grade of middle school. Due to this reason, even though (s)he is the gifted, the succeed ratio is low for the primary student from the first to the third grade.

To compare with the scores of logical thinking test for grade, the second (Mean=4.83, SD=4.08) is higher than the first (Mean=2.87, SD=3.84), and the third (Mean=5.83, SD=3.63) is higher than the second. This showed that the scores of the logical thinking test of the grade had a valid difference (F=6.14, p<.05) and the more the grade is higher, the more the high scores students got.

(2) Gender

The comparison with the scores of the logical thinking test of grade and gender is in the table 4-6 and figure 4-3. In the test scores, although there is no statistical difference between male and female, the difference of grade between male and female was identified. For the first grade of elementary student, female (Mean=3.58, SD=4.80) got higher score than male (Mean=2.36, SD=2.92) (t=-1.23, p<.01); for the third, in contrast, the score of male (Mean=7.00, SD=4.38) was higher than female's (Mean=4.45, SD=1.86) (t=-1.79, p<.01).

Table 4-6. Logical thinking test of grade and gender

(N=123)

Variables		N	Mean (SD)	t value
First Grade	Male	36	2.36 (2.92)	-1.23 [**]
	Female	26	3.58 (4.80)	
Second Grade	Male	29	4.97 (4.34)	0.39
	Female	7	4.29 (2.98)	
Third Grade	Male	13	7.00 (4.38)	1.79 [**]
	Female	11	4.45 (1.86)	

$**p < .01$

Shin (1995) performed the research for the effect of gifted education program influenced on the logical thinking ability and the originality of children in the forth, fifth, and sixth grade of primary school. She reported the male students had higher developed level of the logical thinking ability than the females. Ko (1989) also reported that regarding the development level of the logical thinking ability for students in the third grade of middle school, male was 5.2%, female was 1.8% and the male showed higher level of logical thinking ability than the female. To put these researches together in terms of development level of logical thinking ability, firstly, female in the first grade of elementary school was higher than male; secondly, for the second grade, male and female got the same scores; thirdly, male student of the third grade had higher score than female. It represented that he more the grade goes higher; the male got the high score in the logical thinking test.
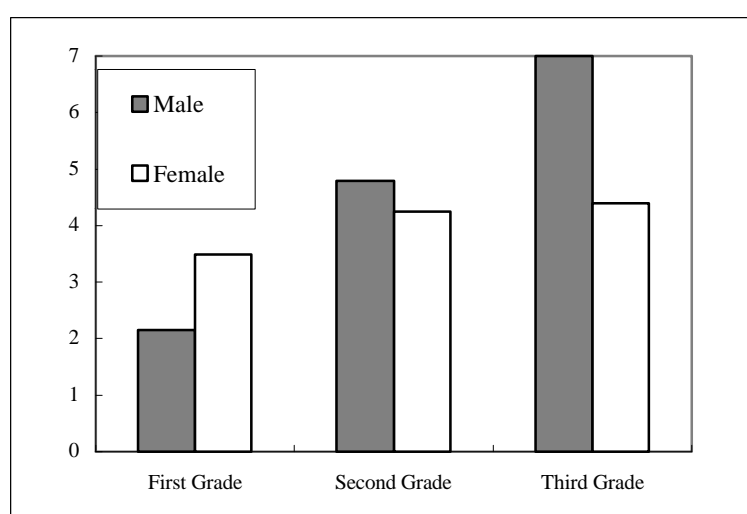
Figure 4-3. Comparison of the scores of logical thinking test for grade and gender

As it mentioned above, the research of Shin (1995) and Ko (1989) were indicated that the male obtained the high marks than the female, and this study connoted similar conclusion according to the different development level of the logical thinking ability of the grade and the gender.

Table 4-7 showed a development steps in the logical thinking ability of the grade and the gender. Male was 60 children (48.7%) and female was 51 (41.5%) in concrete operation, and the ration of male was larger than female's. Male was 4 (3.3%) and 4 (3.3%), and female was 2 (1.6%) and 2 (1.6%) in transition and formal operation respectively. These two stages also showed that male had larger ratio than female.

According this result, there is a difference of gender in the development level of logical thinking ability. That is, male showed higher level of development than female, and male also took precedence over female in terms of period of time to reach a stage of formal operation.

According to the Piaget's research of cognitive development, prepositional logical thinking is an ability indicated in the stage of formal operation, and it develops on about 15 years old. Sawson (1978) reported that most of high school students did not completely understand formal thinking. However, for the gifted, most of children from the first to the third grade of primary school reached in the concrete operation stage. In addition, 5% out of the children arrived at the stage of formal operation. This individual difference gives us a necessity of gifted education.

Table 4-7. Development stages of logical thinking ability of grade and gender

(N=123)

	Concrete Operation		Transition Stage		Formal Operation	
	Male	Female	Male	Female	Male	Female
First Grad	25	35	0	0	1	2
Second Grade	25	6	2	1	2	0
Third Grade	10	10	2	1	1	0
(N=123)	60	51	4	2	4	2

(3) Duration

Table 4-8 indicated the development level in investigation skill of duration.

Table 4-8. Development level of investigation skill of duration

(N=123)

	Variables	N	Mean (SD)	T value
Duration	Below 12 months	63	3.38 (3.82)	-1.86
	Over 13 months	60	4.72 (4.17)	(n.s)

The test score in logical thinking ability of duration was not statistically valid; however, long duration of children (M=4.72, SD=4.17) had high scores than short duration (M=3.38, SD=3.82).

There are two reasons for score difference in the test of logical thinking ability with no statistically valid figures. First, it was a narrow range of score, due to low eligibility ratio for the test items of logical thinking ability, in the first, second, and third grade of elementary school. Second, there were insufficient examiners per group.

Calculating the correlation coefficient of Spearman to identify whether any relationship between duration and scores of logical thinking ability, it was statistically valid as r=0.24 (p<.01).

Table 4-9 is the result of comparison of subordinated items' scores in logical thinking ability of duration. Long duration children had higher scores, though not quite valid statistically, than short duration children in the subordinated items except probability inference. For the item of conservation logic, the value was statistically valid; that is, long-term attending children (Mean=2.29, SD=1.42) showed an excellent level in the conservation logic than short-term children (Mean=1.86, SD=1.44) (t=1.77, p<.05). In the items of variable control, correlation inference and combination inference, there are no more valid statistically. It is assumed that most of the items are too difficult to discriminate between the differences of duration due to the floor effect. Thus, with administering more distinguished test, it proves that duration attending an education program increases logical thinking ability.

This study indicated the similar result of the research by Jung (1993): verifying the effect of the gifted education program of CBS KAGE Center, long duration children in logical thinking ability presented much higher level of development than short duration children in the items of proportion logic, variable control, correlation, and combination logic.

Table 4-9. Comparison with scores of subordinated items in logical thinking ability of duration

(N=123)

Items		Mean (SD)	t value
Conservation logic	Below 12 months	1.86 (1.44)	-1.77 *
	Over 13 months	2.29 (1.42)	
Ratio inference	Below 12 months	1.21 (2.10)	-0.30
	Over 13 months	1.31 (2.03)	
Variable control	Below 12 months	0.66 (1.07)	-1.04
	Over 13 months	0.85 (1.24)	
Probability inference	Below 12 months	0.39 (0.77)	0.54
	Over 13 months	0.32 (0.70)	
Correlation inference	Below 12 months	0.16(0.43)	-0.54
	Over 13 months	0.20(0.50)	
Combination inference	Below 12 months	0.90(1.08)	-1.47
	Over 13 months	1.21(0.99)	

*p<.05

Through this result, the intensive gifted program of CBS KAGE Center is also statistically valid to compare with development level in logical thinking ability of duration for forth, fifth, and sixth grade of primary school.

Table 4-10. Development stages of logical thinking ability of duration

N (%)

	Below 12 months		Over 13 months	
Concrete Operation	59	(93.65)	52	(86.67)
Transition Stage	2	(3.17)	4	(6.67)
Formal Operation	2	(3.17)	4	(6.67)
(N=123)	63	(100.00)	60	(100.00)

The comparison of development level in logical thinking ability of duration was presented at table 3-10. The number of children in the concrete operation for duration of below 12 months was 59 (93.6%), and the number for over 13 months was 52 (86.7%). The numbers of below 12-month children were larger than over 13-month children. In contrast, for the stages of transition and formal operation, children over 13-month duration were four (6.67%) and four (6.67%) respectively. These numbers were larger than children of below 12-month duration.

(4) Difference of duration and grade

Table 4-11 showed the total scores of logical thinking ability test of duration and grade. The more children are higher grades, the more excellent the logical thinking ability is. Hence, long duration of attending showed more developed level of logical thinking ability.

Table 4-11. The comparison of logical thinking ability test of duration and grade

N (%)

Variables		N	Mean (SD)	T value
First Grade	Below 12 months	35	2.42(3.78)	-1.03
	Over 13 months	27	3.44(3.91)	(n.s.)
Second Grade	Below 12 months	14	4.14(4.13)	-0.80
	Over 13 months	22	5.27(4.08)	(n.s.)
Third Grade	Below 12 months	14	5.00(3.06)	-1.35
	Over 13 months	10	7.00(4.19)	(n.s.)

n.s. = not significant

Table 4-12. Simultaneous variable analysis in logical thinking ability test of duration and grade

(N=123)

Variables	DF	SS	MS	F
Duration	1	48.56	48.56	3.24
Grade	2	179.12	89.56	5.98 [**]
Duration ×Grade	2	4.24	2.12	0.14
Error Variable	116	1737.32	14.98	
Total Sum	121	1971.87		

**p<.01

Table 4-12 was the analysis result of simultaneous variable in logical thinking ability test of duration and grade. According to the result, although the values of grade were valid statistically (F=5.98, p<.01), the effect of interaction between duration and grade was not detected. It means that the difference of the mean by grade is statistically valid.

V. Discussion

This study tried to evaluate that the intensive gifted education program influenced on developing scientific logical thinking ability for children had IQ 130 assessed by KEDI-WISC and attended the courses of CBS KAGE Center. According to grade and gender, children divided into two groups by duration attending the intensive education program: one was for below 12 months and the other was for over 13 months. If long duration children show more excellent level of scientific thinking ability, it assumes that this intensive program stimulates the development of scientific thinking. That is, it is to assess whether this program motivates to develop scientific thinking ability. Furthermore, administering the test of scientific thinking ability (investigation skill test and logical thinking ability test), it examined the development level of the tests according to gender and grade.

To analysis the data, frequency, percentile, mean and standard deviation, t-test, two-way ANOVA, simultaneous variable analysis, and correlation analysis were performed. The followings are the summary of the study.

To compare with the difference of level in logical thinking ability of children who took the gifted education program:

Firstly, in the development level in the scientific thinking ability of grade, the more the grade went higher, the more developed the investigation skill and the logical thinking ability were.

Secondly, to analysis the difference of development in the scientific thinking ability of gender, the difference between male and female in the investigation skill was not valid. For the logical thinking ability, the more the grade went for the first to third, the more the male children developed quickly.

Thirdly, comparing with the development level in the logical thinking ability of duration, long duration attended children showed more highly developed in the investigation skill and the logical thinking ability. It is proved that this program definitely influenced on the development of the scientific thinking ability. In the subordinated items of the investigation skill such as operation definition, hypothesis validation and declaration, variable confirmation, construction of datasheet, and formation of graphs, over-13-month duration children showed higher level of development than below-12-month duration.

In the conservation logic that is one of the subordinated items of logical thinking ability, children attending the education program for long term performed higher level of development than the short-term children. Regarding the development stage of logical thinking ability, the ratio of children reached the transition and the formal operation was appeared highly in the group of children with the long duration rather than the short one.

Therefore, the intensive study program for the gifted children stimulated their development of the investigation skill and the logical thinking ability, and the duration was the important variable to explain the difference of development level.

However, this research has the following limitation.

First, the tool used in the study was for the validity study targeted on fifth and sixth grade of elementary school. Due to this reason, low-grade students could not understand the items, and the score was too low to compare the data statistically. Thus, the next research should apply the test tool developed for whole grades of primary school.

Second, if it was assess for the operation of the gifted education program, the instruction and the study methods, the contents of activity, reaction of parents, and class procedures, it is thought of identifying clearly the effect of duration attended the program.

Third, with performing qualitative assessment research relating the other categories of intensive study program, it is certainly identify the positive effect indicated in this study.

Forth, the study reported the relationship between children whom were disciplined by the gifted education program and the scientific thinking ability. However, the relationship between any other kinds of gifted program and the scientific thinking ability was not identified because the subject was the children educated with the gifted program at CBS KAGE Center. The next research should attempt to compare the effect of the gifted program of CBS KAGE Center with other gifted programs.

The followings are the suggestion for the next studies.

First, this research presented the relationship between the children completed the gifted education program and the scientific thinking ability with the different duration of education. For the thorough and comprehensive study, it requires a continuous follow-up study for the development procedure of the subjects. In other words, performing a longitudinal research to measure the effect of program, the study to generalise the effect is required.

Second, the effect of the education program spreading in various gifted education facilities should be compared with each other, and it is needed to study to identify their characteristics and assessment.

Third, it is necessary to develop and research the assessment tool for measuring the effect of the gifted education program in the different fields.

Forth, gathering the opinions of parents, children, and instructors, the study regarding the various components of the intensive study program and the analysis of their interrelation should be performed.

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MATHEMATICALLY GIFTED ELEMENTARY STUDENTS' PROBLEM SOLVING STRATEGIES: A CASE STUDY

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ABSTRACT

This study presents problem solving strategies and processes of thought of elementary children with respect to nonroutine word problems. The data stem from a university-based course, especially designed to foster gifted children, ages 6-9, through the enrichment of the elementary mathematics curriculum. The presented examples show that mathematically gifted elementary students stand out for a range of high cognitive abilities.

AIM

As a pilot study at the beginning of my doctorate I worked with 12 mathematically gifted and interested elementary students. The aim of this study was to gain knowledge of special qualities of mathematically gifted children. The focus was on their problem solving strategies and processes of thought while working on mathematically challenging problems. Dealing with demanding tasks should moreover promote the children's interest and gifts in mathematics.

SELECTION OF THE CHILDREN

The children were selected by being nominated by their teachers and parents. Some children had high scores in intelligence tests. The children aged 6-9. Most of them were in the second grade of the elementary school. One boy was in the third and another one in the fourth grade.

DESIGN OF INVESTIGATION

In each mathematical session I presented the children a selection of challenging problems which they could solve in teams or on their own. The problems enriche the regular elementary mathematics curriculum. The priorities in the requirements of the mathematical abilities were set up in the way that characteristics of mathematical giftedness could become visible and could be fostered. In my opinion mathematical giftedness could manifest itself in the following characteristics (Käpnick, 1998):
- recognising patterns and formal structures.
- establishing mathematical relationships and hypothesises.
- comprehending complex structures, reducing complex structures.
- ability to transfer recognised mathematical structures.
- reversibility of operations and processes.
- mathematical sensitivity, creativity.
- changing the representation of the problem.

A choice of problems and children's solutions to the problem are presented and explained below.

In the examples 1, 2 and 3 (combinatorial analysis problems) recognising structures and the ability to schematise play an important role. Systematical notation of all possible combinations is a powerful strategy for those combinatorial analysis problems for elementary students. The difficulty is to develop a system to record clearly all possibilities and to know that all possibilities are found actually. Boy Tom distinguishes himself by a systematical action to solve the combinatorial analysis problems. The longer he works on a problem he optimises his strategy to solve it.

Example 1

"Ice cream" (Rasch 2000)

> **Ice cream**
> Simon wants to buy an ice cream with 2 balls. There are 5 different flavours of ice cream: strawberry, vanilla, lemon, kiwi and chocolate. How many possibilities exist for Simon to choose the ice cream? You can write, paint or calculate.

Name: **Tom, 7 years**

Eisaufgabe

Simon möchte ein Eis mit 2 Bällchen kaufen. Der Eisverkäufer hat 5 Sorten Eis: Erdbeere, Vanille, Zitrone, Kiwi und Schokolade.
Wie viele Möglichkeiten hat Simon, das Eis auszuwählen?
Du kannst schreiben, malen oder rechnen.

To solve the "Ice cream" problem Tom systematically combinates all different flavours of ice cream one after the other and writes down all combinations for strawberry, for vanilla etc. He forgets the combination kiwi/chocolate. At the end he adds up the possibilities to choose both balls of the same flavour and he simply writes down 2 strawberry, 2 vanilla etc. He explains his action as follows:
"Once all combinations with strawberry, with vanilla, lemon, kiwi and chocolate." Concerning the combination of two balls of the same flavour Tom explains "there I have made an ice cream double".

This combinatorial analysis problem is rather simple, so a number of children work systematically that way. Sarah and Samuel solve the problem analogously to Tom but they do not consider combining both balls of the same flavour.

Name: Sarah, 7 years

Eisaufgabe

Simon möchte ein Eis mit 2 Bällchen kaufen. Der Eisverkäufer hat 5 Sorten Eis: Erdbeere, Vanille, Zitrone, Kiwi und Schokolade.

Wie viele Möglichkeiten hat Simon, das Eis auszuwählen?

Du kannst schreiben, malen oder rechnen.

Erdbeere, Vanille / Erdbeere, Zitrone / Erdbeere, Kiwi / Erdbeere, Schokolade / Vanille, Zitrone / Vanille, Kiwi / Vanille, Schokolade / Zitrone, Kiwi / Zitrone, Schokolade / Kiwi, Schokolade /

10

Name: Samuel, 9 years

Eisaufgabe

Simon möchte ein Eis mit 2 Bällchen kaufen. Der Eisverkäufer hat 5 Sorten Eis: Erdbeere, Vanille, Zitrone, Kiwi und Schokolade.

Wie viele Möglichkeiten hat Simon, das Eis auszuwählen?

Du kannst schreiben, malen oder rechnen.

Erdbeere, Vanille   Zitrone, Kiwi
Erdbeere, Zitrone   Zitrone, Schoko
Erdbeere, Kiwi
Erdbeere, Schoko   Kiwi, Schoko

Vanille, Zitrone
Vanille, Kiwi
Vanille, Schoko

Name: Julian, 8 years

Eisaufgabe

Simon möchte ein Eis mit 2 Bällchen kaufen. Der Eisverkäufer hat 5 Sorten Eis: Erdbeere, Vanille, Zitrone, Kiwi und Schokolade.

Wie viele Möglichkeiten hat Simon, das Eis auszuwählen?

Du kannst schreiben, malen oder rechnen.

EV   EZ   EK   E Sch
VE   VZ   VK   V Sch
ZE   ZV   ZK   Z Sch
SchE SchV SchZ Sch K
EE   VV   ZZ   Sch Sch

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In addition Julian simplifies the notation by using only the initial letter of each flavour of ice cream in his list (E for strawberry, V for vanilla, Z for lemon, K for kiwi, Sch for chocolate). First he writes down all possible combinations for each flavour except for kiwi. These are 20 possibilities. Then he realises that EV and VE are no different combinations and so he erases all double solutions. As well as Tom did Julian forgets to write down the combination kiwi/chocolate.

Example 2 "Changing seats" (Enzensberger, 1998)

Changing seats

Anna, Ben, Carla and Dennis go to the cinema. There are 4 seats left. The kids could not agree, who should sit next to whom. They test different positions but always one child remains unsatisfied and wishes another order.

Do you know how often the children must change their seats to test all possibilities?

This problem requires a more complex and demanding strategy in order not to forget one possibility. Tom optimises his strategy while working on this problem:

Name: **Tom, 7 years**

Plätze tauschen

Anna, Ben, Carla und Dennis gehen zusammen ins Kino.

Es sind noch genau 4 Plätze frei. Die Kinder können sich nicht einigen, wer neben wem sitzen soll und auf welchen Platz. Sie probieren verschiedene Positionen aus, aber immer ist ein Kind unzufrieden und möchte eine andere Sitzordnung. Weißt Du wie häufig die vier Kinder sich umsetzen müssen, um alle möglichen Sitzordnungen auszuprobieren?

First Tom simplifies the notation by using the initial letters of the children's names (A for Anna, B for Ben, C for Carla, D for Dennis). He starts with A at first position and evaluates the possible combinations for it. The he does the same for B, D and C. While A and B were at first position he still forgets some combinations (ACDB, BDAC und BDCA) which he completes at the end. When D and C were at first position Tom optimizes his system that way that he also switches round the other positions systematically in order to not overlook one combination. Therefore he fixes the second position as long as the third and fourth position are completely transposed.

Tom distinguishes himself by his ability to concentrate and his tenacity in problem solving. He largely works independently and quietly on his own. If necessary he persistently works on a problem. He quickly recognises mathematical relationships and structures and often solves the problem quite rapidly. Finally he clearly presents his solution.

Example 3 **"**Handshake**"** (Enzensberger, 1998)

> **Handshake**
> 12 children meet to do some mathematics.
> They greet and shake hands.
> How many hands are shaken?

This combinatorial analysis problem requires the ability to recognise patterns and structures and to establish mathematical relationships. The children have got to realise three key features of the problem in order to find a solution. Firstly, nobody shakes his own hand. Secondly, exactly two children are involved in one handshake and thirdly no repetitions are allowed. Five girls spontaneously suggest a solution of 12 times 12. Obviously they did not recognise the key features mentioned above. To simplify the problem the girls decrease the number of children from 12 to 5 and study the problem for their group of 5 girls. This time the girls calculate 5 times 4 or 4+4+4+4+4. This calculation shows that each girl shakes four other girl's hands. The girls still do not consider that this solution contains repeated handshakes which becomes obvious in the third solution proposal. Acting the girls discover that repetitions are not be counted and find the correct solution 10=4+3+2+1+0.

Caroline writes down "10 times at our desk" and expresses her idea by 1.4, 2.3, 3.2, 4.1, 5.0. This means that the first child shakes hands 4 times, the second 3 times etc. The number of handshakes decreases by one with each child because repetitions are not be counted. After recognising the mathematical structure of the problem clearly the girls are able to transfer this solution to the demanded larger number of 12 children easily. In the same way they write down 1.11, 2.10, 3.9, 4.8, 5.7, 6.6, 7.5, 8.4, 9.3, 10.2, 11.1, 12.0.

More remarkable is the original style of the solution 1.4, 2.3, 3.2, 4.1, 5.0 and the successful transfer of the problem from 5 children to 12 children.

Example 4 "Triangle numbers" (Käpnick, 1998)

Triangle numbers
The circles in this picture are placed to create triangles.
a) How many circles contains the next triangle?
b) According to which rule are the triangles enlarged step by step?
c) How many circles contains that triangle which consists of 30 circles in the bottom line?
d) What is the sum of the integers from 1 to 30? Explain your solution!
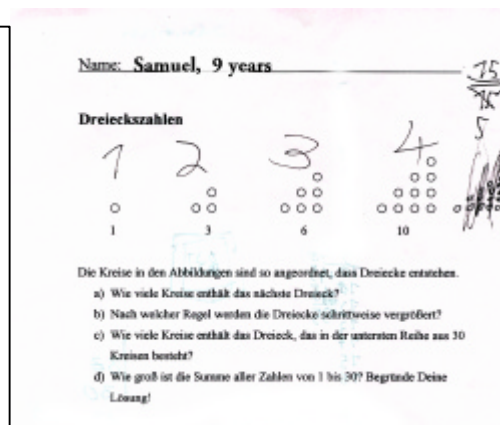
In this example different characteristics of mathematical giftedness could become evident. First the children have got to understand the structure of the triangles. They have to come to realise that the number of circles arises from the sum of the numbers from 1 to the particular number of circles at the bottom line of each triangle. The number of circles added from one triangle to the next increases by one (recognising formal structures, establishing mathematical relationships). Furthermore recognised mathematical structures could be transfered by perceiving that part d) of the task results of part c). In particular inventiveness as a characteristic of giftedness could become visible by adding up the integers 1 to 30. Different original solution strategies are imaginable, e.g. the addition with the Gaussian idea or Samuel's solution explained as follows:
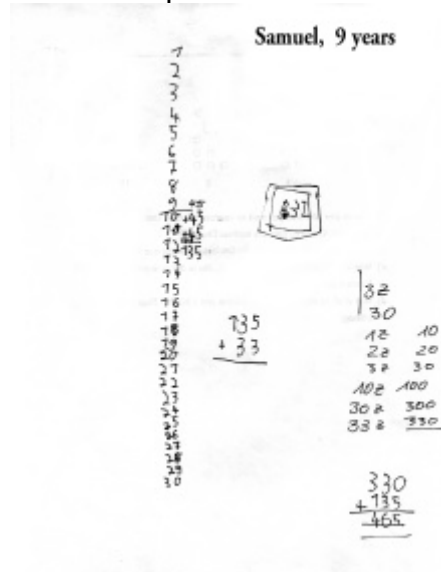
Samuel writes down the integers from 1 to 30 one below the other. Then he first adds up the numbers 1 to 9 and writes down the sum 45. Then he immediately notes that this sum is contained in the sum from 11 to 19 and in the sum from 21 to 29. He adds up 45+45+45=135. Then he counts the tens and writes down correctly its number, namely 33. In a first attempt he adds 33 to 135 but when asked about it Samuel recognises that 33 counts the tens and he obtains the correct result 330 +135 = 465.

Samuel is a typical example of an underachiever. His results in mathematics at school are quite bad. As a typical reaction when being confronted with mathematically challenging problems he refuses to deal with it: "I can't do this". After repeated words of encouragement Samuel usually finds adequate solutions with original ideas inside.

RÉSUMÉ

In summary these selected examples showed that mathematically gifted elementary students stand out for

- working systematically and searching for solutions.
- recognising formal structures and mathematical relationships describing these formal structures.
- adequate simplifications of the problem (reducing complex structures).
- the ability to transfer recognised structures and solutions.
- originality and creativity in the solution process.

Further solutions and observations in the pilot study confirm these results. However, individual abilities of mathematically gifted children should also be taken into consideration as seen in Tom's and Samuel's case. The different characteristics of mathematical giftedness appear individually pronounced and require an individual support.

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GIFTED PROGRAMMING ON A SHOESTRING

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ABSTRACT

Every community or ethnic group has its own bright stars. Consequently, one would expect that programming for Gifted and Talented students is found in every High School. Unfortunately, this is far from the reality. Very often, the excuse for this dearth of programming is financial. This paper discusses how to identify the right students, address their needs, and establish and run a valid programme as economically as possible. Strategies for setting up the programme, utilising community resources and evaluating students and the programme are proffered. This is a "luxury" no community can afford to forgo.

INTRODUCTION

Every community has its own bright stars. In fact, there exists no ethnic group where the variety of intellects is not as varied as its counterpart anywhere else in the world. So when we think of inner-city populations, economically depressed areas, ghettos, native reserves, isolated communities, affluent neighbourhoods, and so on, of one thing we can be certain: the variation of intelligence, aptitude for the arts and sports, talent in arts and crafts, and inventiveness is the same everywhere. Therefore in order to give equal opportunities to all children we have to start programming for those higher ability students in all schools.

The political, social, business, and religious leaders of tomorrow will come from today's students. How can any self-respecting community deny the right that its own leaders come from among its own? Colonialism has long kept native people in subjugation simply by denying the development of local talent and supplying all kinds of leadership from the conquering nation or from the very few land owning inhabitants. It is high time that this situation is rectified.

Special education is no new term; however, when one speaks of Special Education one always thinks of students who are academically, mentally, or physically challenged in some way. We hardly ever think of students of higher abilities as students in need of Special Education resources. Now, granted those academically, mentally, or physically challenged pull at your heart strings and those of higher abilities seem to be able to thrive on their own; but experience has shown us that for every Einstein (who was told by his teachers that he would

never amount to anything) there are at least ten other possible Einstein who never realise their potential because they never find anyone to nurture them. In a world that, in spite of the great wealth and advances that have been made, is always complaining that there is never enough to go around, how can we find the necessary moneys to be able to cater for the Higher Ability Students in our communities?

The High School Enrichment/Gifted Programme that is envisaged in this paper will be able to address the needs of students with academic High Abilities and great problem solving and creative skills. In order for this programme to succeed the full cooperation of all: school administration, teachers, guidance officers, librarians, resource personnel, the parents and the community, is needed. Each of the above-mentioned plays an integral part in the creation of an excellent Gifted/Enrichment programme for students of High Ability.

This paper, the end product of six years of introducing and developing a Gifted/Enrichment programme in a High School on a very limited budget, will deal with the generalities of how to go about establishing such a programme.

THE FACILITATOR

Although every member of the school staff and from the community needs to be involved to make the programme work, for the programme to originate and run smoothly there has to be a facilitator.

The **Facilitator** needs to have the following attributes:
1.   High energy level: The facilitator is the lynchpin of the whole programme.
2.   A thick skin: Has to take both constructive or destructive criticism and then use or discard the comments as s/he deems fit.
3.   Preparedness to make personal sacrifices: especially the use of personal time.
4.   'Networking' savvy: Being able to find the best opportunities and the right people to actuate them.
5.   Flexibility: In time, ideas, opinions, and the ability to work with various people.
6.   Humility: The idea of "the teacher knows all" has to be abandoned and the facilitator has to be ready to admit it.
7.   Guidance Background: Academic and personal counseling are much needed in this environment.
8.   Sense of Humour – Working with teenagers is very often stressful, to say the least. A touch of humour will go a long way to alleviate any tense or charged situation.

The facilitator's job is to facilitate opportunities of learning for students and finding ways and means (monetary or otherwise) to actuate them. So every facilitator has to be alert all the time for new opportunities so that when students demonstrate a particular area of interest s/he will be able to accommodate their requests.

HIGH ABILITY STUDENTS – WHO ARE THEY?

Let us first consider the words "high ability". High Ability indicates a comparison. If this Programme is to be successful we should not shy away from the words High Ability. We are doing no disservice to egalitarianism or democracy by providing the right challenges and the right education to the appropriate students. Feeding a lion and a mouse the same quality and quantity of food is not only inappropriate but it could be downright harmful. In a democracy, fairness does not equate with providing the same education to all students, but with providing the right type of education and opportunities to each student.

CHOOSING STUDENTS FOR THE PROGRAMME

The main criterion for choosing students in the fourteen-to-eighteen age group should be MOTIVATION. Assessing true internal motivation is not an easy task; however, the method described here is working very well in the 36 High Schools that have adopted it.

In this age group, good teachers are the best predictors of success in school. Teachers see students on a daily basis in their classes and can easily judge who are the bright lights in the class and who can handle and are motivated to handle much more than the classroom can offer. A request from the facilitator to the Grade 9 and 10 teachers to nominate students for an Enrichment/Gifted Programme will surely bring in an avalanche of nominations. It is of no use to try and compare students from one area to an imaginary level of High Ability or even, for that matter, a real level that appertains to a different socio-economic area. Thus, simply subjecting students to I.Q. tests will not work, besides it being grossly non-cost effective.

When the nominations are received the facilitator will have to sort the students into the ones who are just teacher pleasers and the ones who really want to go beyond, and can handle work more than the curriculum offers. Choosing the students who have more than one nomination can achieve this objective since that would indicate that that student has potential in different areas of the curriculum.

The next hurdle is to choose the students who are really interested in widening their horizons and not simply want to get excellent marks on their report card. This can be achieved by asking the students to work on an independent project within a well-determined timeline. The students who are really motivated and want to achieve and to work in such a highly charged programme will surely do their best to produce results within the assigned parameters. The projects assigned should not be an extension of the regular schoolwork, but on topics of the students' choices that are different from what is being taught in the classroom. Such a project will also test the students' research and presentation skills.

If more objective data is required, standardised group achievement tests, such as the Canadian Cognitive Abilities Test (CCAT), should be enough to pick the right students for the programme.

ACCOMMODATION

It is of utmost importance that these students, who will be working on projects for the most part independently, meet one another on a regular basis. Hence, a classroom, rather than an office for the facilitator, has to be provided for this project. The classroom/meeting room/office has to be open and accessible to the students all day. This room should be the focal point of the students' activities. It should not be reserved only for students in the programme but it should be open to their friends and to anyone who shares the same ideas and activities of the higher ability students. Thus this room will not be for the exclusive use of the higher ability students, but, of course, it is expected that those who make use of the facilities have a legitimate claim to being in this room.

When students learn to utilise the room fully, it will become the centre for discussion, research, homework help, and anything else that these students need. Consequently this room should be furnished with computers, Internet access, a resource centre for University information or tertiary educational institutes, scholarship information, etc. The facilitator should be available to the students at all times of the day, so that when the students need to discuss problems about their academic, social or private life they find a ready listener.

Since these students will regularly need academic counselling, and very often hand time-tabling to address needs and abilities, it would be an asset if the facilitator's computer had a link-up with Student Services. This would save time in the long run for when changes need to be made to a student's timetable it could be done instantaneously after discussion with the facilitator.

TYPE OF PROGRAMME

The next point to consider is whether or not this programme is going to be one for academic enrichment, leadership, athletic, or talent enrichment or a combination of all four. A combination of all four with special emphasis on academics, leadership skills, and problem-solving and creativity skills is, in my opinion, the most needed in High Schools today. Athletic prowess is certainly nurtured in High Schools all over North America and other talents such as artistic and musical skills are usually taken care of by the Music and Fine Arts Department, where they exist. However, academic, leadership, and problem-solving and creativity skills programmes are mostly found in schools that are specifically for gifted students. Again, these schools usually cater for a minimum of students, at best the top two per cent of the population. What about the other three percent or for that matter the other seven percent of highly motivated students who are constantly raking in As in their work and who deserve as much chance at Enrichment as those who had been identified as Gifted on the strength of their superior IQ when they were 8 – 10 years old and nothing else?

PROGRAMME

The programme offered needs only be limited by the students' imagination. So what programme can be offered to these high ability students? That depends on the student's own inclinations and, of course, availability of programmes, though I feel that with a little bit of hard work and research all students' needs can be easily accommodated.

The facilitator has to make sure that s/he is aware of what is happening in the school and in the community and that all the other staff in the school are ready to share programmes and possibilities with the facilitator. All notices of lectures, competitions, courses, etc., should be passed on to the facilitator of the Higher Ability Students. This is done not to hog or keep all opportunities for these students only but to make sure that the students in that select circle know about these opportunities.

WHERE TO FIND PROGRAMMES OR SUITABLE HELP FOR THE STUDENTS

1. Universities or Colleges: Many universities or colleges are eager to offer programmes to attract High Ability Students to their institutions. They are ready to pay for and provide expertise through their academic staff, such as mentorship or co-op opportunities, as well as facilities to hold seminars, meetings, and conferences, either free of charge or for a nominal amount.

2.   If you happen to live far from the campus, e-mail could be an excellent tool for students to communicate with these professors/lecturers.

3.   Your own staff members: Many staff members have expertise that is very different from their area of specialisation. Some of these individuals would rather mentor students in the areas of hobbies than in the regular subject they teach.

4.   Members of the community: In this category I would include not only parents and relatives but also local business owners, craftsmen or professionals. The local doctor or psychiatrist would willingly oblige to give a lecture about child nutrition or teenage mental health. As well, local small businesses could be good placement for co-op students. Students are more likely to learn what they want to learn from a small firm.

5.   Local Seniors' Associations and Service Clubs: Very fertile ground for mentors and fundraising. Furthermore, these clubs usually organise public speaking events, essay and art competitions, Youth Recognition celebrations, etc. which are easily accessible by students and schools.

6.   University-run competitions and contests, for example computer programming, math, essay, poetry competitions.

7.   Publishing companies and newspapers often sponsor book writing or story writing contests.

8.   Professional Teachers Associations.

9.   Local Board Contests e.g. Science Fair, W5H, etc.

10.   Local, Provincial, National, or International organisations, e.g. Destination Imagination, Duke of Edinburgh Awards, Debating Associations, etc.

11.   College Board, Advanced Placement Courses and exams.

        The list can be endless. Use your powers of observation and resourcefulness.

STRUCTURE OF PROGRAMME

At the beginning of the scholastic year, a letter should be sent home to welcome students, inform their parents of the programme, and invite them to attend an information meeting early in the school year. During this information meeting the parents are informed of some of the opportunities that are available to the students as well as of other salient points of the programme, such as the date of the publication of the monthly newsletter or when to expect a report on the students' participation in the programme or the Individual Education Plan.

During the first week of the new scholastic year it is imperative to set the right tone for the whole programme by inviting all the students to a meeting. This could take the form of a social activity, for example a breakfast or a pizza lunch. Here the younger students meet the older students and see for themselves that being in an elite academic group is not going to destine anybody for the geek parade. It is important that all students attend, especially those who participate in other activities besides academic ones, for instance, students in leadership

positions or on school teams. These students give credibility to the programme. Those who are hesitant to join because of social or peer pressure will realise that this programme is not only for *nerds.*

Next an individual interview with the facilitator, where the student will plan his/her activities for the coming scholastic year, is mandatory. The students, with the help of the facilitator, will identify the areas of their personality or academic life that they would like to enhance. For instance, a student who realises that s/he does not have enough leadership experience may want to dedicate that particular year to find opportunities to develop leadership skills. Others may want to beef up their resume in independent study or volunteer work in the community. Whatever the decision, an Individual Education Plan is prepared together with the student. This IEP should be duly signed by the facilitator, the student, the parents of the student, the principal, as well as the primary resource person for that particular programme.

Another crucial time to meet with each individual student is during course selection time. Students as early as Grade 9 should make a plan for their whole High School career. It is very desirable that they know where they are going academically rather than take courses simply at whim. This does not mean that students should be close-minded and take only the subjects that are prerequisite for their further studies. That is where an Enrichment programme can be very useful. Creative programming for students, like for instance pre-testing, can easily give students big chunks of time that they can devote to something that they really like. By learning to juggle their time students acquire skills, like time-management and work habits, that they wouldn't have acquired if all they did was breeze through their high school careers and nothing else.

Show And Tell Day' or Conference Day happens towards the end of the scholastic year. This day should be noted in the school calendar well in advance so that no other activity will prevent students from attending. The event should take place outside of the school, say in a nearby College or University. The activities on this day would include a speaker of the students' choice, if possible, and the rest of the time be devoted to the students speaking about the projects they have worked at during the year. In this way the students who have done worthwhile research or acquired some new skill will have a ready audience and the others will get ideas about what they would like to do the following year as well.

EVALUATION

The student should be evaluated at least twice during the year and the IEP will form the basis of discussion. The facilitator and the student will meet more than twice during the year, in fact it is recommended that anybody who has

an IEP should have a follow-up meeting with the facilitator at least once every two weeks. The frequent meetings need not be very formal and need not take more than a few minutes especially if the student during the course of the two weeks had made use of the facility of the room assigned to the group. Informal discussions with the facilitator can occur at any time. Here it is important to remark that the facilitator should keep a log about each student about the times that s/he has had contact with the student. This will help when reporting time comes along and at parents' meetings.

AFFECTIVE DEVELOPMENT

One very important aspect that the facilitator should devote time to is the affective development of these students. Many of the Higher Ability Students have problems with accepting who they are and being comfortable with having higher abilities. Discussion groups and individual counselling should form part of the programme. Without this the programme will not be successful. Many of these students are very sensitive and others do not know how to handle failure or what they perceive as failure. All these areas need to be addressed. As well, some of these students have more serious problems and the facilitator should be the means through which these students get the help they need.

MEDIATION

Many educators, unfortunately, cannot identify with Higher Ability Students and think that these students have it made. These individuals could do a lot of harm to these students and it is the facilitators' responsibility to intervene and try to find a middle ground between the parties. One very common battleground is that of marks. These students usually are very mark conscious. They know that they are capable of getting the top marks and at the same time they have so many other interests that they cannot be bothered with little details that some teachers seem to expect of their students. Unfortunately, sometimes what a teacher feels is important is of very little importance to these students. We have to make an effort to understand these individuals if we do not want to alienate them from the whole experience of education.

COMMUNICATION

Communication is the key to any successful endeavour. When we speak of communication in this context we speak of communication not only with students but also with parents, colleagues, administration, and the general

public. Of course, this can be a very tricky area. How can a facilitator reach the students when there is no provision on the timetable for anything resembling an Enrichment time-slot?

First of all the whole student's timetable should be looked at and examined to see whether or not there are spares on the student's timetable. If so that spare should be renamed "Enrichment" or whatever the programme is called. Next, the facilitator should make it a point that s/he is available for some time before and after school. This is to accommodate students who are very conscientious and who do not want to miss one minute of their classes. In addition, the facilitator should make it a point to schedule his/her lunch hour outside of the usual lunch hours. Many students would prefer to contact the facilitator at this time.

Publishing a monthly newsletter to cover all that happens during the month is a great means whereby the students, parents, and staff are made aware of what programmes or opportunities are available without having to contact the facilitator. The newsletter could even be a forum for student discussions, etc. and could be one of the activities that those interested in a career in journalism may opt to do.

Another means of highlighting activities is through the use of a prominently placed Bulletin Board. This in time should become the responsibility of the students.

With Parents

As has already been mentioned there should be a meeting with parents early in the scholastic year. Anecdotal reports about the students' participation, or lack thereof, in the programme should be sent to the parents at least twice a year, in January or early February and at the end of the school year. The parents should not hear about their son's/daughter's lack of participation in such a worthwhile programme at the end of the year when they are unable to do anything about it.

Other opportunities for meeting with parents are the Teacher/Parent Nights organised by the School as well as the Review Meeting towards the end of each scholastic year. Yearly formal reviews, though not mandated by Ministry, should happen for any student participating in any special programme, be it athletic or academic. Both student and the parents/guardians should be in attendance as well as the Board Coordinator of such programmes. During this review the student will be asked to articulate his/her aspirations and recommendations will be made as to what route to take to realise these dreams. Paperwork should be kept to a minimum at these meetings.

With Staff

Teachers are usually eager to know how students in their classes are doing in other areas of their curriculum. As well, the facilitator should know how the students are performing in their regular classes. However, due to many commitments formal meetings with teachers are at a premium. Thus the facilitator should take the opportunity to inquire about students' progress while walking to class with that particular teacher, or over a cup of coffee, or during hall duty. The possibilities are endless; but, in my experience, the less teachers are asked to handle paper work the more cooperative they become and the better the working relationship.

With Administration

The facilitator should discuss with the principal any credits that should be awarded for Independent Studies. It is the principal's prerogative to award credits and therefore his/her power should not be usurped. Discussions as to what the principal is ready to accept and sign for should be held beforehand so that there is no miscommunication and no empty promises.

CONCLUSION

The above is the result of six years of work in a High School where the pre-existing programme was very small and hardly functional. With the above-mentioned efforts the programme grew to embrace 130 students (a growth of 1600%) in five years. About half of the 130 students were identified by the process described in this document and at the end of the fifth year the original students who graduated that year received more than $100,000 in University scholarships both from Canada and the United States.

The school's reputation (the school was only in its third year of existence at the beginning of this project and was situated in an 'inner city' type area) of high academic standards grew and thus a better calibre of students, who would normally rather travel to an old established school, were attracted to the 'new' school.

The students in the programme were a good representation of the various ethnic populations in the school and the programme acquired the reputation of fairness and equity. Athletes, future scientists, doctors, lawyers, social workers, teachers, clergy, etc., shared the same space, ideas, hopes and fears in "Room 135".

HIGHLIGHTS PROJECT MAJOR CHARACTERISTICS OF GIFTED STUDENTS IN RIO DE JANEIRO, BRAZIL

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" Poets, thinkers, inventors, artists and scientists have demonstrated their intelligence as a mixture of diverse components acting together in the development of a process or a product. In spite of the fact that every man is a singular human being, we have to consider this man in the context of his social, psychological, artistic and affective characteristics, perhaps, the most complex dimension of the human being, and only seeing it in a global way, we will be able to understand its plural dimensions and expressions. The act of creating, learning and feeling are different expressions of human intelligence, since it is possible to the man to express his intelligence in several ways. He is able to create, to perceive and to know what he creates (cognition) and to feel emotion about emotions".

(Behind the Curtains of Intelligence, Mettrau, 1998, p. 63)

ABSTRACT

This project was the first enrichment program developed in Rio de Janeiro, Brazil, from 1988 until 1999, according to the conception of inclusion of individual differences that are recognized and contemplated by Brazilian Educational Law. The project started to be performed at a school class, as if it were an extra-curricular activity.

The first goal of this project consisted in performing an original continuous enrichment program, at a Brazilian Elementary and High School in Rio de Janeiro, which permitted to collect data, that made possible to study gifted/talented Brazilian students profile, during the period above mentioned.

HIGHLIGHTS PROJECT

It was decided to develop this project, according to the perspective of inclusion, proposed by the Brazilian Educational Law (LDB 9.394/96, Article 59, III) based on the conception of the "Special Education and Needs of Individual Differences," to perform this task.

All the activities were developed in regular classes. In addition to this , extra-class activities were performed, such as visiting National Library, Museums, Theaters, School of Music, etc. Many others were opened to receive members of community and parents, to contribute with their working and personal experiences as citizens.

A guiding line methodology was chosen to develop this project It consisted in some creative, ludicrous, and non-academic activities, to make them different from classroom tasks.

It was decided to use strategies called *learning to think,* which was based in " The Core Thinking," methodology (De Bono, Cambridge, 1973). It consisted in using ten monograms, according to specific tools to work with.

The mentioned *tools* provided a great intellectual development of divergent thought (De Bono, idem), as long as they're considered the best support to the growth of logical argumentation, creativity, and independence to solve problems. These tools led the students to choose different and expressive alternatives, such as gesture, plastic, written, and many other forms.

Teachers and parents were elucidated about the performed methodology, in order to understand the necessity of the improvement of students to express explicit and non-explicit abilities.

Members of technical staff that integrated this project, and the Princesa Isabel School's Principal together, they decided to start performing the program, selecting each year, two groups of fifteen students that were ten years old, for many reasons: First of all, it was possible to evaluate four consecutive years of academic background of the students. Second, at Fourth Grade, students started attending classes of Math, Science, Portuguese Language, Social Studies, etc., with a different teacher for each of these disciplines. The third reason is attributed to the facility the staff would face, considering the possibility of following these students during seven full years. The last year of attending program would coincide with the students` admission to the university, or labor market, and also to the conclusion of High School studies.

A specialist mediator attended groups of fifteen students, approximately, and suggested solving problems and situations to be worked with, while the observer specialist registered the reaction of students and all the procedure done by the mediator. If it were necessary the observer intervened as a third part, by aiding the mediator to perform the activities.

All procedure of selecting instruments were applied collectively and simultaneously, because there was a reduced number of staff members (two psychologists and two teachers).

It was selected the Progressive Matrices of Raven test (General Scale) presenting percentile above 95. According to international research, the test above mentioned has presented good results, as long as it uses figures, and avoids to use words to explain and interpret commands and tasks.

A second used instrument was a *checking list* based on Mae Segoe (1976)[1] procedure. The teachers of HIGHLIGHTS gifted/talented students fulfilled it. These students might be distinguished, not only in academic performance, but also in non-academic activities.

In order to obtain data from parents, the technical staff elaborated the third instrument. The fourth one was a kind of test nominated MM- *Minhas Mãos* (My Hands) that was created by Helena Antipoff (1975)[2], was adapted and validated to the Brazilian reality, considering *verbal fluency* and *creative aspects* students produced in their texts.

The fifth and last instrument were the students` academic records. This document has been taken as a significant instrument to guide future tasks that would be developed with these individuals.

The activities developed with students usually took one hour per week. It was very important to regard students' emotional, social, cognitive and creative responses.

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[1] **MEC**- MINISTÉRIO DE EDUCAÇÃO E CULTURA (National Board of Education)
 CENESP - CENTRO NACIONAL DE EDUCAÇÃO ESPECIAL (National Center of Special Education) - 1976
[2] LARROUSE CULTURAL ENCYCLOPEDIA - A notorious Russian educator that was naturalized Brazilian. (1892-1975). SP, Brazil, 1988, p. 342

The *HIGHLIGHTS Project* was accomplished until the end of 1999. It allowed the researchers, not only to develop a longitudinal study, by taking students` qualitative and quantitative data, but also to consider gender percentage.

The performing methodology was based in the Action Research, with Ethnographic approach; it permitted interfering procedure, during the obtainment of results.

From the Triadic Giftedness Model of Renzulli & Mönks, (1978, 1992) it resulted that, in order to identify a gifted / talented student, it was necessary that he/she present a set of three characteristics acting simultaneously, which are: ***above average ability, task commitment*** and ***creativity***. It is important to emphasize that none of these characteristics alone identifies a gifted / talented student and also shows the significant influence that school, family and peers play on the recognition and development of the expression of potentialities.

During the performed project, the intersection of three rings was the technical staff main goal; however, these three characteristics may not be presented during the students` attendance. It does not mean they won`t be expressed any time in their lives.

TRIADIC MODEL OF GIFTNESS/TALENT OF RENZULLI & MÖNKS (1992)
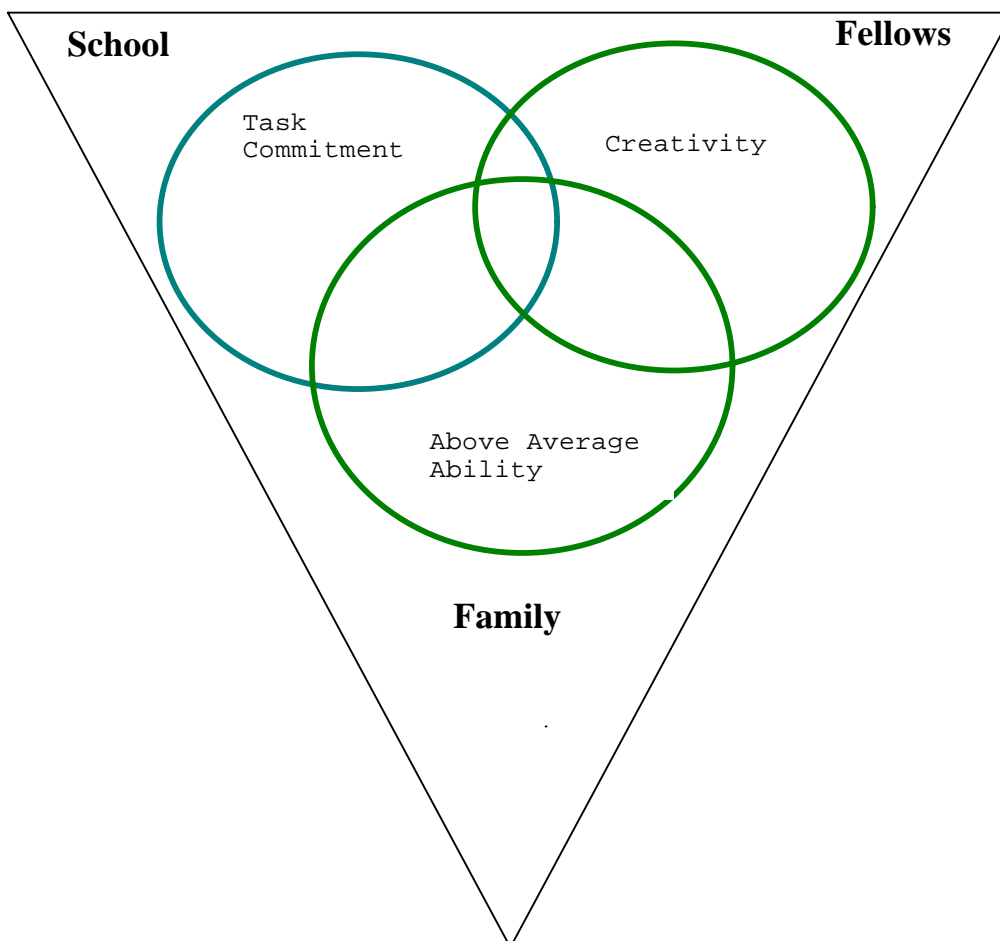
Reference: Benito Mate, Yolanda. *Inteligencia y Algunos Factores de Personalidad en Superdotados.* Amaru Ediciones, 1997.

During this project, it was attended one hundred and sixty three students, eighty-one girls, and eighty-two boys, about ten and fifteen years old.

On the following page it will be presented students` areas of interest:

OBSERVED AREAS OF INTERESTS

SPORTS	DRAWING	COLLECTION OF INTERESTING OBJECTS
FOREIGN LANGUAGE	MUSEUM	SOCIAL PROBLEMS
LOGICAL GAMES	DANCING	STAGE DECORATION
MUSIC	PLASTIC ARTS	POLITICS
WRITING EXPRESSION	COMPUTING	MECHANICS
ACADEMIC DISCIPLINES	ENVIRONMENT PROBLEMS	PUBLICITY AND ECONOMICS
READING	HANDMADE WORKS	BIOLOGY

Source: *Interesting Inventory and Personal Characteristics.* This data was fulfilled by students and elaborated by technical staff.

ALL STUDENTS` AREAS OF INTEREST INDEPENDENT OF GENDER

> ➢ Logical Games (78,6%)
>
> ➢ Other relevant areas:
>
> • Foreign Language (71,4%)
> • Reading (71,4%)
> • Sports (64,3%)
> • Writing Expression (57,1%)
> • Academic Disciplines (57,1%)

Observation: The great majority of attending program students presented academic scores above average; in spite of the percentile (57,1%) do not indicate. In fact, they were HIGHLIGHTS students.

INTERNATIONAL AND NATIONAL CHARACTERISTICS OF GIFTEDNESS/TALENT, VERIFIED IN BRAZILIAN STUDENTS

Aptitude To Learn Interesting Subjects	Multiplicity of Interest
Curiosity	Initiative to Solve Problems
Self Criticism	Excellent Memory
Ability to Analise Reality	Sensibility to Social Problems
Search for Excellence	Sense of Humor
Critique about other People`Attitude	Ability to Speak
Aptitude To Learn General Subjects	Maturity for Judging
Enjoyment and Acceptance of Challenge	Leadership
Independent Thoughts	Preference for Older Fellows
Enjoyment of Creative Activities	Indifference to the Routinization of Activities
Original Thoughts and Actions	

Source: Parents fulfilled Questinary, Personal Characteristics of an Interest Inventory, Checking Cumulative Data Card, and Fulfillment Observation Data Card created by Technical Staff.

LIST OF INTERESTS AND PERSONAL CHARACTERISTICS OF THE STUDENTS – CUMULATIVE

**YEAR:
___/___/___**

Dear student

This questionary will help us to know you better. Please, answer it carefully, and try to figure out possible changes that have happened to you, since you started attending the program.

1.Name: _____

2. Students Personal Characteristics:

Mark the more intense, remarkable, and frequent characteristics below:

❑ Curiosity	❑ Flexible Though
❑ Enjoyment and Acceptance for Challenge	❑ Ability to Speak
❑ Independent Thoughts	❑ Non-verbal Expression Manifestation
❑ Maturity for Judging	❑ Excelent Memory
❑ Original Thoughts and Actions	❑ Divergent Though
❑ Self-Criticism	❑ Reflexive Though
❑ Search for Excellence	❑ Timidness
❑ Enjoyment of Creative Activities	❑ Expansivity
❑ Indifferent to Daily Activities	❑ Persistent Interests
❑ Sense of Humor	❑ Responsibility
❑ Multiplicity of Interests	❑ Stability/Emotional Control
❑ Initiative to Solve Problems	❑ Easy to be on Good Relations with Anyone
❑ Leadership	❑ Enjoyment to be in Evidence
❑ Preference for Older Fellows	❑ High Self-esteem
❑ Sensibility to Social Problems	❑ Low Self-esteem
❑ Aptitude to Learn Interesting Subjects	❑ Regardless Attitudes
❑ Aptitude to Learn General Subject	❑ Sensibility
❑ Ability to Analise Reality	❑ Exhibitionism
	❑ Task Commitment
	❑ Others:_____

2. PERSONAL INTERESTS

2.1 If you are HIGHLIGHT in any specific area, such as Music, Sports, Science, etc, write in a few words about your performance. It is important to give us some information about your coach, if you have one.

_____
_____

2.2 Fulfill the chart below. Mark the column that better express your level of interest, and your involvement with the tasks, during the project.

	KIND OF INVOLVEMENT				
	LIKE			DISLIKE	
AREAS OF INTEREST OR ACTIVITIES	1. But he/she does not want to dedicate to it	2. And he/she dedicates to the task	3. And he/she wants to dedicate to it, but has no time or cannot do it	4. And he/she doesn't do it	5. And he/she does it by obligation
Foreign Language					
Reading					
Writing Expression					
Drawing					
Painting					
Sculpture					
Dramatic Arts					
Music					
Handmade					

Work				
Sports				
Politics				
Economics				
Academic Disciplines				
Collection of Interesting Objects				
Games				
Ecology				
Mechanics				
Informatics				
Electronics				
Museum				
Astronomy				
Esotericism				
Religions				
Other				

2.3 Specify which are the activities you usually practice, and where:

_____
_____

2.4 If you fulfilled the column three, please, try to explain your reasons:

_____
_____

2.5 What kind of career are you preparing for?

_____
_____

LIST OF CHARACTERISTICS

CURIOSITY	Desire to check, to know, to discover. She/he is always making questions, arguing about facts of life.
CHALLENGE	He/she likes to be challenged, appreciating new and different situations.
INDEPENDENT THOUGHT	Ability to reflection, to give his/her opinion.
MATURITY FOR JUDGEMENT	Demonstration of maturity above his/her age, when expressing ideas about facts of life.
ORIGINAL THOUGHTS AND ACTIONS	Ability to elaborate new ideas completely different from the ones other people present.
CRITIQUE ABOUT HIMSELF/HERSELF AND OTHER PEOPLE`S ATTITUDE	Ability to question and evaluate himself/herself and others, being aware of his/her limits.

SEARCH FOR EXCELLENCE	Tendency to search for quality and excellence when performing tasks.
ENJOYMENT FOR CRIATIVE ACTIVITIES	Interest to develop activities, which will express his/her abilities.
INDIFERENCE TO ROUTINIZATION OF ACTIVITIES	Refuse to take part on habitual and mechanical daily activities. Loss of motivation when he/she is submitted to routinization.
SENSE OF HUMOUR	Ability to perceive, appreciates, or expresses comical situations.
MULTIPLICITY OF INTERESTS	Concomitant interest in different areas of knowledge or performance
INITIATIVE TO SOLVE PROBLEMS	Natural and energetic inclination to be the first to conceive ideas and put them into practice.
LEADERSHIP	Ability to instill goal congruence
PREFERENCE FOR OLDER FELLOWS	Search for friendship with older friends.
SENSIBILITY TO SOCIAL PROBLEMS	Mobilize himself/herself and other people in order to interfere or solve social problems.
LEARNING ABILITY	Recognition of relations between facts and symbolic meanings in different areas of knowledge
ABILITY TO ANALISE REALITY	Ability to analyse people`s attitudes and surrounding reality
FLEXIBLE THOUGHT	Ability to change his/her point of view in face of new ideas, being open mind.
ABILITY TO SPEAK	Fluency to express himself/herself clearly, by using sorted vocabulary.
NON-VERBAL EXPRESSION MANIFESTATION	Ability to communicate clearly and easily by using written symbols, images, sounds, and gestures.
EXCELLENT MEMORY	Ability to memorize, not only collected information from reading material and facts of life, but also to remember experienced situations, in order to guide future actions.
DIVERGENT THOUGHT	Ability to produce divergent thought that is completely disconnected from logical and previous sequence. Proficiency to elaborate creative and forehanded alternative to solve problems.
REFLEXIVE THOUGHT	Ability to make reflections about himself/herself attitudes and to examine all the elements presented in a specific situation or idea.
TIMIDNESS	Shyness to expose his/her feelings or ideas.
EXPANSIVITY	Enthusiastic, open and communicative behavior.
PERSISTENT INTERESTS	Perseverance and constancy in specific areas of interest, which he/she intends to learn in a deep way.
RESPONSIBILITY	Take to himself/herself responsibility for problem solving.

STABILITY/EMOTIONAL CONTROL	Ability to deal with frustration and to express his/her emotions in a previous way.
PERSONAL RELATIONSHIP INTERACTION	Ability to establish good relationship with different people in different situations.
ENJOYMENT TO BE IN EVIDENCE	Enjoyment to be recognized and valorized for his/her expressed ideas.
SELF-ESTEEM	Valorization and feeling of self-respect.
REGARDLESS ATTITUDES	Difficulty to concentrate attention in his/her own activities.
SENSIBILITY	Ability to analyze surrounding reality, in order to react to external stimuli.
EXHIBITIONISM	Presentation of show-up behavior, conducting himself/herself with attitudes that are exacerbated, inadequate, and dissonant to the group.
TASK COMMITMENT	This is an observable behavior that demonstrates expressive interest, motivation, and personal endeavor to tasks in different areas.
EMOTIONAL MATURITY	Development of psychosocial behavior, in special the ability to ponder and consider situations, according to his/her age, or upper it.

DISCUSSION

More than 50% of the students, as well as the majority of parents (71,4%) observed positive changes in themselves, such as enhancement in the communication of 85% of the characteristics under evaluation.

The topics that were analyzed involved cognitive, socio-affective and creative aspects of the gifted and talented. It was, therefore, obtained a strong indication of the positive influence of the Program.

We also had the clear perception that the triadic model employed (Renzulli & Mönks) revealed itself as perfect to the understanding of the potentialities of the assisted students, as well as very easy to explain both to teachers and parents. It was also observed that in the cases in which family members were supportive, there was a greater development and acceptance of each one's capacities.

It was observed that criticism towards the school was a constant, however, not in disdain to the school but as a *claim* for better *interpersonal relations*, new procedures aiming at the enrichment of subject content as well as to the teaching-learning process.

Therefore, considering characteristics of gifted/talented students, it was shown that in general and respected cultural differences, the gifted/talented students observed in this study presented similar characteristics to those listed in international bibliography.

The project, acting as an enrichment program, offers activities in the social, emotional, cognitive and creative areas, respecting internal and external relations with friends, family, school, and other broader realms of social exchange. In this perspective, the adopted methodology was considered excellent.

RESULTS: POSITIVE CHANGES OBSERVED IN 60% OF THE STUDENTS AMONG THE CHARACTERISTICS LISTED IN THE RESPECTIVE CARD

Characteristics	Students	Parents
Independent thought	79,2%	87,5%
Mature judgements	83,3%	83,3%
Original thought/action	68,7%	60,4%
Critical thought	79,2%	85,4%
Search for high standards	68,7%	64,6%
Taste for creative activities	70,8%	66,7%
Sense of humor	64,6%	64,6%
Initiative	60,4%	64,6%
Observation skills	68,7%	64,6%
Oral communication	70,8%	70,8%
Divergent thought	64,6%	68,7%
Persistence in interests	64,6%	60,4%
Responsibility	70,8%	72,9%
Stability/Emotional control	60,4%	60,4%
Relation with family	62,5%	75,0%
Relation with friends	72,9%	83,3%
Personal maturity	83,3%	89,6%

Grouping the percentuals above listed in ranges of (60% to 69%), (70% to 79%) and (80% to 90%), we obtain the following results:

a) *In 57% of the cases (12 out of 21), students and parents evaluation of positive progress fell within the same range;*
b) *When students and parents evaluations were in different ranges (43% of the cases – 9 out of 21), in 80% of these cases students' evaluations were in an inferior range than parents' evaluations.*

From this picture we can conclude that students and parents evaluations were mostly distributed in accordance and that, when this was not the case, students were stricter than parents in their evaluations. This attitude reflects and conforms the strong self-criticism gifted and talented subjects possess.

ENRICHMENT PROGRAM

DEVELOPS

Sense of humor

Leadership

) CH[LE

Consensus   Obser   *Planning*

Divergent thought

Initiative

Verbal and not verbal expression

Critical sense

Independent Thought

The World of Information: Opportunities and Challenges for the gifted and talented

GOALS AND RESULTS STUDENTS' STATEMENTS

"The Project helps me to grow as a person."

"It stimulates a better social life."

"I perceive my changes and personal maturing."

"The activities are fun and I observe my sense of humor and of my mates much better."

"My parents think that this Project should be part of regular class curriculum."

"We can talk about what we think (all ideas are valid and shared)."

"We learn to respect each other."

"We make new discoveries and new friends *alike* us."

"We use our discoveries in our everyday life and learn how to control our own life."

"GOALS AND RESULTS"

Statements and comments of parents of students, that took part in the Enrichment Program.

"My son is more critical; more mature; more perceptive. "

"His/her ideas are faster."

"I observed an enhancement in his/her *social relations*."

"He/she feels more secure in general. "

"Presents more creative ideas; improved his/her study methods and obtains better results."

"Presents more independence in his/her actions."

"Creates her own solutions and became more outgoing and well humored."

FIGURA 1 - PROGRAMA DE ENRIQUECIMENTO
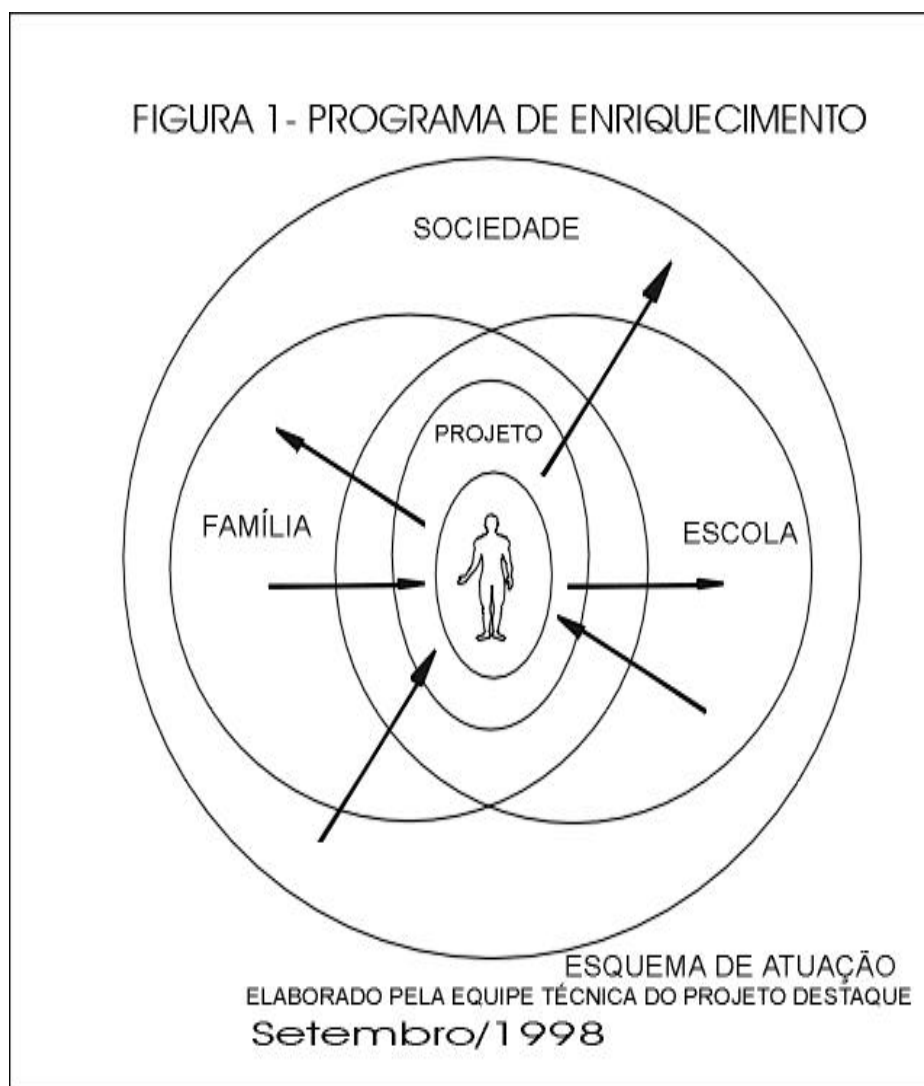
ACADEMICAL RESULTS OF THE HIGHLIGHTS PROJECT

a) Several graduate students from different universities schedule meetings with the Team Coordinator aiming at knowing, observing, and in the future become researchers in this area, obtaining advising for essays which are initialized from the observation of the operation of "Highlights Project".

b) A demand for similar projects was created among other schools, public (particularly in low-income outskirts of Rio de Janeiro, such as the public schools of Duque de Caxias) and private, with regard to serving gifted/ talented students, generating the necessity of professional training of human resources in this area.

c) In order to satisfy this demand, the State University of Rio de Janeiro (UERJ), where the Project Coordinator is Assistant Professor, created the Specialization Course in Giftedness and Talent (420 class hours) in one academic year (March through December). This course is, to this moment, in its 3rd annual session, summing up to 86 new professionals specialized in this area.

d) The project has also generated several technical texts regarding students, their families, their needs and tastes as well as the presentation of papers in seminars, conferences and other academic meetings in Brazilian Universities outside Rio de Janeiro.

The theme was broadened for technical and not technical discussions within and outside the university, in surveys carried out by graduate students of the State University of Rio de Janeiro (UERJ) advised by professor Marsyl Bulkool Mettrau, such as the survey "Follow-up: Effects of a Enrichment Program"(1999/2002), still on work, which is related to alternative assistance for gifted /talented students.

Finally, the results of "Highlights" Project obtained and published led to the invitation to Dr. Mettrau by the Coordination of Regional Special Education of the Madeira Islands, Funchal, Portugal, to act as a technical consultant for PRÁS: Regional Program of Assistance for the Gifted/Talented. This consultancy has been going on since 1996 to this date.

As one can see, new fields of activity for various professionals were made possible following "Highlights" Project that has been a reference of excellence during all the period of its conduction.

"Highlights Project" permitted the *visualization* through *participant observation* by numerous professionals and students in the areas of education and psychology, human resources and individuals which take part in the academic community of the possibilities of assistance for the talented/gifted, calling attention for the social importance of developing capacities and talents of all students and, specially, in poor and/or developing countries such as Brazil.

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SCIENCE GIFTED/TALENTED EDUCATION SYSTEM IN KOREA

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ABSTRACT

The purpose of this study is to investigate education system for scientifically gifted/talented students in Korea. As of now, there are 15 centers for those students in the levels of elementary and junior high schools, 16 science high schools and 1 university in Korea. Among them, Ministry of Science and Technology sponsors 15 centers and KAIST, while Ministry of Education sponsors 16 science high schools. Each center educates 180 scientifically gifted students. We will examine the student selection systems and the curricula of these centers and science high schools.

The National Assembly established Gifted Education Promotion Law in December 1999.

Key words: gifted, science, science high school, educational system.

Introduction

Ministry of Science and Technology in Korea has established special education system for scientifically gifted students that proceed from kindergarten, elementary, and junior high school through science high school to the college (graduate school) of science and engineering including KAIST by carrying out various projects to special education for scientifically gifted students. As a part of these projects, it founded education centers for scientifically gifted students at universities amounting to total 15 in number - 9 universities initially participated in 1998, 4 universities added in 1999 and 3 universities added and 1 university excluded in 2000 - and has supported their operation and management.

There are 16 science high schools to which students educated at these centers can proceed and students of science high schools are permitted to proceed to KAIST in the earlier age.

The primary concern of this study consists in searching for cooperation system among educational institutions for scientifically gifted students as well as prospective frames for its development and improvement.

Outline of Education System for Scientifically Gifted Students in Korea

On the whole, education system for scientifically gifted students in Korea has carried out in two directions. One is the enlarging base of human resources in science through stimulating superiors to feel a great interest in science, and the other is the early picking up and intensive educating scientifically gifted children among them. We will focus on the latter in this study.

Educational institutions prescribed in the Gifted Education Promotion Law in Korea include classes, education centers, and schools for the gifted. For education for scientifically gifted students, it is necessary to organise classes, education center, and schools for scientifically gifted students on the basis of prescriptions in the Law as well as to establish education system for scientifically gifted students that ensures mutually organic linkages among those institutions.

In Korea, the Minister of Education is also serving as the Deputy Prime Minister responsible for education and human resource development at the same time, while the Ministry of Science and Technology is involved in the education for scientifically gifted students and the human resource development in science and technology as the competent authority.

<Insert Figure 1.>

In the level of kindergarten and junior high school, it is necessary to pick up those students who feel great interest in science and to provide them with various programs being conducive to introduce them into science. Classes for scientifically gifted students should play above mentioned roles in the level of elementary and junior high schools. In the level of kindergarten, education center for scientifically gifted children could provide those children with relevant education owing to unfeasibility of organising the classes for those children in this level.

For scientifically gifted students of upper grades in elementary school and of all grades in junior high school, it would be desirable that Research Institute of Education for Scientifically Gifted Students - one of the educational institution for scientifically gifted students - takes exclusive responsibility of education in order to complement functions now being carried out by education centers at 15 universities. In other words, Research Institute of Education for Scientifically Gifted Students offers further education to the selected students who feel great interest and curiosity in science through the course of classes for scientifically gifted students organised at elementary and junior high schools. Students educated in Research Institute of Education for Scientifically Gifted Students should have opportunities to be provided with ongoing science education by either way of proceeding to senior high schools for scientifically gifted students or going to universities as advanced educational institutions.

Education for scientifically gifted students of senior high school level should be exclusively carried out by senior high school for the scientifically gifted students that will plays a similar role to that of science high school. In common senior high schools, classes for scientifically gifted students should be organized and operated in order to satisfy their intellectual needs on science. Senior high schools for scientifically gifted students should provide their selected students with curriculum of common senior high school as well as further advanced level of education being

equal to curriculum of university, even of graduate school, in science related subjects. Especially, just as researches in university are carried out according to academic advice from professor, tutorial system that enables teachers to instruct and direct students' research activities is required to be introduced in senior high school as well.

Education for scientifically gifted students in university level should be offered to students through closely linked programs to all earlier levels of science education. It is impossible to attain the goals toward which education for scientifically gifted students has directed without acknowledging the achieved academic performances in senior high schools for scientifically gifted students. Thus, we will propose to establish an education system that enables us to closely link educational programs for scientifically gifted students in university to those of earlier educational level.

The Status Quo of Education for Scientifically Gifted Students

It seems that the ratio of the number of students now receiving educational services for scientifically gifted students is lower than the required level that can satisfy societal demand for human resources in the field of science and technology. Thus, government has given its ongoing efforts to provide at least around 0.1%~0.3% of students by region with education for scientifically gifted students by preparing budget enough to educate them.

Status Quo of Education Centers for Scientifically Gifted Students and Schemes for Their Development

Education centers for scientifically gifted students were established in consecutive 3 years from 1999 to 2000 as a part of education project for scientifically gifted students driven by the Ministry of Science and Technology.

By and large, selection of scientifically gifted students is made around such subject areas as mathematics, physics, chemistry, biology, earth science, and information science and the selected students amounts to 15~20 in number per class. Qualification for candidates is mainly confined to students who are outstanding in their academic performances with grade came under the upper 3~5% or win a prize in science related competitions among the students of first or second grade in junior high school. Selection takes the form of multi-phased procedure and is carried out through assessment questions individually developed by the centers. Students subject to first year programs are selected through annual selection and students subject to second year programs are re-selecting among the students finished first year programs. Assessment questions for selection are generally composed of giftedness test and major subject test. Because assessment tools for selection are varied with the centers, necessity for joint development of assessment tools is being raised. It is proposed the necessity that more systematic methods of selection are explored for the objective and fair selection procedure. Each center requires budget enough to carry out research and development in relation to assessment and selection of the gifted students. It is also necessary for each center to develop assessment tool played a role as objective criterion for selection.

Most education centers for scientifically gifted students provide their selected students with education of 100 hours annually. Specified lectures according to such subject areas as mathematics, physics, biology, earth science and information science are offered in course for junior high school students. Additionally, various programs such as personality education, special education, and special lecture for parents, on-the-spot study, and academic seminar are prepared and held by many education centers.

Education is largely carried out with multi-phased process. The number of education centers offering basic course, exploration course, and tutorial system is gradually increased. In general, most centers provide students with weekend programs in semester and intensive summer/winter vacation programs and cyber education programs are offered as well by several education centers. Although educational contents taught by these centers are differentiated among them, those contents of science domains are generally composed of experiment-centered programs and concentrate on senior high school or university level rather than junior high school level. However, systematic reorganisation of texts is urgently needed because of such problems as partly overlapping contents among texts and the displaced text contents between basic and further areas.

In composition of faculties, professors from mother universities of centers take up large proportion of faculties, while participation of teachers served at field makes up of large proportion as well. Each subject is generally assigned to 5 or more faculties but, as the case may be, there is a center that assigns single subject to over 15 faculties.

While most centers offers cyber education programs to students by managing their homepages, the qualified full-time staffs are in need as well as development of texts for cyber education program and their utilisation for education leave something to be desired.

In case of special programs, each center provides mentorship education program as a kind of tutorial education uniquely developed by itself.

Each center offers self-developed unique educational programs to students and takes competitive procedures for selection in order to enhance the quality of its educational programs. On the other hand, it tries to maximise students' research ability with activation of cyber education as well as tutorial education and to provide students with opportunities to make ongoing researches after they proceed to senior high school, if possible.

In the aspect of organisational management, most education centers are operated under the auspice of their mother universities in facilities and manpower. In general, education centers are composed of two courses for students of junior high school and elementary school and assign a class to a director professor and a research assistant. There is also a center with administrative support office and research and development lab for development of educational programs for scientifically gifted students, development of texts, and evaluation of curriculum and students.

In financial support, most education centers have faced financial difficulties because they depend heavily on subsidies from Science Foundation in their operation. Now Science Foundation gives centers established in 1998 and 1999 annual subsidies amounting to $100,000 and $70,000 respectively. However, the required minimum costs for operation are estimated at about $200,000 and $1,000,000 under the circumstances that mother universities give supports in facilities, equipment, and manpower and that new facilities are constructed and full-

time educational staffs are recruited, respectively. In this respect, to ensure budget for financial support is urgently required.

In the administration of enrolled and graduated students, evaluations of the enrolled students are carried out by using the evaluative description which is self-developed by each center or appropriately modified by each center on the basis of evaluative descriptions of other institutions. Evaluations are generally classified into self-evaluation on students, evaluation on lectures, and performance evaluation on students. To do this, it seems that the proactive participation in lecture and the interview with students of director professor are required. In a way, because special system for scholarship and reward isn't institutionally set up, it is thought that it would be necessary to establish the systems for scholarship and reward through ongoing attention from community and the organised supporters' association.

Because educational centers for scientifically gifted students can utilise excellent faculties, experimental equipment, and laboratories of their mother universities and have substantial experiences of education for gifted students as well, it is possible for them to provide the gifted education of the enhanced quality in the realm of natural science. Based upon this recognition, they try to ensure their status as more advanced educational institutions for scientifically gifted elementary and junior high school students than class or education center for scientifically gifted students organised at the level of municipal or provincial office of education.

Status Quo of Science high schools and Schemes for their Development

As of now, 16 science high schools have established and operated all over the country. 1 grade is composed of average 1,200 students of 50 classes, i.e. 24 students per class. This figure accounts for 0.15% of the estimated total student population of 800,000. It is not so many numbers for students per class, but it seems that it is desirable to decrease numbers of student per class to 20 or below. The purpose of establishment consists commonly in early picking up scientifically gifted students and development of their potential abilities in most science high schools. However, criteria for student selection should be adjusted in accordance with the purpose of establishment, because exclusive selection of new students among those who graduated from junior high school isn't congruent with the purpose of early picking up scientifically gifted students.

Special selection (below 50% of quota) and general selection are used as present methods of selection. Because general selection relies largely on grades as a kind of academic performance of candidates, special selection that pays attention to aptitudes and special abilities of candidates should be given much more weight. 56% of science high school teachers responded that present ways of student selection was inappropriate to select scientifically gifted students and 77% of them responded that they thought only 40% or below of students now enrolled in science high school would be scientifically gifted students. On the basis of these responses, it is thought that present methods and procedures of student selection should be improved. Even though scientifically gifted students would be selected by using special selection method, such multiple factors as measurement of hereditary factors and evaluation on scientific works enabling to grasp scientific aptitudes of candidates in addition to results in competitions and Science Olympiad should be taken into account in selection.

Curriculum of science high school is based upon one publicly announced by government. It is more specified than that of science course of general senior high school by giving subject units to advanced course of scientific subject in order to make intensified and further studies in science possible. However, it is impossible to operate curriculum in accordance with abilities and aptitudes of scientifically gifted students because any student of science high school should is required to complete almost all subjects as compulsory or mandatory ones. Considering that it is more effective in education to select autonomously their tasks than to compel them to complete the uniformed curriculum, it is desirable that opportunities to opt various fields of subjects are given to them. Also, opportunities to explore the given problems rather than simply transmitted knowledge relevant to their tasks should be given to them. That is to say, curriculum should include rapidly proceeded course and research course as well as intensified course.

< Insert Table 1>

The status that proceeds to universities among students graduated from science high school shows conspicuous difference between the period of before 1991 and after 1992. Before 1991, 89% of students graduated from science high school proceeded to KAIST and 11% of them went to other universities including Seoul National University. While, after 1992, 43% of them proceeded to KAIST and 38% and the rest went to Seoul National University and other universities, respectively. This extraordinary situation was resulted from the fact; most of whoever wanted to proceed to KAIST among the students graduated from science high school could do so before 1991, while half of them inevitably went to other universities than KAIST because the number of those graduated students exceeded quota for new students of KAIST after 1992. In the initial phase of this situation, most students who can't proceed to KAIST can go to Seoul National University by way of so-called comparative high school record that acknowledges academic performances of science high school students by comparing them with those of general senior high school students. However, during the 2-year period between 1999 and 2000, the number of students graduated from science high school was dramatically decreased. It was because the number of students who left their schools voluntarily was increased, judging that abolition of comparative high school record system and application of relative grade rating within highly competitive their schools were unfavorable to them in going to several top class universities including Seoul National University. In talk with principals of science senior high school, some facts were presented that the abolition of comparative high school record system was accompanied by remarkable lowering in scholarship of candidates for science high schools and these circumstances make it difficult to provide even the enrolled students with education of high quality to say nothing of early picking up scientifically gifted students.

Educational careers of teachers in science high school is about 17.6 years and those who took doctor's and master's degree amount to 5% and 63% among total, respectively. These figures are higher than those of general senior high school. However, both special allowances and research supports aren't given to them. Considering that incessant efforts of teachers makes it to provide scientifically gifted

students with education of high quality, it is required that teachers of science high school should be composed of ones received at least master's degree or more and educational environment that enables them to do research and teaching simultaneously should be established by supporting research costs.

From the comprehensive perspective, the scheme or plan to activate science high schools into schools for scientifically gifted students under investigation.

Schemes for Building up the Education System for Scientifically Gifted Students by Institution

In Korea, education for scientifically gifted students is required at the state level. Overview of schemes for building up the education system for scientifically gifted students by institutions is shown in <Figure 2> below.

<Insert Fig. 2>

Education system that the Ministry of Science Technology take exclusive responsibility of education for scientifically gifted students, the Ministry of Culture and Tourism take exclusive responsibility of education for the gifted in the fields of arts and athletics, and so on should be established and these ministries in charge should build up the system in which proactive investment to the gifted education can be carried out.

<Insert Fig. 3>

Conclusion

Based on the recognition that fields of science, technology and information will play a crucial role as driving force in leading our society to 21st century knowledge-based one, education for the gifted students in these fields should be carried out with the first priority. For that reason, education for the gifted students, especially for the scientifically gifted students, is a crucial education project of which government should take exclusive responsibility, in order to nurture and foster superior human resources required by society.

It would be desirable that science high schools taking charge of education for scientifically gifted students should be directly invested and operated by central government (i.e. state), because public school system like present way of operating science high schools organised by local government is liable to give priority to regional development and interests rather than nationwide concerns.

The Ministry of Education should delegate large part of its roles and authorities to local governments or regional offices of education and enables them to take charge of general education. On the other hand, ministries relevant to the areas in which the giftedness manifests should take exclusive responsibility of education for the gifted over secondary education level.

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Common Educational Institutions

Educational Institutions for the Gifted Students

University

Other Faculties

Faculty of Science & Engineering

KAIST

Pohang Institute of Science and Technology

Studying Abroad

Schools for Scientifically Gifted Students

Senior High School

Class for scientifically Gifted students

Junior High School

Class for scientifically Gifted students

Regional Office of Education
Education Center for Scientifically Gifted Student

Municipal & Provincial Office of Education
Education Center for Scientifically Gifted Student

Elementary School

Class for scientifically Gifted students

Intermediate Class

Elementary Class

Advanced Class

Intermediate Class

Elementary Class

Education Center for Scientifically Gifted Students Attached to Universities

Private Educational Institution for Scientifically Gifted Students

Research Support

Research Institute of Education for Scientifically Gifted Students

Central Council of Education for Scientifically Gifted Students

Fig. 1. Education System for Scientifically Gifted Students in Korea

Fig.2. Schemes for Building up the Education System for Scientifically Gifted Students by Institution.

The enhanced national competitiveness in the knowledge-based society

Government(state)-leading human resource development

the Ministry of Science and Technology

the Ministry of Information and Communication

the Ministry of Culture and Tourism

the Ministry of Commerce

Fostering professional human resource and educating for the gifted at all field

General education for nation
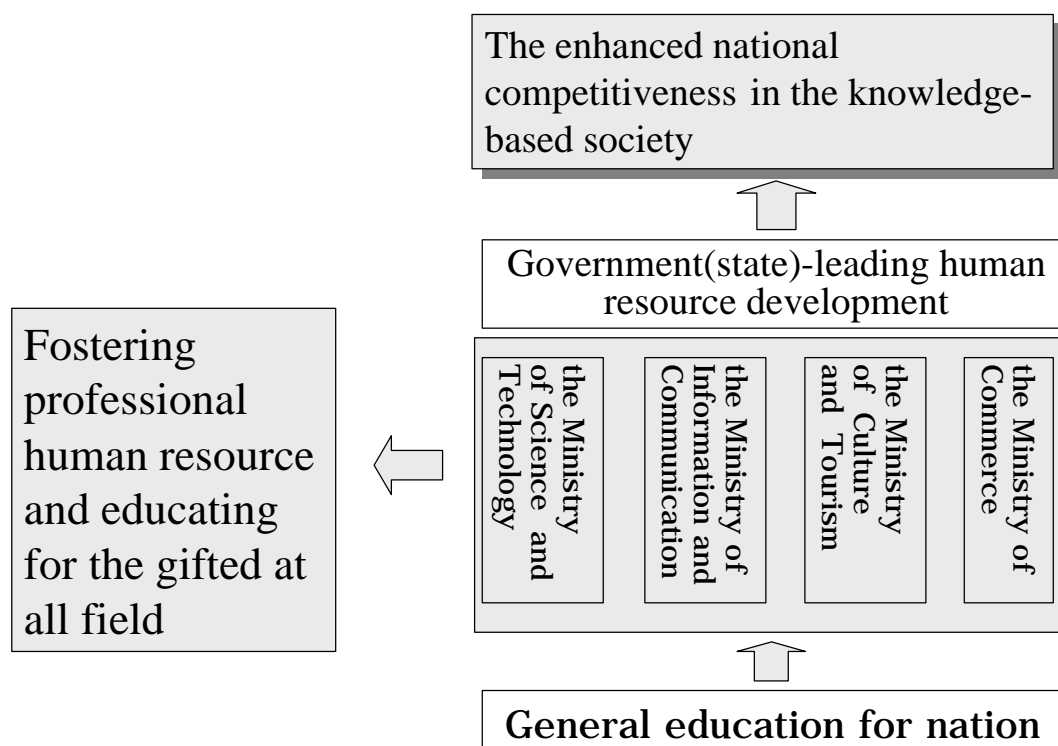
Fig. 3. The role of government for the science gifted education

Table 1. Comparison of Subject Unit Hours between Science and General Senior High School (Dark area: special subjects)

Domain	subject	science senior high school	general senior high school (science course)	domain	subject	science senior high school	general senior high school (science course)
civil ethics	civil ethics	4	6	science	general science		8
Korea	Korea	24	26		Physics II	8	8
Chinese Literature	Chinese Literature		6		Chemistry II	8	6
Social Science	Social Science	16	22		Biology II	8	6
physical training	physical training	8	12		earth science I	6	8
group activities	group activities	4	4		advanced physics	4	
Music	music	4	4		advanced chemistry	4	
fine art	fine art	4	4		advanced biology	4	
foreign language	English	20	28		advanced earth science	4	
	second foreign language	8	10		experiment on physics	4	
Industry and commerce	Industry and commerce		6		experiment on chemistry	4	
mathematics	general mathematics	6	8		experiment on biology	4	
	Mathematics I	8	10		experiment on earth science	4	
	Mathematics II	14	10		history of science	4	
	Mathematics III	8			reading in original text	4	
computer science	computer science	12	4	Club activities	Club activities	16	16
liberal-optional subject	liberal-optional subject		4	total units of subject		224	204-214

SOME GROUP EXPERIENCES WITH INTELLECTUALLY GIFTED STUDENTS

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ABSTRACT

Presentation of a study and analysis of the interpersonal relationships among intellectually gifted students with peers having similar intellectual characteristics, through techniques based on the Group Dynamic. These techniques have been applied, during five years, to students that go to the Psychopedagogical and Social Enrichment Program in Huerta del Rey Center in Valladolid (Spain). Working different aspects of the psychosocial development of the gifted children in a group environment (emotion, communication, leadership, cooperation, problems resolution, etc.), the carried out observations contribute an enriching and eminently practical knowledge to the field of the gifted.

INTRODUCTION

Working through group techniques inside the classroom is something effective as it has been demonstrated in numerous and previous studies. A group technique is understood to be a work tool that allows to study the person in interaction with others in the environment of reduced groups in order to get some certain objectives. The human being is also a social being by nature, this means, he lives inside a society, so the social interaction is something that happens continuously. It is also necessary than the individual feels himself/herself as part of that social group, having recognized his/her individuality. Considering the well-known necessity of the gifted children for sharing their experiences with children of similar characteristics in order to be understood (because a lot of times they usually don't feel themselves understood by other children from their daily environment) and without forgetting the phenomenon of the affective disynchrony that takes place with the gifted children, where the development of their intellectual level doesn't go even to the development of their emotional level, the group is presented as the suitable mark where they can share without fear to the rejection, and to learn through the others. As Fernández Martín already pointed out: "*the gifted children can trip with difficulties in their interpersonal relationships due to lack of synchrony between their intellectual and emotional capacities, that is to say, due to the lack of synchrony in the development and evolution of the different elements of their personality. With this problem, the answers can be not adapted ones: aggressiveness, intolerance, social isolation...*"

OBJECTIVES

Frequently the gifted child thinks that there is something wrong inside him/her and he/she wants hopelessly to be treated like to a normal boy. His/her high level of capacity impedes him/her in many occasions to find friends with those who to share his/her interests, making that every time he/she is socially more alone. Offering him/her a group with children of similar characteristics will facilitate him/her being accepted like he/she is, where he/she can express freely his/her desires, restlessness and capacities without fear.

Also, the group will allow to reach a series of objectives: to offer the individual a work mark where he/she is allowed to be shown with more security in himself/herself when feeling that the effort and the responsibility in reaching a certain goal are distributed among different individuals, diluting this way the pressure; to feel himself/herself as an individual who is part of a group; to help to the knowledge of the own identity and self-esteem and to facilitate the learning of social abilities.

Definitively, in a group the individuals learn more effective ways of working together, overcoming the individuality; they develop the mutual trust; they open up to new experiences; they improve their communication and they feel free to express their opinion and to act.

THE GROUP AND ITS MEMBERS

One of the most important phenomenons that happens when a fellow is inside a certain group context is that each one spreads to adopt a role that is determined in great measure by his/her own nature. This way, a subject with natural characteristics of leadership it won't generally adopt a submissive paper in the group, and on the contrary a boy with clear features of introversion personality, won't be easily shown in the group in an open way spontaneous and director of the actions of the group. But the role that the fellow adopts in the group is also determined by the contextual characteristics in those that the group is formed. This way, when the group arises voluntarily so the fellow searches with the one who to form that group, the variability in the roles that the different members of the group will assume will diminish, so that with a relative continuity the fellows will spread to adopt similar positions in the group. But, on the other hand, when the formation of the group comes determined by external conditions to the fellow's own decision (for example the professor decides who will form the group), this will cause that the fellows are forced to look for a new role. With this, on one hand it is gotten the fellow to be forced to look for a new position that although it will generate him/her an increase of his/her anxiety for his/her loss of security and control in what he/she knows, it will favor a new experimentation state that will take him/her to define the different aspects of his/her personality. For this reason, the different group activities that are presented has followed both work lines, so that while in some of them the individual's security was won and it was possible to increase the trust in himself/herself, in other activities he/she has been forced to experience new roles that discovered and secured other aspects of his/her ego.

SOME GROUP EXPERIENCES WITH INTELLECTUALLY GIFTED STUDENTS

Of the many and different activities worked in the classroom with the gifted children, I have selected those that I found more interesting to be presented because of the implication of the got results and/or those other ones that showed clearly some of the things above mentioned.

This way offering the possibility to the subject ones that they formed their own group, in order to feel comfortable in it, the activity "**A GIFTED CHILD IS…**" allowed us to know what the conception that the children had about themselves, as gifted children and youngsters, was comparing it to the conception that they perceived the other ones had about this topic. The activity consisted basically on distributing among the children a booklet where they read some adjectives, positive and negative adjectives, having to mark only ten of those adjectives that they believed reflected what a gifted child was. Later on, and also in an individual way, they should mark those other ten adjectives that they believed the other ones would use to define a gifted child. After this first phase of the exercise, there was a common setting inside the group and later debate about the got results (similarities and/or differences among the options chosen individually by the children).

This activity was applied to a group of children between 9 and 12 years old and some of the obtained results were the following ones, indicating the number of children that chose such an adjective:

What a gifted child thinks about a gifted child:

.- He/She doesn't find difficult to learn: five children
.- He/She is perseverant in what interests him/her: three children
.- He/She is somebody special: two children
.- He/She is ingenious: two children
.- He/she also has problems: two children
.- He/She is an active person: five children
.- He/she is an human being: four children
.- He/She is someone strange for the other people: three children
.- He/she reasons the things: two children

What a gifted child believes that the other people think about a gifted child:

.- He/She is a strange bug: three children
.- He/She is different: two children
.- He/She is a nerdy: three children
.- He/She is perfect: four children
.- He/She is somebody non finished to be accepted by the others: two children
.- He/She is a smug: two children
.- He/She is somebody outside of the common people: two children

The results allowed us to observe the existent difference between both perceptions, highlighting the negative quality in the perceptions by the other people different from the gifted one, opposite to the positive quality of the gifted children's perception. Therefore it is comprehensible to understand that I above mentioned about the big fear to the rejection and insecurity that the gifted children can feel when they are related with other people.

With the activity "**AN IDEAL VILLAGE**" the members of the group were invited (twelve students from 9 to 11 years old) to plan a village where to live in. They had one hour to make it and they had to decide all aspects of this new village. The director of the activity remained in the room but without intervening for anything. If in some moment the director was requested explanations about how they had to make it, they were remembered that they had to decide it in the group (the ownership of these children to the group came determined by the director of the activity, what pushed the children to define what position they should occupy in this group). The objectives of this activity were: to simulate a hypothetical situation; to value formal and informal structures that are given in the work group, as well as the leadership and allotment of functions; to value the expectations of the students like a group; to develop the creativity; to stimulate the effective communication and the abilities necessary for it and to value the generated level of anxiety.

The results and obtained observations were that different moments were appreciated in the structuring of the group along the 60 minutes that the exercise lasted: firstly, the tendency to individualistic visions to the outlined problem, as well as the desire to make prevail the own opinion over the other ones, sank to the group in a chaotic and disorganized state. In this point, students that presented certain behavior disorders presented an important emotional overexcitability that made them offer answers even more interrupting in their behavior. In the measure in that the leadership was appearing in the figure of one of the members of the group, the group went toward more formal structures. It is necessary to point out that the leadership arose in one of the students that already previously had assumed this role in other activities with group character, carrying out its function appropriately, although other students were still in the phase of looking for their own position. It is important to remember that some of these intellectually gifted students presented difficulties in their emotional aspects, that made comprehensible to understand they gave and respected the leader's position in the group to who they perceived as emotionally more stable (able to resolve calmly the conflicts that emerged in the group in a natural way). The leader took charge of establishing the shift by word of mouth, as well as the allotment of functions inside the organization of the village. When the time allowed for the development of the task finished, some of the reached final data were: The village was located on an island in the center of the Pacific (desire of being alone and reclusion). They only lived in the village (12 people) together with the robots that they decided to make the daily tasks. The facilities that they decided there were in the village were: recreational living room, a sport center, park of attractions, firemen, net of communications, sport port, particular housings for each one of them (palaces) and one house more for the possible visitors, pharmacy, special place where to acquire all type of knowledge, defense system, big stores, etc., having all their basic, cultural and entertainment needs covered. They didn't need a government, because they were able to respected themselves and to establish their own norms. Their daily organization rotated around the respect for the habitual schedules of dream and feeding, occupying the remaining time in doing sport and playing games. It highlighted their fear to the possibility of being damaged by others, so they dedicated a considerably bigger time that to other points in the organization and planning of the system of defense of the village. Other prominent aspects in what refers to the process were: the remarkable reasoning of the motivations that guided to the group and a dialogue and listening capacity notable.

Translated and adapted from the magazine *Challenge: Reaching and Teaching the gifted child*, the activity "***BUILDING THE HOUSE OF YOUR DREAMS***" allowed to work some objectives as they were: to work the cognitive strategy of the selection of relevant information; to develop the creativity; to power the attention sustained in the task; to stimulate the taking of decisions in a group; to improve the notions of space organization, geometry and architecture; to know the hierarchy of values in each student and to practice the visualization.

The development of the task took place in two different temporary moments, so that the first day the individual part was worked, getting high levels of attention because of the creativity and freedom of speech that the exercise suggested. This part basically consisted on the students were asked what basic elements they though were necessary to be in a house in order to inhabit it. Starting from here, and having picked up all these elements in the slate so that all the students could have them present in all moment, every child should work in an individual way in the construction of his/her own house (with a fine cardboard and using all the materials that they preferred: paintings, cuttings, pictures, etc.). All respected the location of the rooms of obligatory use (kitchen, bathroom and bedroom) and the necessary elements to guarantee a comfortable staying (water, electricity, etc.). Also, they added those spaces that they considered necessary to get their desires: special rooms for playing, enormous libraries, sport rooms, computerized devices, etc. This way for example, Roberto (11 years old) drew the house of their dreams like a igloo, with a take off hint and platform of a shuttle, and an enclosed castle for the vacations. In its interior: a leisure room, a space observatory, a room of control of the space navy, a gym and a room for visitors, among other rooms. On the other hand, Miguel (10 years old) also drew his ideal house with a rounded form, and in its interior: two laboratories, a library, a room of primary motors, a room with space shuttle and a pool, among other things. When they concluded the drawing of their individual houses and when they were told to paint their houses, the practically massive answer in all these students was an answer of negation. Contrary to the gifted girls, the most gifted boys do not like this type of activities, preferring a global answer to a detailed answer. After concluding this individual part of the work, and passing to a second collective part, the level of group tension was ascending in the measure in that some of the students wanted to make prevail their own houses over their classmates' ones (individualistic tendency and high motivation of competition among gifted students). It was necessary to wait until again the leadership arose in one of the habitual members with this role who established the voting process. In this it was determined that the house to be built for the group should be completely different to the individual ones, but at the same time it has to summarize the desires of every member in the group. The final result was a house, built with fine cardboard and cuttings of magazines, in a pyramidal way, with three plants, a garden and a pool. The rooms that there were in the house came to be a summary of all those that appeared in the individual designs. The group showed a high degree of satisfaction for the carried out work, especially the collective part, due to the high degree of social interaction that this activity supposed and the freedom in the creative expression.

One of the more interesting and beautiful group activities carried out was "**THE GENEALOGICAL TREE**", following the work line in that the members are told to belong to a determine group, so they have to look for new positions inside it. The objective was to put the group in a situation in which some provoked signs of tension appeared mainly for the competition feeling. Apparently it was almost a game, but in fact the members had to live tense situations, manifesting symptoms of a strong tension and reactions due to the loss of control of the situation. The group was divided in three different groups, of three members each one of them. Each team was settled in a different corner in the classroom, so that they were sheltered of indiscreet looks and hearings. Every team was given paper and pencil and a series of clues, after the task they had to carry out was explained: they had to complete a genealogical tree formed by the information that every team had, so it was necessary that all of them consented to the information. Each given clue, necessary to complete the genealogical tree, had a price, so that when a team requested information to another team, previously it should pay the price indicated in each clue. The distributed number of clues was of 28 (two teams had 9 clues and one team had 10 clues). Each team should be organized so that only one of its members went to "visit" the other teams and carried out the attainment of the information, while the rest of the members of the team stayed in its place and organized the material they had got, at the same time that they sold their own clues to the other teams. The diverse prices that each clue had varied from simple tasks and with little emotional implication, such as to carry out a drawing or to give a candy, to more complicated tasks with more affective implication, such as to reveal a secret or to give a hug. In the beginning of the activity the director of the activity only explained the objective of the task, leaving to the teams their own organization. The fact that the groups were imposed by the director of the activity would originate firstly conflicts at moment the members had to assign and to assume their different roles inside the group, what was proven later on. The duration of the exercise was of 60 minutes, after these the game would be stopped independently the obtained results were. The observations gathered by the director of the activity were the following ones: in a first moment, the three groups showed an impulsive interest in picking up all the information in a quick way, relegating the organization of their own team, what took to chaotic and disorganized situations. When the price requested by the other teams to get its clue was of a high emotional level, the members refused to pay it, even rejecting the possibility to get the valuable information. The feelings of a strong tension appeared soon since almost all the members of the team preferred not to go out to buy information, so that they were not implied in possible embarrassing situations. This contrasted with the desire of completing the tree in a first position and therefore to win the game, and it created serious conflicts inside the own team. What had been presented as an atmosphere of friendship and even relax among the members of the different groups in the beginning of the game, soon became a climate of tension and conflict. In those teams where natural leaders existed, an organization and an allotment of tasks appeared soon, even a pact was made in what one of the members of the team had to go out for the information and "sacrificed himself/herself" paying the price of the clues every time. But in those other groups where it didn't exist such a figure (leader), the chaos and the conflict continued existing, ending up even one of the teams to desist of their task of completing the activity due to they were not able to get an agreement among them and they made the individualistic behaviors prevailed over the group feeling. When the task was concluded and the right answers were given, some members showed disagreement to the game (attitude surprisingly contrary to the one presented at the beginning of the activity, when they showed themselves anxious to participate). They were asked the reasons why this had happened, obtaining answers that indicated they had not been able to sacrifice certain aspects of

their personality to get an common group objective, being difficult for them to bear those situations of enormous emotional tension. Some of the members were even surprised of the way they had behaved when in fact they didn't believe to be so competitive, alleging that if they had been in a team with some of their favorite partners they would have solved the task better without necessity of arriving to so much tensed situations.

With the activity "**WHAT ARE YOU CAPABLE OF**?" the objective was to work the climate of the student's self-reliance and the reliance in his/her relationship with the group. The 9 students taking part in this activity were given a copy of the following list:

1. You have to imitate the song of a rooster
2. You have to talk about your best qualities during two minutes
3. You have to make a pantomime in silence imitating a sleeping person getting up in the morning.
4. You have to talk about the most you like of your partners during two minutes.
5. You have to recite an infantile poetry that you remember from your childhood.
6. You have to walk by the room with a book on your head without you drop it.
7. You have to choose a brief passage of any school book to read it aloud.

Next they were asked to enumerate all the activities of the list from one to seven, according to their preference to carry out them in class. The number one would indicate the most favorite activity and the number seven the least one. Later every student could be called to represent the three options he/she had enumerated as number one, two and three. The objectives were, then, to value the student's expectations and perceptions in relationship with himself/herself and with the other ones, to reaffirm the gesture and verbal expression, and to evaluate the level of generated anxiety in a certain group situation. The eleven students, who were about ten years old, offered the following answers:

	First option	Second option	Third option
Miguel	3	5	1
Ramón	7	5	1
Alberto	7	6	1
Angel	1	3	7
Daniel	1	3	5
Ismael	3	1	5
Jorge	3	1	6
Jesús A.	7	1	4

Once each one of the three options marked as first, second and third option was represented in the presence of the classmates, a more exhaustive analysis of what the exercise had supposed was made. All the students coincided when they responded that it had been easy for them to execute the elections in the presence of the others, due to they though the activities were seemingly trivial activities and without a personal implication, so these activities generated them a minimum degree of anxiety. However, all those answers that reflected emotional aspects (to talk about themselves or about the perceptions they had of the others) were not chosen in the first positions due to the high level of anxiety that supposed to carry out them in a public way, although in the group all of its members met themselves from some time ago.

CONCLUSION

After presenting you all these activities and their results, I wait I have shown a little more the enormous importance that the emotional aspects have for this type of students, and the important repercussions that it has. I must say to conclude this presentation that the fact that I have worked these aspects along several years with the same group basically, it has allowed me to observe that indeed the objectives commented at the beginning of this session have gone being completed. For this reason I can conclude I have checked remarkable improvements in this area that, although they have been notorious, it doesn't mean that we should not continue working by this road. After all, the gifted student is a child who in order to reach his/her fullness like a person has to develop his/her emotional and affective aspects.

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RUNNING HEAD: EXPLORING THE REGGIO EMILIA APPROACH

EXPLORING THE REGGIO EMILIA APPROACH FOR YOUNG GIFTED LEARNERS

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ABSTRACT

This paper presents research findings on the use of the Reggio Emilia approach for teaching young gifted children in preschool programs. Although not formally identified until compulsory schooling begins, young gifted children's learning needs are often apparent at the preschool level. This research investigated curriculum and instruction that is appropriate for young gifted learners through examination of models and approaches described in the literature, and through data collection at two early childhood centers. Early findings indicate that the Reggio Emilia approach offers a viable program development framework for young gifted learners.

Exploring the Reggio Emilia Approach for Young Gifted Learners

Introduction

It is generally agreed in the education field that addressing the special educational needs of children should begin as early as possible (Bloom, 1982; Davis & Rimm, 1994; Silverman, 1997). Teachers of gifted children support the belief that early identification and provision of appropriate, differentiated educational services are more beneficial than to wait until these gifted children enter compulsory education at the age of five (Silverman, 1997).

At the same time, brain research has revealed much about the development of mental capacities and learning in the first years of life (Shore, 1997). When a baby is born, the brain is predisposed to intellectual potential. However, the development of this potential relies on the nurturing provided by the child's family, significant others, the individuals personal characteristics, and the environment (Eliot, 1999). There is a need for the environment to be structured in such a way that the young gifted child is mentally challenged in an atmosphere that encourages risk-taking, curiosity, and creativity (Williams, 1970). Baby brain research lends further credibility to educational practitioners' belief that individualized curriculum and instruction should begin as early as possible for young gifted learners.

Although, providing a developmentally appropriate program is fundamental for all early childhood curriculum and instruction, using a more traditional model of early childhood curriculum, may not always meet the unique learning needs of young children with advanced abilities. A comprehensive approach to programming is required that recognizes essential curriculum components for gifted learners, and that takes into account both current brain research and developmentally appropriate teaching strategies. Possible solutions may be found by investigating approaches that have successfully met the needs of young gifted children in existing early childhood programs.

Background

During the 1998 – 1999 school year, a study was conducted to investigate the early identification of and educational intervention for young gifted children. Specifically, the study examined a local school district's early childhood accelerated program in its first year. The study sought to determine effective aspects of the program's student identification and placement process; and of the curriculum used in the program to optimize student potential.

Elementary regular education and special education teachers; school and district administrators; the students in the program; and the students' parents participated in the research. Qualitative data, obtained through face-to-face interviews with each group and through classroom observations were used to ascertain the (a) quality of the program curriculum and outcomes; (b) program aspects deemed effective with reference to the identification procedure; and (c) behaviors thought to be indicative of giftedness in pre-school children.

Results showed that the adult stakeholders believe that early identification of young gifted learners and subsequent early educational provisions for these children is highly desirable. However, two features of the program were seen as inadequate. Firstly, all stakeholders reported a desire for more time than the two hours that were designated daily for the program. Secondly, through parent interviews and researcher observations, it was determined that the curriculum consisted of accelerated, traditional, basic skills curriculum that was not developmentally appropriate for the children. The first was beyond the control of the authors; but the second could be further explored to generate possible approaches that would be more responsive to young gifted learners' needs.

The authors began a search for an early childhood approach that was developmentally appropriate for young gifted children, as well as challenging with respect to their abilities. That search eventually led to consideration of the Reggio Emilia approach (Edwards, Gandini, & Forman, 1993) that seemed to hold promise as a possible way to address the concern.

The research discussed in this paper investigated curriculum and instruction appropriate for young gifted learners; in particular, the Reggio Emilia approach. The study sought to answer the question, "In what ways can the Reggio approach be successfully adapted by educators to provide appropriate, differentiated curriculum for young gifted learners?".

Secondary questions that guided the research included:
1.   How are young children with advanced abilities identifiable to professionals?
2.   How are childcare centers implementing Reggio Emilia as an approach? and
3.   If used, in what ways does the Reggio Emilia approach meet the needs of young children with advanced abilities?
Initial findings for these three questions are reported in this paper.

Literature Review
Traditional gifted models

A variety of approaches and models have been proposed for the development of curriculum and instruction; some are specifically for gifted education but others are a general model for the education of all children (Betts, 1985; Bredekamp, & Copple, 1997; Clark, 1986; Smutny, Walker, & Meckstroth, 1997; Van Tassel-Baska, 1992, p. 132). The literature was examined to identify common components across approaches and models that appeared to be essential.

Davis & Rimm (1998) integrated lists from seven different sources that described strategies and models for gifted programs, and suggested that content for gifted learners should be based on student interests and needs. The content should (a) provide for maximum achievement in basic skills, (b) go beyond the prescribed curriculum, (c) expose the learner to a variety of fields of study, (d) be student-selected, (e) have high complexity, (f) provide experience in creative thinking and problem solving, (g) develop thinking skills, (h) build affective abilities, and (i) increase motivation and self-direction (p. 104-105). Gifted programs should provide "… a curriculum responsive to … individual learning rate, style, and complexity; in an instructional environment that encourages and nurtures inquiry, flexibility, and divergent thinking" (Van Tassel-Baska, 1992, 132).

It was noted that there was a paucity of research from which to gain insight into what constituted appropriate curriculum for young gifted children. For example, George Betts' Autonomous Learner Model (1985) presents five dimensions to consider as the educator plans the program. These dimensions thoroughly address all aspects to be considered in planning a total program for gifted learners listed by Davis and Rimm (1998). However, this model was conceived for elementary and secondary schools with no reference made of the model's application to early childhood education settings.

Curriculum models for use with young gifted learners

On the other hand, Clark's Integrative Education Model (1986), though not specifically for use with gifted students, was designed to be used with groups that included "Toddlers (ages 2-3), Early Age (ages 3-6), and Cross Age (ages 6 to 16)" (Clark, p.38). A basic premise of the model is that learning is an interaction

of thinking, feeling, sensing and intuitions. Clark delineates seven components, called keys, that when integrated will optimize learning.

These seven keys allow a view of the Integrative Education Model from several vantage points, including the physical and emotional setting, the attitudes and communication skills of teachers and learners, brain compatible strategies and techniques, and the demand for function integration. From these components come tools students can use to help them become better learners.

Clark (1986) describes the application of the approach to the Toddlers program, as one that includes parents as daily partners in the teaching team and an environment designed to stimulate each area of brain function. The curriculum is built on teacher-designed learning experiences and materials, but remains flexible to include student interests. A major goal of the program is to foster student independence and responsibility through an environment that offers choice, variety and challenge. Although not specifically designed for gifted education, Clark's Integrative Education (1986) model does contain all the essential components outlined by Davis & Rimm (1998) and was designed for use in early childhood settings.

Smutny et al. (1997) base their approach for educating young gifted children on principles and guidelines of The National Association for the Education of Young Children (NAEYC) that recommend certain fundamental components for developmentally appropriate practice in early childhood programs. In response to these components, Smutny, et al. delineates appropriate practices to be used in programs for young gifted learners. They believe that the curriculum and environment should (a) encourage children's interests; (b) use curriculum compacting; (c) incorporate creative, integrated approaches to learning; (d) enable young gifted children with high ability to find consistent challenge, accomplishment, and growth through group work; (e) recognize the unique social and emotional challenges of young gifted children; and (f) use strategies that empower children to confront these challenges.

The Reggio Emilia Approach

Another approach developed specifically for early childhood programs, is the Reggio Emilia approach, based on an educational philosophy that views children as competent, creative and curious learners who are intrinsically motivated to understand the complexities of the world in which they live (Rinaldi, 1993). Education is focused for each child in terms of the child's relation with the family, other children, teachers, the school community and societal environment.

The Reggio approach is grounded in constructivism (Staley, 1998), and is based on the theory and philosophy of leading theorists in the field of early childhood development and learning. Therefore, much about the approach is already familiar to educators of young children.

The Reggio approach consists of critical components, five of which are: (a) learning spaces, (b) social exchanges, (c) projects, (d) art materials, and (e) collaborative teaching/learning style.

Learning spaces. In the Reggio approach, spaces surrounding the school (neighborhoods, landmarks in the city) are seen as extensions of the classroom that may lead to questions that become the basis for projects. Because of the importance of learning spaces, the building or remodeling of existing buildings is planned by educators, parents, and architects (Gandini, 1993a).

Social exchanges. Social exchanges, such as shared activities, communication interactions, cooperation and conflicts, are encouraged through the strategic placement of spaces, materials and people (Gandini, 1993a). Social exchanges are viewed as an important part of cognitive development.

Projects. In the Reggio approach, projects are in-depth investigations of a topic that evolves from the child's interests. Projects are ongoing, sustained, learning episodes focused around answering a question. Discussions between children, and between children and adults encourage children to construct and reconstruct ideas for themselves (Staley, 1998).

Art materials. Art materials are used to advance children's knowledge and to provide them with a visual mode for communicating. Part of the Reggio environment is the atelier; a space used for art activities as well as ongoing projects. The atelier provides opportunities for adults to gain an understanding of the processes by which children learn. An atelierista (art specialist) works in the atelier to prepare, provide and provoke learning (Staley, 1998; Vecchi, 1993).

Documentation. Documentation of the learning and teaching process through slides, videotapes, photographs, children's art work and other products, anecdotal records, and transcriptions of children's words (Vecchi, 1993) is seen as crucial in the Reggio approach. Documentation is used to provide evidence of children's interests, learning and developmental skill levels; to inform parents and community members of school activities; and for teacher in-service training that leads to further curriculum development and program improvement.

Collaborative teaching/learning style. The Reggio approach uses collaborative planning teams of parents, teachers, the atelierista, and the children to create the curriculum. All have input into the planning of learning activities.

Using the Reggio Emilia Approach for Young Gifted Children

The Reggio approach and the various gifted education models and approaches discussed in the literature review, share similar beliefs about effective curriculum and instruction for young children. Review of the literature indicated that the Reggio Emilia approach holds promise as a way to inform the creation of developmentally and individually appropriate curriculum and instruction for young gifted children.

Method
Introduction
A qualitative research approach, using ethnographic methods of data collection and analysis was used in this study. This section describes (a) the research participants, (b) the research settings, (c) data collection, and (d) data analysis.

Research Participants

Participants in the study included administrators, teachers, paraprofessionals, and young children involved in two childcare centers. University Institutional Research Board approval and written consent from all research participants was obtained prior to gathering data.

Research Setting

The study was conducted at two community-based early childhood centers. Center A is a private childcare center located in a mid-to-high socioeconomic suburban area. Center B, is run by the university and located on campus in a low socioeconomic area.

Data collection

Ethnographic methods of data collection obtained "fruitful sources that offered opportunities for critical insights" (Thomas, 1993, p. 40) into how these two centers meet the needs of young gifted children. Data that would allow a critical viewing, discussion, and analysis of the data, were collected through individual interviews, focus group interviews, field observations, and gathering of teacher and child artifacts.

Individual Interviews. Individual interactions between the authors and the administrators, teachers, paraprofessionals and children were used to establish a rapport and membership within each program. Informal discussions and interviews with educators were conducted both within classroom settings and outside classroom settings. As it fit in naturally, the authors talked with the children during play activities to gain first-hand knowledge about their individual characteristics, interests, learning styles, and reflections on the activity in which they were participating.

Focus Group Interviews. Administrators, teachers and paraprofessionals at each center were invited to participate in a group discussion that was guided by the research questions. Dates, times and settings were chosen by each center. The authors sent the guiding research questions to the administrators in advance, so participants could think about the topic prior to the focus group.

Center A chose to meet after hours at the center. The focus group was conducted with participants sitting on the floor. Some brought their dinner and their own young children. Participants included 1 administrator, 3 paraprofessionals, and 5 early childhood teachers

Center B chose to meet during a regular time set aside for staff meetings and was conducted in the afternoon at the center, seated around a table in the teachers' workroom. Participants included 1 administrator, 1 paraprofessional, and 4 early childhood teachers. Two teachers were on summer break and not able to attend.

Field Observations. At least three days of each month during the summer, the two authors visited the centers to gather data. The authors obtained data through natural interactions within the daily routines in all areas of the centers.

Gathered Artifacts. The authors gathered artifacts from the participants at each site. Artifacts included child products and portfolios; teacher portfolios;

photographs taken of activities, children, and products; and other written documentation.

Data analysis

Individual interviews, focus group interviews, observation data from the field notes, and artifacts were all coded using the constant comparative method (Maykut & Morehouse, 1994) to develop answers to the guiding research questions and to establish themes across the data. Transcribed notes were discussed with the research participants to assure that intended meaning was captured. Additionally, the two authors discussed the data, coding and recoding until 100% agreement was reached. Through the multiple types of data gathered, researcher agreement, and member checks, triangulation of the data was obtained and reliability established.

Discussion of Results

Results from the research are presented for each of the three secondary research questions.

How are young children with advanced abilities identifiable to professionals?

One of the themes that emerged across both settings was the ability of educators to identify children with advanced learning abilities. Specific identifiers provided by participants from both settings included children who (a) demonstrate advanced play skills; (e.g., organize roles for peers and rules of dramatic play); (b) use a large vocabulary; (c) choose to communicate with adults over peers due to advanced communication needs; (d) have an intense interest in topics; (e) show advanced development (e.g., child potty-trained herself at 18 months of age); (f) prefer to play alone rather than with others; and (g) demonstrate signs of boredom. Teachers and administrators from both centers believed that they were serving young gifted children, although they had no formal identification process.

How are childcare centers implementing Reggio Emilia as an approach?

Center A participants believed that they implemented many of the Reggio approach components. The owner and administrator stated that she and her co-director collaborated with architects when designing the structures allowing for open spaces with lots of natural lighting. Spaces in the interior of the building were used to display children's products and promote communication among children, staff, family members, and community members who entered the building.

Participants of Center A, during both focus group discussions and individual interviews, described other components of Reggio that had been implemented. For example, participants in one classroom described an ongoing project that began with one child's interest in fish. This led to activities such as reading about fish, doing art projects about fish, and even buying live goldfish to place in the water table. The children made up rules for touching the goldfish so as not to harm them. The children talked about what to do with the fish when they

were finished with them. All voted to take them to a creek that was nearby and set them free.

Other examples from the participants at Center A described how the children's products were displayed in the center's galleries. This led to discussions of how the children expressed their knowledge through art products, transcriptions of their communications and/or stories, and photographs of their activities. Center A participants also talked of how they included family members in designing and helping with the children's projects, as well as, the conversations with families on the items displayed in the galleries.

At Center B, only one teacher reported that she had attempted to implement the one critical component of the Reggio approach called projects. She had identified an interest of each child with the assistance of the parents. Then she organized the interests into 'summer projects' for the children to explore both at home and at school. She reported that although it was similar to the Reggio projects, the activity was not based on the Reggio approach because she had not known about the approach at the time that she implemented the 'summer projects'. Other teachers had not heard of the Reggio Emilia approach, and so did not think they were implementing it.

In what ways does the Reggio Emilia approach meet needs of young children with advanced abilities?

Participants at Center A believe that the center provides for and meets the needs of young gifted children. They also believe that the Reggio approach meets the needs of ALL children. They view the Reggio approach as easily adapted or differentiated to provide activities that met any child's individual learning needs, whether s/he had delays, disabilities or was gifted. However, the participants provided no documentation that they had formally evaluated the method to date to be able to adequately answer this guiding question.

Center B teachers and administrators reported that since they did not know about the Reggio Emilia approach they could not respond to the question. Rather, this question stimulated the participants at Center B to ask for more information about the approach. Both centers have asked for additional information and appear eager to implement the Reggio approach, as they see it as appropriate for ALL children.

General insights

Both centers provide a developmentally appropriate approach to early childhood care and learning for the children and their families. Both centers use a variety of activities to encourage development and early learning in their diverse groups of young children, ages birth through 5 years. The directors of the two centers require best practice efforts from the staff, but also allow autonomy of choosing which early childhood curriculum to use in each educational setting/room. Many of the staff reported using a combination of practices from a variety of early childhood curricula to develop an eclectic approach in order to meet the needs of children within their care.

From observations, the authors found that some of the individual classrooms at Center A have implemented a Reggio Emilia approach, while all classrooms at Center B use a more traditional early childhood model. Teachers at both centers actively facilitated the learning rather than only providing needed materials. Particularly at Center A, the teachers' questions and comments encouraged and motivated children to make connections and form deeper understandings.

Conclusions

From interviews, focus groups and observations, the initial research determined that one of the childcare centers was adapting and implementing some components of the Reggio Emilia approach on a regular basis. It appeared that adaptations of the approach were relatively easy to incorporate into a more traditional approach. Although teachers at the other childcare center were not currently using the Reggio approach, they showed a strong interest in further exploration of the approach with a view to implementing it in their center. Findings from the research indicate that the Reggio Emilia approach offers a viable development framework for appropriate and responsive curriculum for young gifted learners.

The authors are committed to continuing the investigation of the use of the Reggio approach with young gifted children. Next steps include (a) continued data gathering from the two centers and from interviews with family members; (b) preparing in-service materials for teachers to assist with the implementation of the Reggio approach, and (c) researching the effectiveness of the Reggio approach with young gifted children.

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CROSS CULTURAL AND CROSS GENERATIONAL PERCEPTIONS OF INTELLIGENCE IN AUSTRALIA: WORK IN PROGRESS

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ABSTRACT

The concepts of intelligence and giftedness are widely debated and discussed yet have remained elusive particularly from a cross cultural perspective. Parents are often the first and sometimes only source of identification, particularly when it comes to identifying giftedness in young children under school age. Exploring the implicit theories held by parents from a range of cultural backgrounds regarding giftedness and how it is manifested in young children, will expand our understanding of what Sternberg included under his contextual theory within his triarchic theory of intelligence. The aim of the present study was to explore concepts of intelligence and giftedness within and between different cultural groups in Australia. Only the results from some pilot testing are being reported here. These findings will be used in a larger study that will adopt a cross-cultural and cross-generational approach. The present paper reports preliminary findings of two small pilot studies conducted to test the methodology for the larger study. These pilot studies have tested the wording for questions to be used in the major study.

As Sternberg & Davidson (1986) suggest if the definition of giftedness is not a useful one, it can lead to unfavourable consequences for individuals and society. If the definition of giftedness is not valuable, talents may be wasted and less valuable ones fostered and encouraged. Ford & Harris (1990) suggest that as with many terms and concepts in the social sciences, the concepts of intelligence and giftedness are widely debated and discussed yet have remained elusive. If these concepts are elusive among people sharing a common culture, one can only suggest that they are even more elusive if considered from cross cultural perspectives.

Traditional definitions of intelligence and gifted date back to Terman (1925) who introduced his unidimensional definition of giftedness as the top 1% in general intelligence ability on the Stanford-Binet Intelligence Test. The most commonly used definitions of giftedness define gifted students by either high scores on IQ tests, or high scores on achievement tests (Bernal, 1981; Renzulli and Stoddard, 1980; Torrance, 1977a; Yancey, 1983).

When applied to children of minority cultures these measures are open to bias.

More recently, Renzulli (1986) provided an alternative definition acknowledging that giftedness can be manifested in many ways. He sees giftedness as consisting of an interaction among three basic clusters of human traits - above average general abilities, high levels of task commitment and high levels of creativity. Gifted and talented children are those possessing or capable of developing this composite set of traits and applying them to any potentially valuable area of human performance.

Both Sternberg (1985) and Gardner (1983) suggest that cognitive ability on its own can neither fully nor adequately describe giftedness and within their elaborations of the concept of intelligence there are elements that focus attention on the need to consider context. Sternberg's triarchic theory of intelligence (1985) specifically highlighted the importance of cultural perspectives. In this theory Sternberg proposed that intelligence depends on information processing skills and strategies (componential theory), intelligence is purposeful, goal-oriented, relevant behaviour consisting of the ability to learn from experience and the ability to adapt to one's environment (experiential theory), and that intelligence cannot be understood outside of a socio-cultural context (contextual theory). It follows from the contextual theory that what is "gifted" in one culture or environment may not be in another.

Gardner's Theory of Multiple Intelligences (Gardner, 1983) suggests that intelligence is manifested in at least seven discrete competencies: linguistic, logical-mathematical, spatial, bodily kinetics, musical, inter-personal and intra-personal. The variety of forms of giftedness or exceptionality this view admits also suggests the important role of social or cultural context in recognition of talent. Both the triarchic theory and the theory of multiple intelligences are explict theories of intelligence. Both are the constructions of psychologists or other professionals based on and tested through data collected from people performing tasks presumed to measure intelligent functioning. Less research has focused on what Sternberg et al (1981) have referred to as implicit theories of intelligence. Implicit theories of intelligence are constructions of individuals, professionals or laypersons, representing their specific views about the nature of intelligence. As Sternberg et al suggest, the importance of implicit theories of intelligence have been underplayed in psychological research even though most assessment and training of intelligence that occurs in the real world are based on implicit rather than explicit theories of intelligence. Sternberg et al conducted a study to explore implicit theories of intelligence, creativity and wisdom held by laypersons and compared these to the explicit theories of psychologists. They found differences between laypersons' implicit theories and the explicit theories held by psychologists. Overall they found that laypeople gave more prominence to practical skills or common sense than was the case for the explicit theories held by professionals.

When it comes to considering issues such as the identification of gifted children, parents' implicit concepts of intelligence and giftedness inform their referrals. Parent's have first hand knowledge of their children and their abilities and may be the only ones that have this knowledge, particularly when one is talking

about the identification of gifted children below school age. Identification of children below school age has important implications for the early provision of special experiences for gifted children; appropriate curriculum in preschool settings, alternatives to preschools such as early learning centres, and early entry into school.

Parents are often the first and sometimes only source of identification, particularly when it comes to identifying giftedness in young children under school age. Therefore, for both theoretical and practical reasons it is paramount that parents implicit concepts of intelligence and giftedness are explored. That is, exploring the implicit theories held by parents from a range of cultural backgrounds regarding giftedness and how it is manifested in young children, will expand our understanding of what Sternberg included under his contextual theory within his triarchic theory of intelligence. For it is on the basis of their implicit concepts of intelligence and giftedness that parents will or will not identify their children as gifted. Although parent nomination is vital in identification of gifted children, particularly during early childhood, it becomes a problem in a multicultural society where the dominant cultures' view of what constitutes giftedness or high academic potential may not match the concepts or educational concerns of cultural minority groups.

Cross cultural research investigates the differences in behaviour among cultures and attempts to interpret these differences. Systematic cross cultural research in gifted education is a recent phenomenon and to date has focused on studying issues related to cognitive performance, affective factors and academic achievement (Hernandez de Hahn, 2000). As Berry & Annis (1998) point out most of the cross-cultural research conducted in the past concentrated on international work that involved exploring cultures in different countries. This continues today providing interesting findings regarding gifted education in different countries. However, as Hermans & Kempen suggest, instead of comparing countries or regions, researchers should study the cultural changes that occur in the meanings and practices of people as they interact with individuals of other cultural groups. This contact with other cultures may occur within one region as is the case of multi-cultural societies. This is the sort of contact that occurs in Australian society, so that rather than comparing Australia with other countries, we should also focus on studying different cultures within our multicultural society.

The identification of gifted minority children in the United States has been, and is agrowing concern for educators and psychologists working. A similar situation is occurring in Australia. To date there have been several studies on giftedness with the Aboriginal community. Some of these studies have focused on various aspects of gifted education such as curriculum modification, (Forbes-Harper, 1996) and parent and community involvement in gifted programs (Day, 1996; Forbes-Harper, 1996). Others have applied innovative teaching models established in the United States for African American and Hispanic populations, to the Aboriginal community (Gibson, 1996). The Aboriginal population has had a particular history in Australia and continues to experience particular social, economic and political issues that are separate and unique to those experienced

by other cultural groups in Australia. Caution needs to be exercised before generalizing the results of these studies to other cultural groups in Australia. As Gibson (1996) points out throughout the 1980s and 1990s educators became increasingly aware of the diverse cultural and economic backgrounds which students in Australia bring to their schooling. Similiarly, Dorbis & Vasilevska (1996) pointed out that Australian schools have classes whose students have come from 20 different countries and in some schools there are over 40 cultures. Students who are not from the dominant culture are generally underrepresented in the range of programs and provisions for gifted and talented students. As Dorbis and Vasilevska stress it is the conceptions of gifted and talented held by the dominant cultural group that influence testing methods, curriculum, programs and provisions. Hence, the specific implicit theories or conceptions of intelligence and giftedness held by a range of cultural groups need to be researched in order to better identify students from the non-dominant culture.

Frasier (1987) identified ten general attributes that illustrated giftedness in children across various minority groups in America. The ten constructs were motivation, interests, communication, problem-solving ability, memory, inquiry, insight, reasoning, imagination/creativity and humour. Gibson (1994) adapted this model to identify gifted Aboriginal students in an urban setting. People in the Aboriginal community were interviewed and Aboriginal teachers surveyed to determine their concepts of giftedness. The most highly rated indicators were communication, motivation and inquiry. Gibson found over 90 descriptions, which did not relate to Fraser's ten core attributes. These related to social abilities and self-awareness. Social abilities included examples of leadership, sensitivity to others' needs and emotions, social maturity, social responsibility and self-confidence. Gibson concluded that the large number of gifted behaviour descriptions relating to interpersonal or intrapersonal ability demonstrated the value placed on such behaviours by urban Aboriginal people. Therefore, Gibson (1995) recommended that an Intrapersonal/Interpersonal attribute be added to Frasier's ten core attributes when they were to be used with populations of urban Aboriginal children. The Intrapersonal/Interpersonal Ability attribute was defined as an unusually heightened understanding of self and others. This attribute included descriptions such as knowledge of own strengths, emotions and cognitive style, leader, organiser, sensitive to the feelings and needs of others, self confident and mature for age. Gibson's work highlights the implicit theories of giftedness held by an Aboriginal community and how they differ from both the implicit theories held by other cultural minority groups in the U.S., and the explicit theories of giftedness held by the dominant culture. This study clearly demonstrated that if implicit theories held by different cultural groups are not explored we fail to meet the developmental needs of children representing all cultures in Australia.
Gibson adapted Frasier's model to the community she was researching. It may have been more valuable to undertake this research by beginning with the community's own conceptions of giftedness rather than assessing the applicability of a pre-existing model. Furthermore, research such as this can be further enhanced if the minority group researched is compared to the dominant group in

that community so that similarities and differences between them can be ascertained.

Dorbis & Vasilevska (1996) cited one Australian study that examined a non-indigeneous minority group. This Victorian project sought to test the universality of popular ideas about giftedness by conducting a small study of a Lebanese community in an inner metropolitan area of Melbourne (Victoria, State Board of Education, 1987). The study involved interviews with 114 participants, parents, primary and post primary students, and members of the community. Findings from the study showed that gifted students were perceived to have a number of characteristics including both a high level of specific personal and social attributes that would make them an asset to society. Moral standards, obedience to the family, citizenship and motivation were ranked highly. Both of these studies of giftedness within specific cultural groups suggest that interpersonal skills form part of their concept of giftedness. However, the Aboriginal community rated leadership highly whereas the Lebanese community rated moral standards highly again highlighting cultural differences in implicit theories of giftedness. These studies also highlight some important differences between implicit theories held within specific cultural groups and the explicit theories of giftedness held by the dominant culture which are also the theories that inform policy and practice.

One study that has investigated different cultural groups within one country was reported by Nevo & Khader (1995). They examined the effect of mothers' ethnic affiliation on their conception of children's intelligence. Singaporean mothers of Chinese, Malay and Indian ethnic origin responded to a 55-item questionnaire. For each item, the respondents indicated how typical they thought the specified behaviour was for an intelligent child. The Singaporean mothers' conceptions of intelligence yielded four factors: Cognitive and Academic Performance, Appropriate Behaviour, Socially Interactive Behaviour, and Unintelligent Behaviour. The Indian and Malay mothers rated the items in Factors 1 and 2 higher than the Chinese mothers did. Nevo & Khader (1995) suggested that this could have been a function of Chinese mothers responding conservatively because of a cultural need to present oneself as agreeable and humble. Another possible explanation is that the Chinese mothers may have had higher expectations for their children. Chinese mothers appear to put great faith in tests and are more apt than other mothers to describe a child as being very intelligent on the basis of a high score on an intelligence test. Tests are important in Chinese society as evidenced by the fact that civil servants are hired and promoted on the basis of their performance on tests. The Malays in Singapore are more religious and more traditional than the other two ethnic groups. Nevo & Khader (1995) stated that these attitudes are reflected in the outlier items for this subgroup (e.g. "respects his/her elders", "knows right from wrong", "is spiritual and religious"). They suggested that perhaps Malay mothers incorporated their cultural values into their conception of intelligence.

The aim of the present study was to explore concepts of intelligence and giftedness within and between different cultural groups in Australia. Only the results from some pilot testing are being reported here. These findings will be used

in a larger study that will adopt a cross-cultural and cross-generational approach. The implicit concepts of intelligence and giftedness held by three cultural groups (Chinese-Australian; Greek-Australian and Anglo-Celtic Australian) across three generations (children, parents, grandparents) will be sampled in that study.

The present paper reports preliminary findings of two small pilot studies conducted to test the methodology for the larger study. These pilot studies have tested the wording for questions to be used in the major study.

Study One: Children's Study

Aim: to explore children's concepts of intelligence and giftedness.

Participants
There were 14 participants aged between 5 and 14 years of age obtained through convenience sampling.

Procedure
Following parental consent, participants were individually interviewed and their responses recorded. Participants were asked a total of six questions, however only two are reported in this paper. The questions were: "What do you think smart means?" and "What does it mean if you're very, very smart?"

Results

Table 1: Sample of Children's responses to questions 1 and 6

Question 1 "What do you think smart means?"	Question 6 " What does it mean if you're very, very smart?"
(good at) Reading	Concentrates well
Writing	The way you answer questions
Maths	Someone who finishes work early and helps others
Drawing	Always gets good marks
English	Always answers the questions
Fast at work	Knows more than the other children
Finishing first	They tell you they are
Knowing all the answers	The teacher tells you
Being good at everything	
Understanding everything	

Discussion

Overall children were able to clearly articulate responses to these questions indicating they had clear concepts regarding the meaning of "smart" and "very, very smart". With the exception of drawing, the responses to question 1 reflect the major areas concentrated on in the current school curriculum and the traditional indicators of being "smart", that is, academic abilities. The responses to question 1 also suggested that some children thought that being smart was about how much a person knows "knowing *all* the answers" and/or "understanding *everything*".

The responses to question 6 did not contain references to specific curriculum content or particular abilities. These responses indicated that the children were describing a particular way of behaving in class such as "concentrates well" "the way you answer questions. Some of the answers also contain the idea of 'very, very smart' being about breadth of knowledge ('always', 'knows more'). The children's responses also suggested that they readily identified who was "very, very smart". This could have been the result of their own independent judgement or may have reflected teacher identification. Morever, although not presented in the table every child interviewed named (without prompting by the researcher) someone who they thought was "very, very smart" in their class.

Study 2: Adult Study

Aim: To explore adult's concepts of intelligence and giftedness

Participants:
There were 37 participants aged 20-57 years of age.
Twenty- eight were aged between 20-40 years of age and three were aged between 41 and 60 years of age.
The occupations of the participants were diverse spanning professional to semi-skilled positions. Most of the participants (72%) resided in the same municipality and described themselves as Anglo-Celtic Australian (75%).

Materials
A single page, double sided survey was used. The survey contained a brief description of the study and the researchers contact details in the event that participants wanted to contact the researcher. The front page of the survey also contained demographic questions, such as age and occupation. The back page of the survey contained six open-ended questions.
Participants were not required to include their name.

Procedure

Surveys were placed in a fast food outlet with pens and a sealed box. Completed surveys were placed in this box and collected by the researcher.

Only three of the six questions are reported in this paper.

Results

Table 2: Adult's Responses to " What do you think intelligence means?"

Examples of Responses
Processing information quickly and efficiently
Ability to retain information
High IQ
Above average mental ability
Knowledge on a range of subjects
Textbook smart
Getting good grades
Quick thinking
Using common sense
Adapting to your environment
Something which is given to you from above - from God
Insight
Distinguishing between sensible and nonsensible choices
A natural understanding of things
Grasping complex issues quickly

Generally, the responses to this question suggested that people's concepts of intelligence were quite varied. That is, some respondents focused on IQ and mental ability, the processing and retainment of information and others mentioned common sense, adapting to your environment and insight.

Table 3: Adult Responses to "What does gifted mean?"

Examples of Responses
You're a natural; Blessed with natural ability
Born with it
"To be especially talented in an area, e.g. music, reading, writing, maths"
"To be practically capable, to have good hand skills, things beyond learning, these are gifts"
"Ability to be happy… intuition…ability to make friends"
"A special quality"
"Special…not necessarily gone to school"
"Knowing more than the average person"

"Grasping and understanding complex concepts"
"A special kind of intelligence"
"Above average intelligence, above your age"
"Excelling, being talented in a specific area"

Overall, the responses to this question implied that gifted meant being out of the ordinary, having a particular talent or ability and /or being "special" in some way. In addition, some responses focused on being "practically capable…beyond learning".

Table 4: Responses to "How could you tell if a child aged 4 to 7 years was gifted?"

Examples of Responses

"They're bright"
"By comparing their knowledge, level of skills with other children of that age"
"I don't know that gifts would develop so young, perhaps they do"
"You can tell, you just know"
"Specific talent…inborn..untrained"
"They perform consistently, without encouragement"
"They're happy, self-assured"
"A gifted child will show compassion and thought that can be understood by an adult. They learn, interact and can easily make their thoughts known through a given medium"
"By paying attention, by observing"

Discussion
Overall, the responses to this question suggested that children and adults know whether a young child is gifted by observing them and paying attention to what they do. Some respondents mentioned specific talents while others mentioned level of knowledge in comparison to age peers. Interestingly, both interpersonal and intrapersonal skills were mentioned as important indicators of giftedness in young children by some respondents.

Concluding Comments
Overall, the results from these two pilot studies indicated that the form of questions was appropriate for the two age groups sampled. Both child and adult participants were able to clearly articulate their views, their implicit theories of intelligence and giftedness. The sample of responses demonstrated variability in these implicit theories as well as some strong similarities. Some responses were similar to the explicit theories of intelligence and giftedness adopted by

psychologists and educators. These included attributes such as "above average ability" "excelling, being talented in a specific area". However, some of the responses indicated attributes that were in direct contrast to explicit theories of intelligence and giftedness such as "To be practically capable..." These findings are similar to those reported by Sternberg et al. (1981). When addressing the issue of early identification of giftedness in children, the responses indicated that both observational knowledge and intuitive knowledge of children were important ("by paying attention, by observing" or "you can tell, you just know"). Many parents of young gifted children similarly report that they "just knew" their child was different.

The results from these pilot studies suggest that exploring people's implicit theories is a fruitful way of approaching cultural perspectives on intelligence and giftedness. Our preliminary findings point to important similarities and differences between implicit and explicit theories of intelligence and giftedness.

Education systems use the explicit theories of the professional to inform policy and practice. If people, particularly parents have a role to play in the early identification of children who will benefit from educational enrichment experiences, the implicit theories of intelligence and giftedness being using to inform observations of their children need to be understood. This is particularly important in a multicultural society where it is reasonable to expect that there may be significant cultural differences in parents' implicit theories of giftedness and intelligence.

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ELEMENTARY PIONEER SCHOOL TALENTA ZURICH FOR HIGHLY: GIFTED CHILDREN. DO IT. QUESTION IT. LET IT GROW

Jean-Jacques Bertschi
WCGTC Delegate for Switzerland

For 3 years, Talenta school has now gained experience in the education and provision of 30 highly gifted and talented (g&t) primary school children. The initiative to - finally - do something instead of lamenting and being depressed, was taken by two personalities whose individual assets enabled many synergies. They are: **Xaver Heer**, father of a g&t son, high school teacher and biologist. He made pioneering pedagogical concept for the school and is its present director. **Jean-Jacques Bertschi**, Human Resources consultant, Member of Parliament. He took care of fund raising, public relations, contacts with authorities and is the president of the private non profit "Verein Talenta".

None of them could have done the hard work in the pioneer period without the other. The Swiss media, well aware of the need to permanently increase the quality of the education system, supported the idea of founding a school dedicated to the manifold problems of gifted children. The Zurich economy helped the project with some funds that were used to integrate from the start children whose parents could not afford a private school with double the number of teachers than the state school.

The "brand" Talenta as it is registered consists of four elements:

1. Age & school program are the same as in Zurich primary school (6 to12 years)
2. No barriers to learning progress: If a child is ready and willing, it may go forward.
3. Social learning in groups and classes play a major role in the concept.
4. A professional admission procedure is intended to make sure a good mix.

This admission procedure has provend to be of utter importance. It goes as follows:

1. Broad, professional _analysis_ of g&t potential (by a 3rd person)
2. Optional: additional assessment of _specialities_
3. Meeting at University of Zurich (dept. special education): _motivation_ for Talenta?
4. _Input_: by parents, teacher, experts
5. _Trial_ day at Talenta (mutual "fit")
6. _Decision_: impact of group fit, sex, habits etc.
7. Probationary period; at 3 months' notice

Both aspects - identification and admission - are still "under construction". It is indeed breathtaking how individual and how diverse the need of these children are, once you try to be sensitive to the broad array of their problems. These oscillate very often between the four pillars personality - parents - professors - peers. None is alike. This is true as well for practical problems in the field of identification:

- Can tests really measure <u>extreme</u> talent?

- How do tormented children react to testing?
- Will different test series produce similar results?
- How important are they for daily problem solving?
- What about underachievers and …girls?

PICTURE: HOW TALENTA IS ORGANIZED TODAY

The organisation of Talenta is simple and effective. Three bodies act independently: parents, evaluation and supervision. The transparent structure has been especially during conflicts in the first year where many question were still open to discussion. In the meantime, the concept has been rather stable though it always needs adaptations.

In a few words, the concept of Talenta adheres to the following basic outlines: Talenta is a modern school and a learning organization.

A. *Aim* & vision is the well-being & eagerness to learn of all pupils
B. *All* develop, set, respect & guarantee rules together as a community.
C. *Staff* is under permanent evaluation & supervision. There is close cooperation.
D. Teaching methods: an exploratory & autonomous approach is preferred (projects).
E. Specialities: There is often made us of informatics tools & natural sciences projects.
F. The children learn in small tailor-made learning groups, but live together in a big class.
G. The official goals are respected and attained, but there is much pluralism in method, style, speed.

Talenta - to give a negative definition - is by no means apt for drill, selfish bookworms and careerists. This approach was steadily, on site, developed and has led to two preliminary results: a) all children feel happy, b) can be fully integrated or reintegrated in state schools, and c) the many contacts of the teaching staff have produced some benefits to colleagues (visits), to writers of textbooks and to researchers of the University of Zurich (typology of g&t children).

In October 2000, Talenta organized an exchange workshop of "fellow practitioners", pioneers all over Europe. The five headings or findings that were accepted by all of them reflect the experience of the growing field work in Europe:

1. Media & PR help to foster high public awareness of the needs of g&t children.
2. There is a lot to do in early (and useful) identification of g&t children.
3. There is anxiety about the very little number of girls in g&t programmes.
4. Methodical approach: Enrichment seems often to be more adequate than acceleration.
5. A close cooperation of schools with the parents of g&t children is decisive for the success.

PICTURE: THE TALENTA NETWORK

There are many traps for pioneers. The following remarks may help you to avoid at least some of it:

1. Always stress: gifted children are children:. They want to be happy.
2. If they obtain brilliant results, it is a great gift, but not the only goal of their education.
3. Open the 'public eye' for their needs, but do not preach. Many roads lead to Rome...
4. If founding a school: Start small, but start soon (take your time for results).
5. Walk slowly, step by step, but walk steadily. Hypotheses are not equal to reality.
6. There is always the unexpected. It's there anyway - so learn to love it (humour)!
7. Save money on infrastructure, but spend it with both hands for teaching.
8. Do not mix-up responsibility for the concept with active parent participation.
9. Mistakes are allowed: especially your are the first to try in your town or country.
10. Admit mistakes frankly, even in public, but show how you learn and how you go on

We are on the move. There are many hopeful initiatives in field work with gifted children as well as in scientific research. Both should work together more closely, more actively, and respect the opportunities and risks, but primarily the accelerating effect of an open and sincere exchange of ideas and "results". There will be no easy solutions. But who - after the dreadful events of 11 September 2001 - would challenge the wish and the hope that the children of tomorrow are able to use their brilliant brains a bit more in favour of a stronger sense for humanity than our generations did. Highly gifted and talented children could do fine. If we hand them over the necessary tools.

The World of Information: Opportunities and Challenges for the gifted and talented

How Talenta is organized today

Association Talenta: Promotion of HT

Head Office, Info, PR

Admisson, Counselling

Managing Comittee: Pres., CFO, Dir.

Scientific Evaluation

School Talenta Zurich
Director
Teaching staff
30 pupils (2/3 boys)

Group Blue   Group Red   Group Green

Parents' Council

Independent Supervision
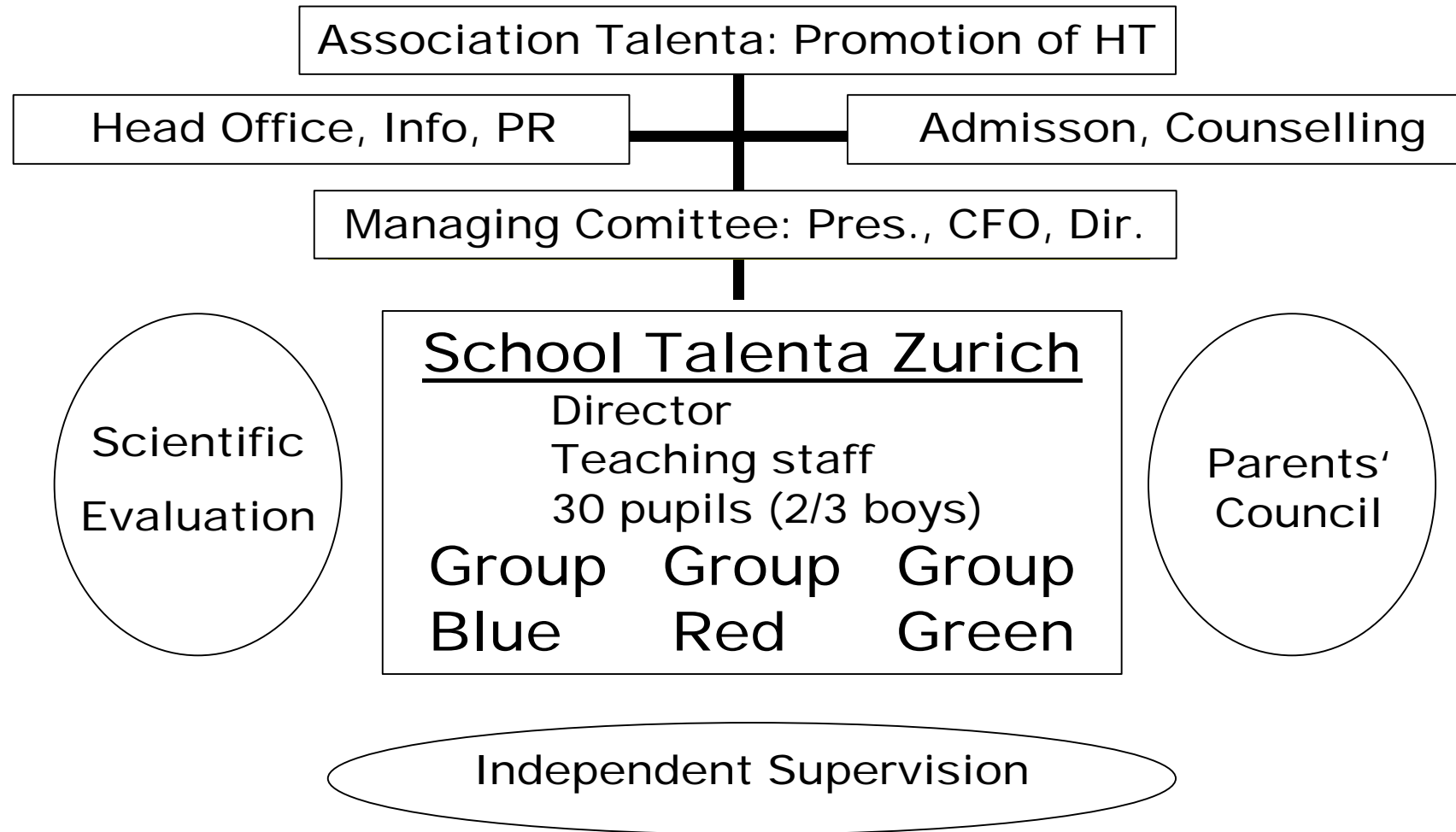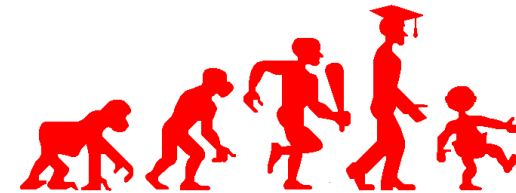
The Talenta network
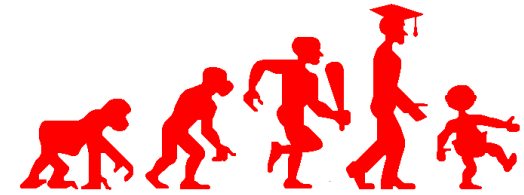
University of Zurich

Talenta's in Basle & Germany

World Council for Gifted & Talented Children

PR in:
Geneva Berne
Basle Lausanne
Fribourg Valladolid
Barcelona Locarno
Vienna Hannover

Zurich
Education
Department
Law, Adm. etc.
Parliament (M.P.)

European Exchange Workshop

Media: sda. **NZZ**
TA ZDF **SFDRS**
Die ZEIT WWW

THE SYSTEM OF WORK WITH GIFTED CHILDREN IN REPUBLIC OF KAZAKHSTAN

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Daryn Center
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This year the Republic of Kazakhstan is celebrating the tenth anniversary of its Independence. Kazakhstan is developing as a sovereign, democratic, legal State aiming to enter the world-wide cultural space.

The perspectives of the state development are marked (outlined) in President Nazarbaev's "Message to Kazakhstani people 2030". It says: 'The leading factor of economic and social break-through into approaching century is the people of the state, their will, their energy, persistence and knowledge'. For the solution of these objectives it is necessary to advance intellectual and creative potence of the Republic, to create civilized conditions for the development of the gifted children and youth. Social order of the society brought up an objective to undertake new approach to the work with the talented children. This activity was given a new impulse by the instruction of the President 'About State support and development of schools for the talented children'

In 1996 there was worked out 'The state program of support for the gifted children'.

The program is expected to be realized during 1998-2000 (the first stage) and from 2000-2005 (the second stage). The same year the new organization called Republican Scientific-practical center 'Daryn' was opened and began to function. 'Daryn' means 'Gifted'.

The aim of the report under review-is basing the system of work with the talented children in the Republic of Kazakhstan and generalization the results of its three years activity.

The organizers of the center had to solve a number of theoretical and legal tasks and to create the system of the work with the gifted children.

This system is characterized by the following general principles: integrity, structurality, ieararchy. Coming out from theoretical positions the system of the work is totality of educational institutions including nurseries, infant schools, colleges, Institutes, Universities in their cooperation, interaction, interrelation.

Table 1 presents the structure and the content of the work.

The aim: Social support for Gifted children and youth.

Organizing forms: Educational Institutions.

Expected Results: Intensification of social development and scientific-technical progress in the Republic of Kazakhstan.

The compound element of this system is managing process which is based on the cooperation and interaction of managing and quided sides directed to great achievements in the future.

The levels of the management are presented in table 2(This scheme is based on the conception of management by Parson).

As it is presented in the table first of all it is the Government of the Republic in the name of the Ministry of Education and Science, then comes Republican Scientific center 'Daryn' the third to come is regional departments of Education, regional scientific-practical centers, branches of 'Daryn' and other organizations of Education. All these structures more or less participate in the realization of the objectives of this work. But there is a problem of employment of the youth after graduation from the Universities.

And we suppose that the Governmental structures, ministries, Institutions of science, economy, culture, agriculture should provide help to solve this problem. Moreover it would be better if they provide talented youth with grants while they are studying at the universities and when they begin their first job career (quidance). Only then the youth will understand and realize that they are necessary for their country, for their Motherland.

In table 1 you see the functions of the management. The main of them are planning, organizing, stimulating and controlling.

In this system of managing scientific-center 'Daryn' plays important role. Its functions are polysided (polyhedral). It fulfills not only planning, organizing, stimulating and controlling functions but legal, normative, scientific-research functions as well.

Thus 'Daryn' has its own charter. It functions in accordance with the Constitution of the Republic, its laws, decrees, documents of the ministries and its own charter.

The main aim and the objectives of the center come out from Republican program of support for the talented and directed to:

1 supporting, developing and providing the highest level of education for the talented children.

2 Training creative individuals who are able to think, to act in new conditions of transformation of modern civilization.

3 Providing social, legal and intellectual support.

4 Developing international cooperation in the field of innovative educational technology in the education and training talented personality.

5 Assisting the formation of intellectual potention of the Republic.

The staff of the center consists of administration (the director, her assistants who cope with organizing activity and scientific-methodical activity, the lawyer, the staff inspector and an accountant.) Pedagogical department which consists of manager, the leading specialist, diagnostic laboratory with the number of psychologists and operators. Among the 35 employees of the staff there are 2 professors, doctors of science,10 candidates and the rest are specialists with high qualifications who are also engaged in scientific work.

Except this managing departments there organized different groups of psychologists, scientists, writers, journalists, musicians, professors, actors, teachers to organize, to supervise, to test different activities held in the center. Activities: contest, Olympiads, tests on different school subjects, presenting scientific projects, painting, drawing contests, acting, singing, dancing, sport events, debates, talkshows and so on.

Center 'Daryn' is provided by financial, technical and scientific methodical assistance to advance its wide activity. One of the important factors is that the center is located in the south capital of the country where there are scientific, cultural institutions and there are highly qualified specialists in different fields of science. Their assistance plays important part in the activity. In the center 'Daryn' there worked out the conception of revealing, selection, support and development of the talented children in the Republic. It controls the activity of the regional scientific-practical centers and does much to improve the system of work.

Also the center deals with publishing activity. Table 3presents the types of information activity :
1 conceptual programs.
2 orders, directions, charge-sheets.
3 scientific-methodical recommendations.
4 tasks for the students.
5 reports about the activities of the regional centers.

'Daryn' publishes its own magazine in which they raise essential problems of education, publish programs, recommendations, new pedagogical technologies in teaching, psychodiagnostic and correction programs, the results of different events(contest Olympiads, projects and so on). In a three year period there were published such educational supplies as 'psychological training for the students', 'Diagnosis of preparedness of children for studying at school', 'The library for the participants of Olympiads. They are very useful, necessary for the students and for the teachers of specialized schools, especially for different types of Gymnasiums and colleges. As for educational-methodical activities main aim is improving the system of revealing, selecting, supporting and developing of the talented children and youth.

That's why the center forms new schools which give good opportunities for larger number of students to develop their abilities, to display their talents.
Table 4 presents a number of schools formed by 'Daryn'. Thanks to them, to their activities the main pedagogical aim is being solved. I mean the promotion of the intellectual potential of the Republic.
Table 4 presents social, psychological medical and pedagogical service provided by the center for the children and youth. As for scientific-methodical and scientific-investigation activity center 'Daryn' began to make a research work on the problem 'scientific-pedagogical basis of the function of the system for education and up-bringing of the talented children and youth'.

This problems needs to work out some other topics such as:
1 psychological aspect of development of creative personality.
2 training teachers on science and mathematics.
3 methodical system of teaching talented children Humanities.
There are good results in scientific research activity of the center. There worked out polyfunctional model of managing with these activities on different levels, investigated theoretical and practical aspects of organizing various ways of teaching at schools, made a conception of teaching bright children science and mathematics.
Center 'Daryn' is planning to attach the teachers of secondary schools to scientific research work, to advance their qualifications by organizing:
1 experimental group works.
2 special courses to train teachers to work with the gifted children.

3 contests on projects on the problems 'Organization of teaching process, methodical and experimental work in the institutions dealing with gifted children.

4   festivals of socio-pedagogical and innovative projects.

5   different kinds of seminars.

Having analyzed the activity of the center 'Daryn' we can make a conclusion that its activity is rather successful:

1 They have worked out conceptual standardized, legal, managing structural guaranteeing.

2 They have tested different types of communication (news exchange).

3 They have organized educational support for the talented children in the name (form) of schools 'Daryn'

4 They have began the work of socio-psychological service.

5 They are intensifying the tempo of scientific-methodical activity.

6   They are promoting qualifications of secondary school teachers. Quantitative results of center 'Daryn' activity are presented in table 6.

R.S.P.S. 'Daryn' and its activity assist renovation of work with gifted children and create favorable conditions for growth and promotion in training for speciality in accordance with their bents and abilities.

Center 'Daryn' conclude agreements not only with Universities of Kazakhstan. The winners and the participants of International and Republican Olympiads are invited by prestige Universities of Russia, America, Turkey. So in 2000 9 participants of International Olympiad were admitted to Moscow State University. Moscow Institute of steel and alloy.

The analysis shows that 99.9 percent possessors of grants are bright students at the Universities, they do well in studies and research work. In 2001 there was concluded an agreement with company 'Philip Morris' about establishment of schoolarships for the students of the first course, winners of Republican and International Olympiads. All in all 200 students will get schoolarships. R.S.P.C. gradually takes definite position in International Committee on problems of gifted children. In 2000 it became a member of the world council of talents and giftedness. Gifted students of Kazakhstan take part in different international contests, competitions and Olympiads. In2000 10winners of Republican Olympiad, the students of the 10th form did training course in Moscow Institute of steel and alloy. The course was conducted by V.V. Vavilov one of the leading scientists of Russia, the professor of Moscow State University after Lomonosov and S.I. Ruchin the professor of St. Petersburg university.

An agreement about Cooperation is signed with Moscow State University after Lomonosov, Moscow institute of steel and alloy, Moscow physical technical institute, International Olympic committee in math, physics, chemistry, biology and informatics, and this year there was signed an agreement with international Olympic committee in Russian language, Fund KATEV, and with Council of International Olympiad in physics. The teams of Kazakhstan are getting ready to take part in the international scientific conference 'A step to Nobel Prize' which will take place in Warsaw .According to the project of UNESCO series of Albums are being published. They will present art. Activity of the children of different countries. These series are called 'The children of the world are painting'. The first album of these series is called 'The children of Kazakhstan are painting. There is announced a contest of children's paintings for the second album.

Thus thanks to state support of education and development of the talented children there were created conditions for the formation of system of work with the talented children through out the Republic. And the central section of this work is scientific practical center 'Daryn'. We can state that this system provides favorable conditions for the promotion of gifted children beginning from families and schools till higher educational institutions. The system of revealing educating and support of gifted children with the help of R.S.P.C. 'Daryn' and regional centers makes favorable influence on social support of the talented youth and growth of intellectual potention of Kazakhstan.

Table #1

Managing functions of system of work with gifted and talented children and Youth on different levels

#	Functions	Institutions			
		MES of RK	RSPC "Daryn"	Regional Departments of education. Regional Scientific-Practical centers "Daryn"	Educational Institutions
1.	Conceptual	+	+	-	-
2.	Standardized-legal	+	+	-	-
3.	Diagnostic	-	+	+	+
4.	Planning	+	+	+	+
5.	Organizing	+	+	+	+
6.	Informational-analytical	+	+	+	+
7.	Coordinating	+	+	+	-
8.	Interacting cooperating	-	+	+	+
9.	Stimulating	+	+	+	+
10.	Scientific-research	-	+	-	-
11.	Scientific-methodical	-	+	+	+
12.	Publishing	-	+	-	+
13.	Controlling	+	+	+	+
14.	Introductions	+	+	+	+

Table #2

MAIN DIRECTIONS OF MANAGING ACTIVITY OF RSPC "DARYN"

1. MANAGING ACTIVITY:

- Working-out of perspective plans, organizing structures in the center. Links with the regional centers. Organization of "Daryn" schools, Olympiads.
- Analysis of management. Planning. Organization, stimulation. Information controlling.
- Administrative council. Coordinating council (sittings, regular plannings).
- Orders, instructions, commands, references, reports.

2. INFORMATIONAL- PUBLISHING ACTIVITY:

- Elaboration writing-out. Selection of chanels of information transformation and applies (reverse information).
- Diagnostic. Planning. Organization of controlling.
- Editorial (planning) sector. Regular plannings. Sittings. Expert committees.
- Stardadized-legal documents. Days of information. Database of gifted children.

3. EDUCATIONAL-METHODICAL ACTIVITY:

- Foundation of new schools for the gifted. Working-out normative documents and methodical recommendations.
- Planning. Organization, coordination controlling.
- Scientific-methodical section. Expert committees. Professional schools "Daryn". Correspondence schools of Olympic reserve.
- Thesis of schools, scientific societies, conferences. Plans and programs.

4. SOCIAL, PSYCHOLOGICAL, MEDICAL, PEDAGOGICAL ACTIVITY:

- Rendering social support for gifted. Psychological diagnosis and support of bright students. Health protection.
- Diagnostics. Planning. Organization, motivation, controlling.
- Sociological, psychological, medical service. Individual tutorials.
- Diagnostic methodic. Methodical recommendations. Psychological trainings.

5. SCIENTIFIC-METHODICAL ACTIVITY:

- Scientific-methodical supply of work with gifted children. Stimulation of the teachers activity. Advancing teachers qualification in the work with the gifted and talented.
- Diagnosis. Planning. Coordination motivation Organization, controlling.
- Scientific coloboratories. Expert committees. Creative groups.
- Scientific-methodical recommendations, methodic, programs. Studies supplies.

Table #3

Types of Informational managing activity of RSPC "Daryn"

#	Types of information	Guided variants
I	Conceptual programmatic, standardized-legal	«Conceptions", thesis, programm "Daryn"
II	Orders, instructions, plans, charge-sheets	About the activity of schools. About contests, olympiads and etc.
III	Scientific-methodical recommedations.	Diagnostic matirials, educational techologies
IV	Tasks for the students	For the students of professional, scientific, correspondence schools olympiads.
V	Information about the work with talented children in the regions	Reports, database of gifted children

Scheme #4

«Daryn» schools and scientific-educational councils for gifted children
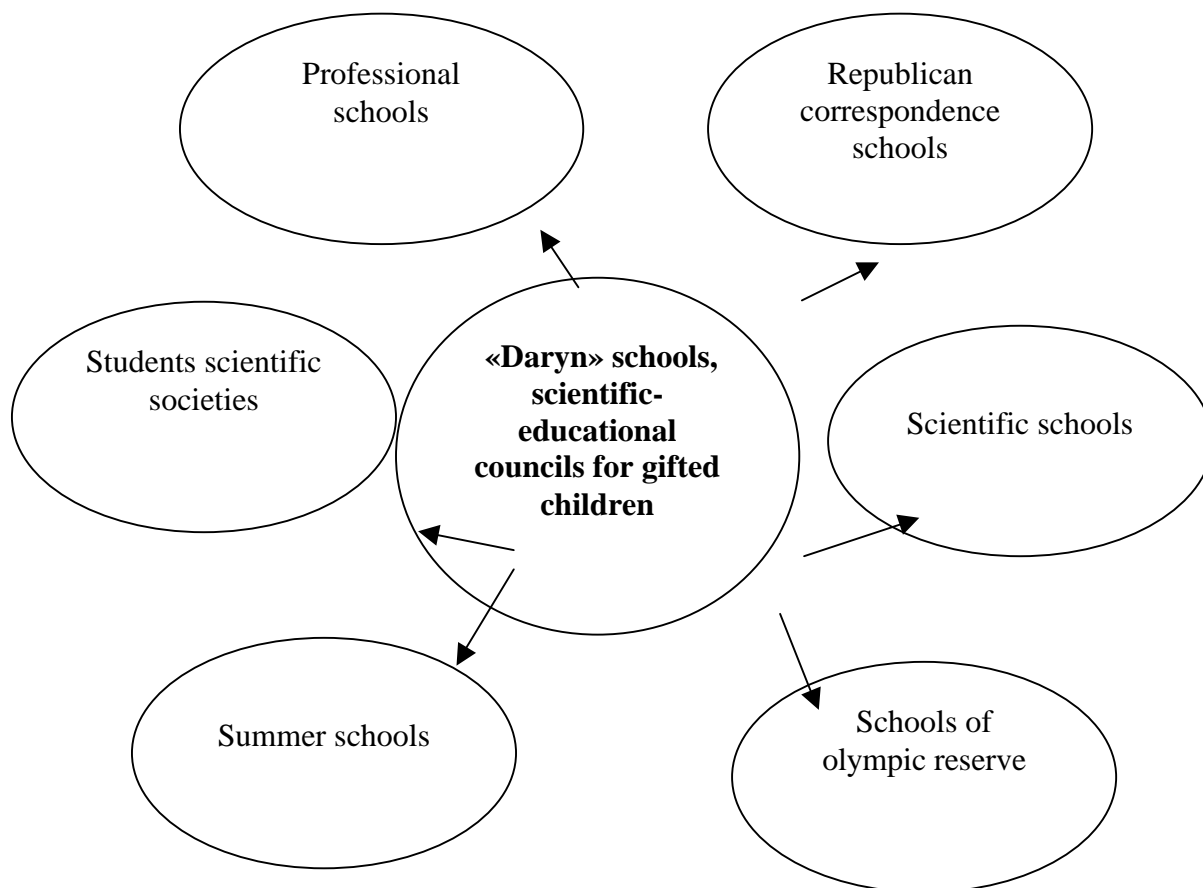
Table # 4

Service of RSPC «Daryn»

¹	Types	Responsibilities
1.	Social	Financial support of gifted children
2.	Psychological	Working-out of diagnostic methodics and recommendations, Trainings with the students and teachers Tutoring Participation in psychological inspections Making "portraits" of gifted children
3.	Pedagogical	Working-out of plans, programs, tasks for the students Training and tutoring activity
4.	Medical	Health protection Medical service

Table #5

Types of qualifications of teachers, working with gifted children

1	**Types**	
1.	Organizing experimental sites Organization of scientific-practical conferences	Attaching teachers to scientific research activity Stimulation of teachers Systematization of educational technologies
2.	Contests of projects "Organization of teaching process of scientific methodical and experimental work in the institutions working with gifted children"	Revealing the addresses of effective experience
3.	Special course "Creation of professional and personal preparadness of teachers for the work with the gifted children" Scientific-practical seminars	Improving qualification generalization the experience of work Attaching to the self-educational and scientific research work

Table #6

Quantitative characteristics of the results

#	Index of growth of schools and number of children participating in competitions and Olympiads	Years			
		1996-1997	1998	1999	2000
1	Specialized schools for gifted	6	9	15	21
2	Experimental sites	–	1	10	9
3	Professional schools	–	3	6	6
4	Scientific schools	–	–	5	5
5	Summer professional schools	–	–	3	3
6	Correspondence science schools	–	5 (312 students)	5 (613 students)	7 (695 students)
7	Schools of Olympic reserve (day time and correspondence)	–	1	3	4
8	Scientific societies	–	–	1	
9	Database of gifted children	–	–	1	1
10	Quantity of the participants of the Olympiads and scientific competitions	480	500 (olymp)	498 (olymp) 200 (comp)	517 (olymp) 250 (comp)
11	Prizes of Republican and	201 diplome, 109 merits	212 diplome,171 merits	191 diplome, 113 merits	201 diplome, 101 merits
	International Olympiads	1 bronze, 2 honorable mentions	11 bronze, 6 honorable mentions	4 gold, 5 silver, 15 bronze, 2 honorable mentions	7 gold, 7 silver 16 bronze, 2 honorable mentions

A STAFF DEVELOPMENT PROGRAM IN GIFTED EDUCATION MEXICO

Janet Saenz &
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Mexico

BACKGROUND INFORMATION

Although considerable evidence exists that Pre-Hispanic cultures had developed various types of specialized programs for talented children and youth (Saenz, J. 1990), it was not until 1985 that the Mexican Ministry of Education initiated a pilot program to train special education teachers and implement pull-out programs for the gifted in eighty public schools. This was a unique event which established Mexico as the first Latin American country to implement a program for gifted and talented students in a public school system. The Department of Special Education, at the federal level, sent two administrators and one consultant to attend Confratute Sessions at the University of Connecticut. In the same year, planning was initiated for the development of a program which would train special education teachers and specialists to work with gifted and talented children. Proyecto para Niños con Capacidades y Aptitudes Sobresalientes (Project CAS) – a Pilot Program for Children with Above Average Capabilities and Aptitudes was then a response to the concerns of many Mexican parents and educators who recognized that gifted Mexican children from all socio-economic levels need assistance to develop their full intellectual potential in order to become contributing, successful adults.

Based on the Schoolwide Enrichment Model (Renzulli, 1977), Project CAS flourished and expanded to almost every state, between 1985 and 1990.

One immediate concern, in regard to the program for gifted and talented students, was the lack of highly trained or specialized personnel. At the time of the initiation of Project CAS, most teachers employed in the public school system were graduates of a teacher training system called the normal school. Entrance to a normal school occurred after the ninth grade. Therefore, teachers attending normal school typically focused on pedagogical studies but ignored special education. For this reason, the personnel who were to be involved in Project CAS were given an opportunity to participate in special staff development courses given by outside consultants from the U.S. (R. Cortez, personal communication, February 26, 1986). These Mexican educators subsequently trained other selected teachers who were hired the following year to work in Project CAS. Thus, staff development had been largely an internal process, depending more on Mexican personnel who received some inservice training from foreign consultants. The design or organization of Mexicos' first gifted program in public schools was as follows in Graph No. 1.

Graph No. 1

Federal Department of Education, Mexico
General Structure of Program
"CAS"
1985

```
┌─────────────────────┐
│ General Director of │
│ Special Education   │
└─────────────────────┘
          │
┌─────────────────────┐        ┌─────────────────┐
│ Director of         │- - - - │ Consultant      │
│ Special Projects    │        └─────────────────┘
└─────────────────────┘                 │
          │                             │
┌─────────────────────┐                 │
│ Project CAS         │- - - - - - - - -│
│ Coordinator         │
└─────────────────────┘
          │
┌─────────────────────┐
│ CAS Project         │- - - - - - - - -
│ Supervisory Team    │
└─────────────────────┘
          │                    ┌─────────────────┐
          │                    │ SEP             │
          │                    │ Primary         │
          │                    │ School Directors│
          │                    └─────────────────┘
┌─────────────────────┐        ┌─────────────────┐
│ CAS                 │        │ Regular         │
│ Teachers            │        │ Teachers        │
└─────────────────────┘        └─────────────────┘
          │                             │
┌─────────────────────┐        ┌─────────────────┐
│ CAS                 │◄ - - - │ All             │
│ Students            │- - - ► │ Students        │
└─────────────────────┘        └─────────────────┘
          │        ┌─────────────┐      │
          └- - - - │ Parents     │- - - ┘
                   └─────────────┘
                         │
                   ┌─────────────┐
                   │ Community   │
                   └─────────────┘
```
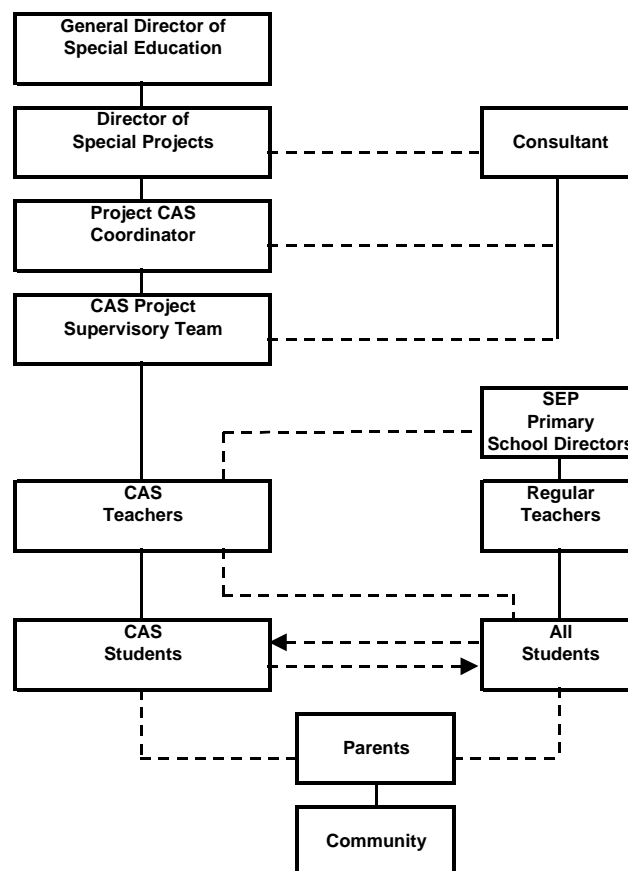
Another concern was the lack of adequate provision, in the initial phase, for the evaluation of Project CAS. Reis and Renzulli (1984) stressed the need for formative and summative evaluation and suggested nine key features which are essential to the success of programs for the gifted and talented:

1. "The Golden Rule" is essential. This refers to the basic premise that it is vital for all the staff, students, administrators, parents, and anyone else involved to comprehend completely the overall structure of the program model.

2. Planning prior to implementation must occur. Reis and Renzulli pointed out that many programs fail due to lack of adequate planning.

3. Inservice training and administrative support must exist. Not only are these areas important before the implementation, but they must continue on a year-round basis.

4. A schoolwide enrichment team must be developed. This refers to a team which needs to exist in each school where a special program for the gifted is functioning. The team should be composed of regular teachers, teachers of the gifted, administrators, and resource people. Students and parents also can offer valuable input to this team as they investigate and obtain materials and services for the program.

5. Program ownership must occur. S. Reis (personal communication, July 14, 1985) emphasized repeatedly the importance of each school developing a feeling of ownership for its own program. Before a program is even planned, a thorough study should be made of other programs in existence. A needs assessment is also imperative in the particular school which is contemplating such a program. The structure which is then developed, should reflect the special characteristics unique to that school´s setting and population, thereby insuring that everyone involved has input and ownership in the program for that particular school.

6. Student orientation is necessary in order that all students in the school understand how they may benefit.

7. Communication with prime interest groups must occur in order to avoid false interpretations. Continuous follow-up builds support within the school as well as in the community.

8. Resource teachers must be flexible and creative enough to adapt to the particular needs of the individual school in which they teach.

9. Evaluation must be an integral component of the program from its onset. Consistent feedback helps a program mature in a positive manner. Evaluation also provides information to all decision makers involved.

After 2.5 years of operating the CAS project, an evaluation plan was developed and applied (Saenz, J. 1990), in order to determine the positive and negative factors as perceived by the participants in the pilot program as suggested by Reis and Renzulli, (1984). The key features reported as positive or effective in the CAS project were as follows:

Key Feature 4 – Schoolwide enrichment team. Although not part of the original curricular design as recommended by Reis and Renzulli, numerous enrichment activities were taking place.

Key Feature 8 – Flexibility. This area was covered in that the Schoolwide Enrichment Model was adapted to the culture and community served by the program.

Key Feature 9 – Evaluation and program monitoring. Most participants perceived this feature as referring to student achievement and growth.

The key features reported as negative or ineffective in the CAS project are as following.

Key Feature 1 – Comprehension of the model. Most of the participants did not fully understand the model used as the basis for the program.

Key Feature 2 – Planning prior to implementation. The participants perceived planning as disorganized and incomplete.

Key Feature 3 – Inservice training and administrative support. Although this component was present, it was limited to only some of the participants and did not include regular teachers or their principals, even though the consultant had suggested that they be included; therefore, the training was not adequate for effective project development.

Key Feature 5 – Program ownership. This had been perceived more as a state of acceptance than involvement by the participants.

Key Feature 6 – Student orientation. Students perceived this area as an explanation of why they were chosen and what their responsibilities would be. However, they expressed the opinion that the initial presentation of the model by the CAS teacher was not thorough enough.

Key Feature 7 – Communication with prime interest groups. This area was perceived as being the weakest area of the project. To this day, the majority of the nation know little or nothing about the existence of these kinds of programs or their objectives and needs.

Note that Key Feature 9 – Evaluation and program monitoring – could be listed here as being negative if seen as a planned, structured process of the overall project development.

A system using questionnaires and interviews was developed and the results were studied. In the period 1991-1997, the CAS project continued to operate in most states after being incorporated into Special Education Services which offered some assistance in various schools by CAS itinerant, special education teachers who evaluated and counseled students, regular classroom teachers and parents. However the services were practically discontinued in Mexico City where elections and frequent changes in the government also resulted in changes in educational administrative positions. Few new directors knew about the program and even less knew much about the area of gifted education. Therefore, during the next few years, attention to the needs of gifted and talented students was minimal in most parts of the country.

The CAS project was found to have various characteristics of successful programs for the gifted. All of the key features as mentioned by Reis and Renzulli (1984) were reflected in varying degrees. This study was of great use in the planning and implementation of the actual Gifted Program in Monterrey, state of Nuevo Leon.

RECENT DEVELOPMENTS

In the school year 1998-1999, the Secretary of Education of the state of Nuevo Leon, Lic. Jose Martinez, inaugurated the 1st International Congress of the Mexican Association for the Gifted, a non-profit organization founded in 1997. He subsequently became interested in the philosophy and goals of AMEXPAS which

strive to not only develop gifted abilities in the above average student, but also to enrich and improve educational methods and strategies for all children. In 1998, Secretary Martinez contracted Dr. Janet Saenz as consultant to develop and implement a pilot program in 13 schools. The program was initiated with the assistance of a large, private, bilingual American type school, (The American Institute of Monterrey), which successfully had implemented the Schoolwide Enrichment Model in 1997 after almost 2 years of training, also with Janet Saenz. In its´ initial phase, The model was called "Program to Develop Gifted Abilities in Children" and it has now been shortened to Gifted Ability Development (Desarrollo de Habilidades Sobresalientes, or "DHS").

The northern state of Nuevo Leon has long been known for its high level of industrialization and technological growth, but in recent years it has also advanced in the improvement of educational services and programs. Creative and innovational programs have been introduced by the current state Secretary of Education which are motivating many public school teachers to take professional development courses and pursue advanced degrees.

The design of the DHS pilot program was significantly improved over the CAS project and has included principals, inspectors and regular teachers. See Graph No. 2.

Graph No. 2

State Department of Education, Nuevo Leon
General Structure of Program
"Development of Gifted Abilities"
1998 - 1999
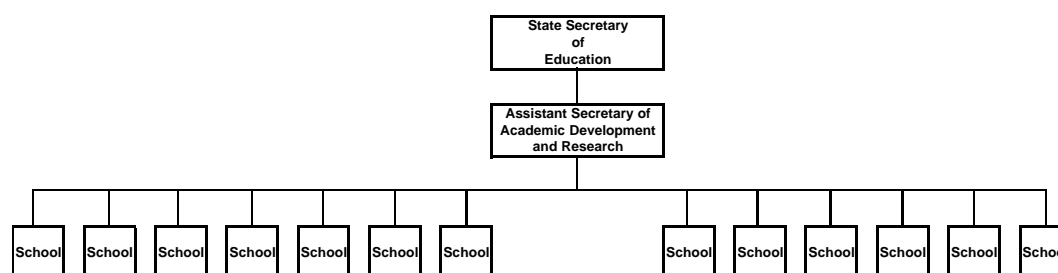
13 Schools entire staff two days a month.
Grades 1, 2, 3 = Day # 1   8:00 - 16:00 hrs.
Grades 4, 5, 6 = Day # 2   8:00 - 16:00 hrs.
School Directors asisst Day #1 or Day #2.
Schools suspended classes Grades 1, 2, 3 = 1st day, Grades 4, 5, 6 = 2nd day
Program included coffee break and light lunch.

The first phase was initiated in the fall of 1998 when Secretary Martinez inaugurated the first class taught by Saenz to teachers and principals of 13 schools who were invited to participate. The schools had been chosen after careful evaluation by state education authorities as to their record in other

innovative projects, since the research indicates that if a school is successful in promoting, planning and implementing educational changes, it is largely due to the enthusiasm and involvement of the educational leader-namely the principal. The 13 schools decided to send teachers from the 1st, 2nd and 3rd grades the first day and from 4th, 5th and 6th grades the second day. This plan avoided having to close down the school for two days. The sessions lasted from 8:00 am until 4 pm each day. By the end of the second day, all teachers and the principal had received training in the same topics. The program continued in the same time format each month, culminating in an exhibition of teacher and student made portable interest centers which included activities on each level of thinking, (Blooms' Taxonomy) as well as activities to develop each of eight intelligences and multiple talent (non-academic abilities) lesson plans. The posters for each center included mind maps made by teachers and/or students related to the themes of the centers as well as motivational posters and various types of manipulative materials.

Phase Two of this project (implemented in the following school year) included more in-depth courses in curriculum compacting, portfolio assessment and other useful techniques and also on-site visits to each school to observe the application of all strategies in the classroom.

In Phase Three, the two year project was compacted into a nine month certificate program authorized by the Nuevo Leon State Ministry of Education. Seventy-eight new schools entered the program (no-longer called a pilot project). 440 teachers, supervisors and principals entered the training which impacted approximately 22,000 Students. An evaluation questionnaire was applied in January to all teachers and principals and another type of questionnaire was applied to students 2nd through 6th grades in June, 2001.

In the first two years of the pilot program in 13 schools, many formative evaluation procedures were applied which helped to refine procedures and strategies. In the last school cycle, 2000 – 2001, manuals were developed for: 1. Administrative forms. 2. Analysis of the results of the questionnaires applied to each child; 3. Percentages of strengths in each intelligence in each classroom and school; 4. Percentages of each learning style in each class and school; 5. List of highly gifted children and areas of giftedness as reported by schools. Results of Evaluations (1.) applied to teacher trainers; (2.) teachers enrolled in the program; and (3.) children receiving the results of this innovative staff development course, are available in reports and also in manuals.

For the new school year, a local resource manual will be developed in each participating school which will reinforce each schools' enrichment program. Video tapes will be made with master teachers or innovators demonstrating each technique.

Also in the planning stages to be published soon are: a listing by schools of the Portable Interest Centers developed so that schools can exchange centers and materials.

Graph No. 3

DHS Organizational Chart

```
                        ┌──────────────────┐
                        │ State Secretary of│
                        │    Education      │        ┌──────────────────┐
                        │  José Martínez    │········│ Gifted Consultant │
                        └──────────────────┘        │ to State Secretary│
                                 │                   │   of Education    │
                                 │                   │  Janet B. Sáenz   │
                        ┌──────────────────┐        └──────────────────┘
                        │   Director of     │
                        │  Planning and     │
                        │    Research       │
                        │ Elizabeth Cuellar │
                        └──────────────────┘
                        ┌──────────────────┐
                        │   Coordinator     │
                        │ San Juana Rodríguez│
                        └──────────────────┘
                                 │          ┌──────────────────┐
                                 │──────────│   Support Team    │
                                 │          └──────────────────┘
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Innovators in Urban Areas			Innovators in Rural Areas		
Group A	Group B	Substitute (Retired Teachers	Group I	Group II	Group III
Supervisors	Supervisors		Supervisors	Supervisors	Supervisors
Principals	Principals		Principals	Principals	Principals
Teachers 1st-6th grade	Teachers 1st-6th grade		Teachers 1st-6th grade	Teachers 1st-6th grade	Teachers 1st-6th grade
Teachers Pre School	Teachers Pre School		Teachers Pre School	Teachers Pre School	Teachers Pre School
Teachers Secondary	Teachers Secondary		Teachers Secondary	Teachers Secondary	Teachers Secondary

In the next school year, 2001-2002, the program will be expanded to 500 new schools in many parts of the state of Nuevo Leon. Due to frequent problems in the last year with obtaining substitute teachers, the program will be expanded to afternoon and evening sessions as well as Saturday sessions in three other cities. This flexibility will also facilitate the inclusion of rural teachers in mountainous areas who only come into the urban areas on Saturday and/or Sunday. The sessions will reach more than 1050 public school teachers; a number of private schools are also requesting permission to enter the training sessions and Jose Martinez has granted their request.

This program is the most ambitious program ever attempted in the public school systems of Mexico and is a major break through in the innovation and updating of educational methods.

....

Note: Dr. Janet Saenz studied Education of the Gifted and Talented with Dr. Carol Schlichter at the University of Alabama and also with Dr. Joseph Renzulli at the University of Connecticut. She was born in California but has lived

in Mexico for 35 years, where she is professor in the Autonomous University of Tlaxcala in the only Masters' Degree of the Gifted in Latin America. She has been a Consultant to the Mexican Ministry of Education since 1985 and has pioneered teacher training programs in many parts of the country. Currently she directs the DHS Program in Nuevo Leon and is also working in Chiapas, Sinaloa, Tlaxcala and Campeche.

Marcela Gonzalez de Martinez is a teacher, school administrator and the wife of Jose Martinez! She is very active in many educational projects at the state, national and international levels. She is active working with "Partners in Education" movement and is a strong supporter of the DHS Program in Nuevo Leon.

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THE CHALLENGING PUPIL AND THE INCLUSIVENESS OF THE SCHOOL IN AN EGALITARIAN SCHOOL SYSTEM

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Member of the Educational Psychologist Association in Denmark

ABSTRACT

In 1996 the Danish Researcher Vagn Raboel Hansen wrote: "Ability is developed through ones own activities in education, communication , and other social contacts. Thus ability of giftedness is a culture dependant potential".

We'll reflect on how the Danish egalitarian school system can make it possible to challenge the pupils' potential by referring to the fact that pupils are active participants in their own learning process, as far as behaviour, metacognition and motivation are concerned.

Examples will be given on how gifted children see themselves, are seen by their parents and teachers, and how they function in the educational setting. A new - and the very first Danish research and development project on giftedness - will be presented.

WHY IS IT RELEVANT TO RAISE AWARENESS ABOUT VERY ABLE OR TALENTED CHILDREN IN 'THE FOLKESKOLE', THE DANISH PRIMARY AND LOWER SECONDARY SCHOOL?

Denmark has an obligation to make appropriate provision towards all children. If we look at international conventions accepted by the Danish Government the educational aim is to include the highly able child.

The Universal Declaration of Human Rights 1948, article 26, 1: Everyone has the right to education. Education shall be free.

Article 26, 2: Education shall be directed to the full development of the human personality.

The Children's Convention 1989, article 29, 1 - a: The Education of the child shall be directed to the development of the child's personality, talents and mental and physical abilities to their fullest potential.

The Salamanca Statement 1994, article 3:

The guiding principle that informs this framework is that school should accommodate all children regardless of their physical, intellectual, social, emotional, linguistic or other conditions. This should include disabled and gifted children…

In the latest revision of the Act on the Folkeskole 1994 (the official act of the public school system), where the principle of teaching differentiation is emphasised and where both common and individual goals are accentuated in the co-operation, good possibilities are created to consider the highly able.

It is also mentioned in the guidelines to the law that the teacher has to make individual teaching plans for every students.

Formally the political intentions are explicit, but what about the educational practice - and not least the political and social attitudes among leading administrators and educators? No doubt there is a general scepticism and fear of elitism. Often you listen to misconceptions about giftedness and the highly able child. Recently our director of the local educational department said: "I have always thought they were able to stand on their own legs and manage". He mainly reflected on the well functioning pupil. Shirley Kokot refers in "Understanding Giftedness" (2001) to Gallagher, who wrote that underachievement is a social tragedy the extent of which is difficult to measure but which is surely great. As Shirley Kokot says: "Many believe that high ability children who "gets by" with As and Bs but never push themselves too far are acceptable. This is surely not the aim of education".

So far it has mainly been up to the parents who care and show interest, to be aware of recognising the child's needs and talents, to support the child in the best way and claim an appropriate educational provision for them.

Often we hear the questions:
- Who are the very able children?
- How are they?
- How are we to teach them?
- How can see if my child is gifted?
- Does giftedness in school indicate a successful career as a grown up?
- Is there s greater difference between talented girls and boys than "normal" girls and boys?
- Does the highly able child have fewer emotional problems?
- Are the very able often less social than others?
- Can children be trained to excellent performance?

- What does parents and teachers attitudes mean?

It is now 10 years ago, Ole Kyed - as a board member - of the Educational Psychologist Association in Denmark was encouraged by Prof. Joan Freeman to become an ECHA correspondent in Denmark. In 1993 Prof. Joan Freeman (England) and Prof. Pieter Span (Holland) gave a lecture at the Danish University of Education on "The Origin and Development of High Ability. On that occasion Joan Freeman expressed her concern for acknowledgement of the educational needs of the highly able child in Denmark. She said: "Be patient - it takes time to create changes in educational attitudes and public opinion".

It took nearly 10 years to be politically encouraged to start a local project with the aim of supporting the highly able child in the ordinary school. The project will be the first in Denmark. Two researchers, Ph.D. Kirsten Baltzer and Ph.D. Poul Nissen, the Danish University of Education will be connected to the project to take care of the research part. We are planning to implement a mainly theoretical research part and a mainly innovative part with practical implications in the schools.

Later we shall elaborate further on the project, which is to be carried out during a 4 year period starting this autumn.

Today we have too little knowledge how to combine present practice with the best theory, research, and practical implications for the school.

As an educational psychologist Ole Kyed has had contact with many parents to highly able children with specific problems in school, ranging from learning, behaviour problems, lack of adequate educational provision, to conflicts between school and home about specific educational concern for the child. These contacts often derive from articles in magazines and interviews on radio and television etc.

DANISH TRADITIONS AS BARRIERS TO AWARENESS ABOUT HIGH ABILITY

In Denmark we have neither research nor developmental work on very able students in 'The Folkeskole' the Danish primary and lower secondary school. We have a few research projects on highly able children in sports, music and other fine arts. You will find the same feature in Sweden and Norway.

There are cues that things are changing.

In 1986 the Danish professor on special needs education Niels Egelund sent a manuscript on very able children to the magazine distributed by The Danish Ministry of Education. The editorial board returned it to him with the comment: No relevance for the

magazine! Not until 1994 the subject was discussed in the magazine in an article by Ole Kyed.

But in the same period other parties have showed interest in the issue. Parents contact schools and want support for their talented child finding the school boring! The problems they experience are feeling different and wrong because of specific interests, permanent very good results, eventually being teased because of that by their fellow students. Typically the teacher does not face a problem. From his point of view these students do not need any help or support.

But things have changed. In January 2000 Ole Kyed was interviewed to the ministry's magazine on the subject of the gifted children.

It is not that easy any longer for schools to reject being aware of gifted and talented children. The reason does not come from inside the school. Our hypothesis is that it is due to an outside pressure.

In the respected Danish Magazine 'Ugebrevet Mandag Morgen' there is a report from September 2000 (**www.f2000**). The report is written by The Danish Competence board. The members are key persons from Danish companies and institutions, public authorities and experts on the development of competence. They have created the vision of Denmark as a pioneer nation in the development of the knowledge society characterised by knowledge seen as the main source for innovation. The knowledge society and the knowledge economy put serious demands on the mandatory schooling. Here we hear the voice of the companies presenting expectations to the future workforce. But at the same time the Mandag Morgen points to the unique position of the school. They express very high expectations for the school. The first pressure on changes is discussed in terms of economy, trade and production.

The second pressure is related to the first: It is based on the new technology. Literacy and numeracy and 'technocracy' are necessary for humans living and working in the global knowledge economy. The first problem to be solved is teacher training, because in the case of technology the students will often be the masters and the teachers the students.

The third pressure is quite different - it is based on the question how to secure and develop social and cultural cohesion in a nation of change. The Danish Minister of Education Margrethe Vestager states it this way: " It is first and foremost in the school and in the educational institutions that children and young people can learn what's binding them together." This third pressure is discussed in terms of culture and society. Shortly: In the school we become Danes.

In the guidelines on The Act on the Folkeskole from 1994 it is stated that every student should have his or her own learning plan. The plan should be revised twice a year. In the initial paragraphs of the law it is stated that the student has to take responsibility for his or her own learning in collaboration within the school and the teachers. These expressions prepare a passage for the talented and very able students. They too have the right to meet challenges in the school as well as every other student.

You may ask why it has been impossible even to talk about very able students before the 1990'ies. Perhaps the Norwegian researcher Johannes Sandvin (Sandvin, 1998) comes near to the core. He argues that in a society building on equality between its members it's very difficult to discuss differences. You have to find a reason for the differences. In the case of special education the reason has become the diagnosis.

The pressure on the development and valuation of excellence is moving near to the school. In August 2000 Ole Kyed and I conducted a workshop about the gifted and talented in Vejle Municipality, in February 2001 another workshop about the issue in Aalborg. The participants were teachers from Jutland; we had full house at the workshop. In May 2000 the board for Children and Culture in the County of Vejle decided to do something to stimulate the very able students in the upper secondary school, in Denmark called "the gymnasium". The result was a catalogue with ideas distributed to the gymnasiums in Vejle County.

The real break through came in Spring 2001. The Lyngby-Taarbæk Municipality North of Copenhagen decided to initiate a project for the gifted children. The Municipality Board has granted funds for Ole Kyed to manage the project and for a consultant to support the school in identifying highly able students and develop ideas on how to stimulate them.

THE RESEARCH PROJECT - A PLAN AND ITS THEORETICAL BASIS

We addressed the Danish Humanistic Research Council whether the council would find an application for a research project on very able students in Denmark interesting. We got the answer, that we should be very careful to argue why very able students are relevant as a research problem, and we should be very careful about definitions. That's why we pose following research questions:

"Why are the very able students a problem relevant for educational research?
How can one identify them, what are their educational needs and how can the school meet these needs?".
In the brief discourse analysis we argued why it is possible to discuss the very able students just now. The next question is why we should conduct research on these students. We find the reasons related to 1) the society/the culture, 2) to the school, and 3) to the individual student.

1. In these years the institutions and organisations are aiming at transforming the Danish society into knowledge production as the main economical source. History shows us that knowledge production depends on as well very skilled and competent individuals (Egelund, 1986; Persson, 1997) and qualification of as many of the members of the society as possible.

For the first time in history knowledge production is seen as a main source to produce economical progress. The knowledge account mentioned above is an important cue. The formation of a Danish University of Education is another cue. The objectives of a university of education are inter alia to answer questions on teaching, learning and education to whom it may concern. To answer questions within the field of the development of competence, encompass answering questions about how individuals with different preconditions are given opportunities to develop their potential to the highest level possible. As a research institution The Danish University of Education must develop knowledge about students with special needs, ordinary students as well as very able students.

2. The next question is to explore how the societal discussions penetrate everyday practice in schools. The situation now is unique: Because this group of students has never been in focus in the teaching tradition and the educational research, there is a unique possibility to follow a phenomenon in its development. In fact we really don't know if we have very able children in the public schools! But we know, that we have very able students in physical education, in dance, in music and other fine arts.

We have a few special schools for them within the public schools at primary and lower secondary school. Just a few examples: The Municipality of Copenhagen has a school for children with talents in music (Skt. Annæ Gymnasium). The Danish Royal Ballet has its own school. The students are trained in dance and related topics and in 'the reading school' (in Danish: Læseskolen). They are taught ordinary school subjects making them able to leave 'the reading school' with the normal examination from the public school. They are trained and educated as dancers as well as students. We have no special school for sports talents at primary and lower secondary school level.

At higher secondary level - the gymnasium - students can choose to attend gymnasiums specialising in music or sport. In addition there are widespread leisure time activities for children with interest and specific skills in music, sport, and visual art. These schools keep are aware of talents and stimulate and encourage them.

Danish research on very able children concentrates on the groups of children from a perspective of concern. Are these children pressed to spend so much time and effort at their talent that the physical, social, and personal development as a whole suffers? (Jensen, 2000). Following Jensen the answer is NO!

It is characteristic that sport, music and visual arts are not the key issue of the school. In Denmark the school nearly has a monopoly on the development of key competences for the culture: The skills reading, writing and arithmetic, and knowledge areas as literature, mathematics, science, biology, history and foreign languages. Social competence is embedded in every school subject.

The reason why the talents in sports, music and visual arts are pointed out very early is that we know that acquisition of very high ability may demand the individual to engage in the development from an early age and spend a lot of time aiming at

good results. The Danish school is not concerned that this perhaps should be the same for its key subjects. In fact this is something we don't know, and that's why we should try to find out.

Excourse: Before continuing a brief excourse on vocabulary is necessary.

It is important to intervene in the emerging Danish discussion making it clear that the very able students be not allowed to take resources from the handicapped students with special needs.

In the English and the American literature you often see the expression special education in relation to students with learning difficulties as well as for activities for very able students. This pragmatism is instituted with the Salamanca Statement but in the Danish discourse it will not be acceptable to use the same words for these different types of students. For the students in the English and American literature labelled the very able we use the expression students/children with special preconditions. We do not find it necessary to invent specific categories for the educational processes - we expect the vocabulary already existing for teaching and learning in the public school to be sufficient.

3. Coming to that point it is necessary to make the questions operational. Who are the students with special preconditions and how do we find them?

At first a definition on specific preconditions is needed. I will just state that due to the Danish and Nordic discussion on equality and democracy IQ as an indicator for specific abilities cannot be part of a discussion on the issue. Another - and very strong - reason why the traditional intelligence tests are rejected as measures is that actual research on high ability points to two important facts.

High and very high ability depends on cultural contexts. Very high abilities are competences or skills valued in a specific context. And they may not be valued in other cultural context. The next argument is that very high ability is only developed in contexts supporting the development. That's why we renounce on a strict definition and find a starting point in Roland Persson's (Persson, 1997) idea, that the research have to take a broad and domain specific perspective on high ability. Very high ability is possible within all domains of human activity. Research has to build a taxonomy and from that starting point develop knowledge on very high ability, its individual and cultural as well as social preconditions. Following Persson (ibid. p114) a taxonomy has to meet three criteria:

- It has to describe the very able behaviour that the society is suggested to need
- It has to give direction to development and research projects where these are not at hand
- As research develops it has to influence on what behaviour should be mentioned very high ability in the future.

(Quotations, Persson, 1997 5114; my translation from Swedish into English)

Persson is inspired by Howard Gardner who really has focussed on the cultural nature of intelligence - or competences in Gardner's vocabulary. He too takes inspiration from the American researcher in Organisational and Vocational psychology and suggest a taxonomy of domains on very high ability. He identifies six domain groups, and in six chapters he describes very high ability based on criteria met by the taxonomy. (Persson, 1997, 125) The six domains are: Sports, communication, academic achievement, linguistic, artistic, and technical. We will take this as the model underlying identification of domains and students in the development and research project. It gives a possibility to add bits and pieces to the nearly non-existing knowledge on the development of students with special preconditions in the Danish primary and lower secondary school.

This broad concept has consequences for the empirical part of the research project. Traditionally intelligence testing mainly focuses on the academic domain. And the academic domain too is in focus in primary and lower secondary mandatory education. Fine arts are at the time table in the Danish schools but unlike physical education only for a few years and for a few lessons a week.

Our method to identify students with specific preconditons is to ask teachers if they have these students in their classes. We expect teachers to know what's very able behaviour, or at least the development project can train teachers to keep awareness of this behaviour itself or in its development.

After this first identification we want a systematic record of these students. One of the conditions for the teachers participation has been that the time spent on the project is part of their ordinary working obligations. It means that we have to find methods for systematic data recording with a low investment of time.

Concerning collection of data about behaviour and motivation we have chosen Achenbach's Child Behaviour Checklist. This instrument is "designed to obtain data on behavioural/emotional problems and competences" (quotation, Achenbach, 199,p429). It gives data on five axes: Parents Reports, Teacher reports, Cognitive assessment, Physical assessment and direct assessment of subject. The age range is 2 to 30 years. (ibid. p430) Lately the instrument has been validated in Denmark (Bilenberg, 2000). The schools in Lyngby-Taarbæk Municipality are enrolled in the research project as a case study on the investigation of the possibility to use Achenbach to identify competences rather than problems.

We expect it will be possible to extract interesting themes for in depth interviewing from the Achenbach questionnaire. We will conduct in depth interviews with students, parents, teachers, mentors, coaches, and other significant persons (pointed to by the student or the parents).

We plan to draw a picture about teachers' views on classroom culture and look for possible niches for the students with special preconditions.

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CLASSROOM CREATIVITY CLIMATE INVENTORY: ASSESSING THE SCHOOL ENVIRONMENT FOR CREATIVITY

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ABSTRACT

The purpose of this study was to develop an instrument to assess the classroom climate with respect to creativity, based on students' perceptions. Evidence of content validity of the instrument was obtained through review of literature and expert judgement. The 32-item inventory was administered to 206 third and fourth grade students from four schools in the United States for construct validity purposes. A factor analysis was used, and varimax and oblique rotations were performed. Five out of the ten factors derived were discarded because their alpha reliability coefficient was low. The factors considered were process, individual, support, motivation, and information.

Classroom Creativity Climate Inventory: Assessing the School Environment for Creativity

Since the second half of the twentieth century, creativity research findings have had an impact on educational environment (Torrance, 1983). Many educators and psychologists have suggested ways to enhance creativity in the classroom (Alencar, 1993; Henessey & Amabile, 1987; Starko, 1995; Sternberg & Williams, 1996; Torrance, 1983). They have also called attention to factors which might constitute barriers to students' creative potential (Adams, 1986; Amabile, 1989; Davis, 1992).

However, few attempts have been made to assess the extent to which creativity has been enhanced or inhibited in the educational context. Moreover, according to Callahan (1991), the types of assessment tools that have been developed to assess creativity can be categorized as performance/product oriented instruments, personality scales, or biographical indices. Therefore, the purpose of this study was to develop an instrument to assess the classroom climate with respect to students' creativity.

Classroom Climate and Creativity

The milieu can affect the production of novelty as well as its acceptance. The study of the individual is not enough to understand creativity. According to Csikszentmihalyi (1996, p. 1), "It is easier to enhance creativity by changing conditions in the environment than by trying to make people think more creatively".

For Csikszentmihalyi (1996), in order to increase the frequency of novel ideas worthy of being assimilated by the culture, it is necessary to focus on the person, and the contributions of the field and the domain. Regarding the person, interest and curiosity might be stimulated by positive experiences, by a supportive environment and by exposure to many opportunities. Also, early exposure and opportunity to engage in a particular domain is essential to developing the individual's potential. To provide opportunities, to take seriously the child's interest, and to support the child's involvement are conditions favourable to the development of creativity.

With respect to the influence of the field concerning creativity, there are seven aspects that can help make creative contributions possible: training, opportunity, expectations, resources, recognition, reward and hope. A society that can effectively match opportunities for training with children's potentials increases the frequency of creative ideas produced by its members. Expecting high performance is a necessary stimulus for outstanding achievement and creativity. Resources are indispensable for creativity to blossom as well. Csikszentmihalyi's findings (1996) confirm that potentially young people have to be recognised by an older member of the field. The role of the mentor is to encourage him or her to continue working in the domain. It is also important that the young person has hope of using his or her skills in a productive career. Finally, both intrinsic and extrinsic rewards can help the flowering of creativity.

The contribution of the domain dimension for the development of the creativity can be expressed by the extent that a knowledge is organised and by the accessibility of information. "Whenever the information is untrue, illogical, superficial, redundant, disconnected, confusing, or - especially - dull, the chances of its getting across to students is diminished, and so is the likelihood of creative response" (Csikszentmihalyi, 1996, p. 341). Creativity also can be benefited when the individual has access to many sources of information.

Amabile (1989) also explains how keeping creativity alive in school: (a) use constructive and meaningful feedback; involve students in evaluating their own work and learning from their own mistakes; (b) reward contributes to decline intrinsic motivation; however, when you give rewards for creativity as well as for correct work; (c) give children choice whenever possible; (d) children should collaborate on the function of the classroom; (e) the classroom should be as visually stimulating as possible; (f) children should feel free to discuss problems openly both the teacher and their peers; (g) co-operation is always preferable to competition; (h) learning experiences should be as close to children's real-world experiences as possible; (i) diverse educational materials should be abundantly available throughout the classroom; (j) children should be encouraged to bring their own interests, experiences, ideas and materials into the classroom; (l) children should feel both comfortable and stimulated in their classroom; (m) the teacher should be a role model for children; and (n) learning should be perceived by children as important and fun.

The literature indicates that in order to obtain a comprehensive view of creativity in the educational context, it is essential to consider the classroom climate. Classroom

climate refers to a broad class of perceptual variables that reflect individual/ classroom interactions which affect individual creative behaviour (Hansen & Wernerfelt, 1989). Is the classroom enhancing or inhibiting students' creativity? This study tried to develop an instrument to diagnose the classroom climate with respect to creativity, based on students' perceptions.

Methods, Procedures and Results
Content Validity

Evidence of content validity of the instrument <u>Classroom Creativity Climate Inventory</u> was obtained through review of literature and experts judgement. Thirty items were developed based on the review of literature and presented to 10 judges within the field of gifted education (graduate students and instructors). They were asked to review the content of the items to be included in the instrument by providing two ratings: (a) indicating the category that each item best fits; and (b) indicating how strongly they feel about their placement of the item into the category selected. The categories developed were: person, field and domain (Csikszentmihalyi,1988, 1996). Person was conceptually defined as individual's cognitive and affective characteristics, styles, interests, and motivation associated with creativity. Field was defined as the elements of the social milieu, such as resources, expectation, recognition, and opportunity for training, that help make creative contributions possible. Domain concerned the formally organised body of knowledge. The accessibility of information and the organisation of the knowledge are elements of the domain that contribute to the creativity expression and production.

A criterion of 80% agreement was used for an item to remain in a particular category. After the high-percentage category was identified, the mean "comfort" rating was calculated for items assigned to that category, according procedure suggested by Gable and Wolf (1993). On the basis of the information gathered through the rating procedure, items were rewritten, deleted and added. Some items were modified, added, and discarded based on the experts ratings (mean less than 2.00) and their suggestions. The final version of the instrument contained 32 items (category Person: 12 items; category Field: 13 items; and category Domain: 7 items).

All items were positively stated. The response format used for rating was a 5-point frequency scale: (1) never; (2) rarely; (3) sometimes; (4) very often; and (5) always. All points were labeled. As the instrument was developed to be rated by third and fourth grade students, "funny faces" followed the labels.

Construct Validity
<u>Sample.</u> The sample consisted of 206 third and fourth grade students from four public schools in Connecticut (ratio of 6.4 students per item). There were 103 male and 103 female students. Of the 206 students, 109 were third graders and 97 fourth graders. The four schools were located in semi-rural areas. Two schools were situated in the same district (northwest of the state) and the students came from medium to high income class

(N=131). Both schools were large. The other two schools were located in the northeast of the state. One school was attended by medium income class students (N=28) and the other one by low income class students (N=47). Both schools were small. The four schools carried on enrichment program, based on Renzulli's model (1994), in which creativity is one of the components. A very few minority students attended these schools. It is also important to state that convenience sample was used in this study.

Instrument Administration Procedures. The author of this study administered the instrument at the four schools. In three schools the instrument was administered to the whole class. In one school the author administered the instrument to a small groups of students, whose parents gave authorisation for them to participate in the study. The author explained the objective of the study, gave the instructions, and then read all the items in loud voice. The majority of the teachers stayed in the classroom, but they did not interfere. The children were told that the instrument would not be graded and they did not have to sign it. The information provided by them would be kept confidential. Debriefing the students at the end of the administration was done. The students were asked about the level of difficulty to perform the task , their understanding about the items and the meaning of the words.

Factor Analysis. Data were analysed using SPSS for mainframe. There was no missing data, but 17 out of 223 cases were eliminated due to careless disregard by respondents for the survey (total of cases analysed= 206). In this study exploratory factor analysis with maximum likelihood extraction option was used. Varimax and oblique rotations were performed. Ten factors were extracted based on the Kaiser criterion. The scree test provided similar results. The 10-factor solution has accounted for 43.6% of the common variance.

The rotation process distributed the total amount of variance accounted for by the 10-factor solution across the factors. In the varimax rotation the factor axes are not correlated. They are orthogonal. Items with factor loading (correlation) greater than .30 were considered. Items were loaded in one of the factors based on the highest item-factor correlation and on the conceptual meaning (when items were statistically loaded in more than one factor). Items 4, 6, 10, 21, 25 and 29 contributed most for the factor I. Items 9, 15, 17 and 18 loaded in factor II. Items 3, 8, 13, 23 and 30 loaded factor III. Items 19, 22 and 28 contributed most for factor IV. Items 11 and 20 loaded factor V. Only one item contributed to factors VI and VII (24 and 12 respectively). Items 2, 14, 16 and 31 loaded factor VIII. Factor IX was explained by just one item (1). Finally, items 5 and 7 contributed most for factor X. Three original items did not load any factor, because their loading were less than .30. Item-factor loading list for varimax rotation is presented in Table 1.

With respect to the oblique rotation, the axial system is not orthogonal. Also in the oblique rotation the entries in the factor matrix are created by regression weights. Items with factor loading greater than .30 were considered. Compared to the varimax rotation (29 items loaded), the oblique rotation "lost" 7 items (22 items were loaded). This is the reason why the factors derived from varimax were selected to perform the reliability test.

Furthermore, the factor intercorrelation matrix oblique rotation indicates that the majority of the correlations among the derived factors are low. This scenario suggests that factors are independent and they can not be collapsed.

Table 1

Factor-Analysis with Varimax Rotation: Perceptions toward Classroom Creativity Climate (N=206)

	Item Number	Stem	Loading
Factor I (Process)			
	10	I try out new ideas.	.63
	4	I can work with many different materials.	.57
	6	I do things in different ways.	.48
	21	I have many ideas.	.42
	29	I make choices about what I want to do.	.38
	25	I am challenged to think of new ideas.	.32
Factor II (Individual)			
	18	I feel very special.	.64
	15	I explore my interests.	.52
	17	I use my imagination.	.42
	9	I feel creative.	.37
Factor III (Support)			
	23	The teacher cares about what I have to say.	.51
	30	I am encouraged to think of many ideas.	.49
	3	I have opportunities to participate in different activities.	.46
	13	The teacher gives me plenty of time to think about a story I have to write.	.37
	8	The teacher encourages me to share my work with other students.	.31

Table 1 (continued)

	Item Number	Stem	Loading
Factor IV (Motivation)			
	19	Work is fun.	.80
	28	The information given is important to me.	.43
	22	I like to finish a task once I have started it.	.32
Factor V			
	20	I learn from my mistakes.	.86
	11	The teacher expects me do very well on my school work.	.35
Factor VI			
	24	I am encouraged to think that when I grow up I will create something never thought of before.	.92
Factor VII			
	11	We discuss problems that happen out of school such as pollution and poverty.	.56
Factor VIII (Information)			
	2	I can get information from computers when I want to know more about a topic.	.58
	14	I understand the information given.	.37
	31	I can get information from guest speakers when I want to know more about a topic.	.34
	16	A lot of information is available for students.	.30
Factor IX			
	1	The teacher likes my ideas.	.80
Factor X			
	5	My classmates like my ideas.	.47
	7	I ask a lot of questions.	.35

[a] Only factors with reliability above .50 and conceptual meaning were named.

Factor identification. Factor I was named *process,* because items defining the factor described the way the student processes their ideas, such as producing multiple ideas for a problem, and looking things in different ways, as well as the way students manipulate materials. Factor II was named *individual*, because items defining the factor reflected students' feelings, self-esteem and interests. Factor III was named *support*, because items defining the factor described social aspects of the environment that stimulate and enhance students' creativity. Factor IV was named *motivation*, because items defining the factor reflected the involvement, dedication and importance of the learning process for the students. Factor VIII was named *information*, because items defining the factor reflected the accessibility of information and organisation of the knowledge.

Five out of the ten original factors derived from varimax rotation were discarded, because they could not be collapsed, their alpha reliability coefficient was low, and they did not have conceptual meaning. It is interesting to note that the five remained factors were similar to the three judgmental categories (person, field and domain) conceptually established. The category person was unfolded in three factors (process, individual and motivation). The category field was "replaced" by the factor named support, and the category domain by the factor named information.

Reliability. The alpha internal consistency reliability coefficients were: .73 for factor I, .67 for factor II, .62 for factor III, .62 for factor IV, .42 for factor V, .56 for factor VIII, .29 for factor X. The alpha reliability coefficients for factors VI, VII and IX could not be calculated because only one item was loaded in each factor.
For all factors, the alpha internal consistency reliability would not be increased if any particular item was deleted. Table 2 summarises some of the information provided above.

Table 2

Reliability Analysis Factors [a]

Factor [b]	Item	Mean	SD	r with domain	Domain Alpha	Domain Alpha Reliab. Rel. if Item Del.
	10	3.75	.92	.53	.67	
	4	4.03	.84	.48	.69	
Process	21	4.00	.97	.50	.68	.73
(I)	6	3.61	1.02	.42	.70	
	29	3.83	.99	.47	.69	
	25	3.91	1.08	.40	.71	
	17	4.14	1.06	.39	.64	
Individual	18	3.78	1.02	.43	.62	.67
(II)	15	3.68	1.02	.53	.55	
	9	3.95	1.03	.45	.60	
	8	3.65	1.09	.30	.60	
	23	4.38	.88	.44	.53	
Support	30	4.07	.96	.44	.52	.62
(III)	3	4.02	.89	.33	.58	
	13	4.10	.91	.36	.57	
	28	4.42	.82	.46	.51	
Motivation	22	4.29	.89	.37	.60	.62
(IV)	19	3.76	1.13	.50	.42	

Table 2 (Continued)

Factor	Item	Mean	SD	r with domain	Domain Alpha	Domain Alpha Reliab. Rel. if Item Del.
(V)	20	4.25	.95	.29	---	.42
	11	4.69	.65	.29	---	
	14	3.97	.76	.26	.56	
Information	31	3.44	1.10	.40	.45	.56
(VIII)	2	3.52	1.09	.38	.46	
	16	4.19	.87	.37	.48	
(X)	7	3.03	1.09	.18	---	.29
	5	3.31	.81	.18	---	

Note. Response percentages of each item can be found in Appendix E.
[a] Factors VI, VII and IX were not included in the table because it was not possible to calculate alpha reliability for them (only one factor was loaded in each one).
[b] Only factors with alpha reliability coefficient greater than .50 were named.

Discussion

The objective of this study was to develop an instrument to assess the classroom climate with respect to students' creativity. The items of the instrument were developed based on a systemic model of creativity. It was difficult to write the items in a way that the interaction individual-environment was captured. To operationally define the categories was not an easy task, and this level of difficulty could contributed to derive so many factors. "According to Nunnally (1978), the major source of error within an instrument is due to inadequate sampling of items" (Gable & Wolf, 1993, p. 204). The judgement of the experts confirmed this characteristic of the model. As mentioned earlier, some items were assigned by most experts to other categories differently from established initially by the instrument developer (for example, items 7 and 8 belonged to category I, but the experts assigned them to the category II). More time should have been addressed to content validity process. Perhaps, the amount of variance in each item accounted for the solution would be higher.

This instrument was developed to be answered by third and fourth grade students. However, this aspect has to be reviewed, because it was noted that third grade students

had more difficulty to understand the meaning of some items and words than fourth grade students. The level of complexity of the items was high for most third graders who answered this instrument. This scenario might also explain why some interitem correlations were so low. Furthermore, the ratio between student and item was 6.4 : 1. Although this ratio falls within the ratio suggested by Gable & Wolf (1993) (6:1 - 10:1), it is located in the lower end of the continuum.

The instrument administration procedures could also have interfered in the students' answers. The presence of the teacher in the class during the administration of the instrument could inhibit some students and led them to rate the items according to what was "expected" by the teacher. The developer of the instrument read all items in loud voice. Being the developer an international student, her native language is not English. It is possible that her accent could have confused some students as well. Some words, such as guest speaker, task, and encouragement, were very difficulty to be understood by the students. The children also asked for clarification with respect to item 12 (We discuss problems that happen out of school such as pollution and poverty), item 32 (The teacher encourages me to show my projects in events like science fair or invention convention), item 3 (I have opportunities to participate in different activities) and item 8 (The teacher encourages me to share my work with other students). Some of them did not know the meaning of poverty or pollution, for example, or events like science fair or invention convention received other names in different schools.

Having detected some problems of the instrument, the developer suggests some alternatives to improve it. First, it is necessary to increase the ratio student: item. Second, the instrument should be administered exclusively to fourth or higher grade students. Therefore, a second pilot study is required, and maybe the variability among the items will be higher. Third, factors V, VI, VII and IX should be discarded. As the correlations among the derived factors are low, these factors cannot be collapsed. They have low reliability, low item loading and they are not conceptually meaningful. Fourth, more items should be added to factors I, II, III, IV and VIII in order to improve the alpha internal-consistency reliability coefficient to .80. It is also necessary to review the writing of some items, such as 3 and 8, that have confused the students.

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ENCOURAGING CREATIVITY IN EXCEPTIONALLY-GIFTED STUDENTS

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ABSTRACT

Activities which students are free to choose from, or what are now sometimes referred to as 'stimulation activities', are a method of student enrichment currently being put into practice in some Majorcan schools. These activities are designed to 'open doors' and 'stimulate', or to 'make our students receptive' to areas or subject matters which are not normally included in their curriculum or which, if they are featured, are only dealt with superficially. In this article, we would like to present some of the work carried out in this field, directed above all at encouraging and stimulating creativity: an activity which is rarely included in normal educational programmes.

Introduction

In addition to the classic research investigations on the exceptionally-gifted that tended toward the identification, description and education of exceptionally-gifted subjects, there has also been, in recent decades, notable attention to creativity, understood as a flexible aspect of the development of intellectual behaviour.

Creativity, however, is a slippery notion that does not lend itself easily to reason or definition.

Creativity is usually described in one of three ways:

- √ In terms of the *product* of the creative effort.
- √ In terms of the creative *process*.
- √ In terms of the creative *person*.

The most popular concept of creativity is the first one, that is, as something that yields an original product. In the attempts to tie this idea to formal assessment, this focus on production has directed attention to cognitive aspects of creativity, such as originality, fluency of ideas, flexibility and sensitivity in the face of problems. This perspective has led to very useful research and to *intervention strategies* (Guilford's proposals; Torrance's training programmes, techniques and suggestions, etc.).

The other two approaches, which are concerned with the processes and persons involved, have been heavily influenced by the existential theories of Rogers and Maslow. These 'humanist' concepts have less to do with the final product and are concerned more with the experience of creativity, linking the improvement in the display of creativity with the concept of an augmented internal freedom.

But can we really offer a definition of what creativity is? The truth is that *each author establishes his or her own definition*, while there exists the universal recognition that accepts it that all human beings are creative to different degrees and that only in some do these characteristics stand out. Likewise, all definitions agree that creativity is related to the generation of ideas that are relatively new, appropriate and of high quality (Sternberg & Lubart, 1997), to novelty or originality in the resolution of a problem or in its reposition that permits a new vision alongside those which are already identified.

In a recent investigation carried out on the island of Majorca (Rodríguez & Luca de Tena, 2001a), a group of teachers were asked what the principal traits were that they associated with the idea of a creative student. The results indicated that, not only at the time of defining creativity, but also when identifying the principal traits of their creative students, the teachers chose mainly two adjectives: 'ingenious or imaginative' and 'original'. This thinking, which is concurrent and generalised with almost all the definition of creativity that we have consulted, indicates to us an apt *intuitive knowledge* of the topic, which nevertheless *does not* translate into any projects, activities or specific forms of evaluation.

In this sense, whichever of these concepts of creativity we look at, including those which insist on the sociocultural conditions required to reach advanced creative undertakings, will have no sense unless it permits us to secure all the elements *to impinge in a deliberate way on enrichment and consequent development*.

The Present Role of Creativity

In 1997, UNESCO's Global Commission on Culture and Development published a report on the global situation and its recourses entitled *Our Diversity*. The report began by posing the following idea:

> '(…) The 20[th] century has transformed the entire planet from a finite world of certainties into an infinite world of questioning and doubt. The active sense that the term 'culture' transmits in its original meaning must be restored, where 'culture' means 'cultivate'. Only imagination and creative initiatives can contribute so that individuals as well as communities and societies can adapt and transform their immediate reality'.

For a long time creativity was considered a 'gift' that had been bestowed upon a few people in the artistic world. Nowadays, thanks to the concerns of many scientists regarding this phenomenon, which has allowed for advancement in all areas of human endeavour, we can say that *creativity is a tool that all of us have access to* and that can improve if we work at it daily until reaching the highest levels in each one of our students.

The majority of psychologists are in favour of the possibility that creativity can be improved by learning. Normally, such an affirmation is supported by basic principles that, according to Nickerson (1999), can be considered plausible, although it cannot be said that there exists sufficient experimental verification to consider them incontrovertible. These principles are:

1. Being creative depends fundamentally on two sources: the nature of the individual (genetic aspects) and the environment in which he or she has developed and lives.

2. Every individual who possesses normal intelligence has the capacity or potential to be creative, the degree to which cannot be determined. Nor is it necessarily equal in every individual. It seems verifiable, at least, that the majority of people have not developed their creative potential fully.

3. This problem of development seems subject to modification, since the two sources (genetic and environmental) can be influenced. This is precisely what the process of learning consists of.

The Relationship between Creativity and the Exceptionally-Gifted Attribute

Numerous authors have studied creativity either as a necessary component of high intellectual ability, or as a specific type of giftedness that must be identified and cultivated.

The relationship between creativity and intelligence is a topic that has captured the attention of psychologists with very diverse perspectives over the last fifty years. In a similar way, within the study of the exceptionally-gifted there have been many who have included creativity as one of the primary components of high level abilities.

Galton was the first author to consider creativity as part of intelligence; however, it was Guilford who first included creativity in an expository model of intelligence. In his *Model of the Structure of the Intellect*, he proposed the inclusion of creativity under the concept of 'divergent production', establishing it as one of the five principal intellectual processes (Acereda & Sastre, 1998).

In 1967, Guilford defined divergent production as the capability to generate original alternative answers and which possesses three specific dimensions:

   √   *Fluency*: the ability to produce ideas relevant to a problem.
   √   *Flexibility*: involves the competency to break from that which is established and generate new alternatives and/or perspectives.
   √   *Originality*: is the facility for producing new and different ideas.

Torrance (1965), who was farther from purely theoretical aspects, created the *Torrance Test of Creative Thinking*, a very significant step in the measurement of creativity, both in subjects with high capabilities, as well as in those who fall within the norm.

Other authors have tried to relate high level abilities to creativity, contrasting in their studies students with high capabilities to students with an elevated creative capability, confirming that these two traits are not the same, but that both were related (Getzels & Jackson, 1962; Wallach, 1985). The idea that creativity and intelligence are two different functions of mental ability is interesting since it would suppose that each one has a different mode for attending to, recovering and reorganising information, but that together they would contribute to a response integrated and adapted to a specific task or environment.

The Marland Act (1972), whose aim was that of unifying criteria on the exceptionally-gifted, included creativity as one characteristic to take into account at the time of identifying subjects with high capabilities. From then on, creativity along with productive thought has been considered one of the traits that differentiate this group.

Renzulli (1984) introduced creativity as one fundamental element in his Model of the Three Rings, together with motivation and intelligence, in order to explain the exceptionally-gifted attribute. Nevertheless, it is Sternberg who forms a better definition of the creative process in the exceptionally-gifted person.

Running throughout the bibliography is the topic of whether or not creativity is independent of intelligence. The majority of studies on this topic agree that I.Q. and creativity can express themselves together or separately, though a high score in one of the two aspects does not guarantee a high score in the other.

Within the specific field of the exceptionally-gifted, creative thought is currently considered both an essential component of giftedness as well as a type of specific talent which can become generalised to all areas of life (Acereda, 2000).

Stimulation of Creativity in the Ordinary Classroom

Academic activities are usually based in non-creative processes; there is an abundance of narrow situations in which the student does not make any contribution but only receives information, and the evaluated products are frequently of the type with one unique correct answer.

Academic contents are designed so that the student integrates them into his or her information structures in a systematic and unequivocal manner. The creative student is forced to incorporate material without being able to structure it according to his or her own processing resources, in detriment to the quality and quantity of the learning of those contents.

The imagination is necessary, and it is well to remember that the imagination is powerful enough when it is at the service of thought. For this same reason, *teachers should not be afraid of creativity* and even less so, think that it favours inappropriate behaviour like anarchy in the schools.

In whatever case, creativity appears to be the result of the interaction of many factors, and because of this, it does not appear as a simple behaviour, but as a resulting complex. From this point, there is abundant information with proposals for behaviour that generates creativity in children. In this vein, an initial proposal for the improvement in the education of early-childhood creativity comes from Sternberg & Lubart (1997), which refers particularly to the school setting:

√ Devalue marks, which constitute a highlighted extrinsic motivator.
√ Make creativity an explicit part of content to show that it is valued.
√ Give verbal recognition to creative work (private or public praise).
√ Encourage students to present their work in outside exhibitions or contests.
√ Try to use a combination of the aforementioned motivators (marks, praise, contest, pleasure…).

Secondly, Nickerson (1999) presents a series of suggestions, many of which are based on experimental evidence and others simply on the fact of being consistent with the hypotheses that seem to work well in pedagogy and in the study of creativity:

√ Affirmation of intentions and purposes: This refers to the need for continuous work in making creativity possible.
√ Building from the basic abilities: Creative potential cannot develop if it is not supported by the fundamental foundation that these abilities provide.
√ Acquisition of knowledge specific to domains: Knowledge does not always accompany creativity, but it is an indispensable condition for this to take place.

√ Stimulation of curiosity: Children are naturally curious, and an inappropriate education insists strongly that they stop being so, instead of appropriately fostering curiosity.

√ Building motivation: We know that the role of creativity is very important, and it appears in an obvious way in great scientists and artists who are passionate about their work. The most important motivation is the internal.

√ Self-confidence and the disposition to risk: Creative thought is blocked in an individual when he or she is ruled by fear, fear of failing or of looking ridiculous.

√ Centring of the skill and the performance itself: Individuals who are centred on competition with others are less disposed to take risks or to persist when they fail.

√ Fostering of beliefs that support creativity: It is important to foster beliefs and attitudes that in turn foster the search for and promotion of creativity, like, for example, the idea that creativity is determined to a large measure by motivation and effort.

√ Providing opportunities for choice and discovery: Individuals are much more interested in activities chosen by themselves than they are in those activities chosen by others and imposed on them.

√ Developing abilities of self-instruction: This deals with a function that involves being the active and conscious director of one's own cognitive resources, paying attention to one's own thought processes for which full responsibility is felt. In this sense, it should be remembered that frequently the rewards have more negative effects than positive on the activity and the creativity of the child: the reason is that they undermine and destroy the intrinsic interest and centre the child only on the extrinsic interest (Rodríguez & Luca de Tena, 2001b).

√ Teaching techniques and strategies to facilitate creative performance: It is the procedure plus pragmatics, which used individually or in groups, that can help one to discover innovations, while fostering curiosity and the sense of the hunt which favour creativity.

√ Providing a balance between freedom and structure: Excessive structuring inhibits creativity, but so does the total lack of structure. It is necessary to find a balance between the freedom to create and the need for structure and discipline.

Nickerson ends his suggestions by reminding us that the indispensable element for the improvement of creativity is the fostering of certain attitudes that are not taught with rules but by example, by modelling.

Lastly, we have included the proposal of Gallego (2001). According to this author, creativity can emerge spontaneously; it is only necessary to surround students with an environment that favours the imagination. To help develop this environment in the classroom certain activities can be used, such as the following:

√ The exhibition of student work.
√ Debate and discussion about a text, a newspaper or magazine clipping, an advertisement.
√ Analysis of situations, for example of films or parts of them.
√ Reading a 'case study' and debating it.
√ Creating an opinion poster or message.
√ The creation of imaginary adventures--What would happen if a student could make him-/herself invisible?
√ The creation of imaginative stories.
√ Composition exercises.
√ Literary, theatrical, etc. contests
√ The presentation of unfinished tales or stories, etc.

Stimulation Activities

Despite the acceptance, I believe unanimous, regarding the important role that creativity plays not only in the identification but also in the development of exceptionally-gifted subjects, programmes that favour creativity in exceptionally-gifted students are not frequently used. Maybe this is because there is the false impression that these students are already creative, or maybe because it is construed that the main effort must be directed toward depth and improvement of more classic curricular contents or of a strictly intellectual type.

Among the different proposals for action in education, such as acceleration or grouping, it is probably in *curricular enrichment in the ordinary classroom* where most, and most positive, expectations have arisen in our country (Prieto & Castejón, 2000). This strategy consists in offering a set of experiences which supplement and complement what is already established in the ordinary curriculum or textbooks, and which have been appropriately planned according to the needs, interests and capabilities of the students. And this strategy involves a change in the quality of work.

The programmes of intervention-enrichment are those that basically anticipate the questions and problems of those exceptionally–gifted and talented students who, in the context of the normal class, exceed the rhythm and the syllabus contents which are earmarked for the entire class. Such students are provided with some type of activity or task that is *extra* or *besides* what is intended for the majority. The putting into practice of a curricular enrichment programme provides teachers with a model of work oriented to favour the development of the higher thinking abilities, besides counting among its main advantages the fact that all the students in the classroom can benefit from the enrichment activities.

This extra-curricular learning can be provided in different levels and situations, without the urgent need to segregate or separate the exceptionally-gifted from the normally-gifted students. The extra-curricular learning ranges from complementary classes organised in the very same school to programmes prepared for the exceptionally-gifted in different locations and with different timetables.

All the studies seem to point out that the students who follow intervention-enrichment programmes augment their general intellectual capability, at the same time that they substantially improve in reading, maths, and motivation index. Also, they show a clear tendency toward personal and emotional balance and adaptation, which translates into higher self-esteem and better attitudes toward learning and academic success. In contrast, *no* intervention-enrichment has been shown to cause problems of inactivity and de-motivation.

Examples of Activities That Stimulate Creativity

In the recent years, I have received requests, from different educational centres where an exceptionally-gifted subject had been identified, as to the best form of classroom intervention. Although the choice of one or another method is the competency of the Council of Education of our Autonomous Community of the Balearic Islands, in general the teachers wanted to know how to carry out enrichment activities in the curricula of those students and, in general, wanted orientation as to how to improve their students' level of motivation.

In this sense, from our place at the University and thanks to the figure of the student collaborator, we have gone on adding the so-called *stimulation activities* to what could be denominated as curricular enrichment tasks. These stimulation activities are so characterised because they are for the students free electives and inasmuch as they are designed with the aim to 'open doors' and to 'awaken and make our students receptive' to areas or courses that do not figure in their ordinary curriculum, or if they do so, it is in a very superficial way.

We are now going to present some of the work done in line with this and that is especially directed toward *creativity stimulation*, an activity rarely included in ordinary school programmes.

The work with Adrià

Adrià was eight years old and in the 2[nd] year of primary school when we began to work with him. He had been recently identified as exceptionally-gifted, and there were plans to add flexibility to his program for the following academic year. From January to June we were asked for help in attempting to stimulate this student. While working with the classroom teacher on the way to improve

and enrich Adrià's ordinary curriculum, we decided to try to promote one of what appeared to be the more neglected areas, which was creativity. The child himself frequently expressed 'nothing occurs to me' in referring to what he understood as a lack of originality.

In this case, we worked with literature, specifically with Mercè Rodoreda's *'Les flors fantàstiques'* translated into Castilian Spanish. The field of literature, specifically poetry, and of drawing seemed to us a good way to stimulate these activities. Let us look at an example:

> **Text:** 'Did you know that there is a water flower? No? Well, go underwater and you'll have the opportunity to learn what it's like: It blossoms in the cleanest water in the world, lake water, and it's made of snowy sponge. It's small and coloured ivory white and orange. It's a flower that drinks. The petals are like spoons, they catch the water, when they are full they rush together so that the water doesn't spill and it drinks the water. Later the petals open again and rest. When they have rested, they drink again. Every night they do the same.'

> **Practice:** 'What does the expression "it's made of snowy sponge" mean? How many activities or sports do you know of that are done in the water? Tell me the names of all the water plants and flowers that you know of. What different uses can water have? Draw a water flower'.

The work with Toni

Toni was found to be in a situation similar to Adrià. When we met him, he was ten years old and in the 5[th] year of primary school. There were recommendations to add flexibility to his programme as well. Again, while waiting for this to be put into practice, we were asked for help by the school's team of directors.

Toni was a tremendously independent child who did not like following the class rhythm and who had begun to show some undisciplined behaviour, especially after a bit of time had passed when he had already finished the work assigned. This undisciplined behaviour was expressed through sentences like 'The same thing again? It's boring' and 'When are we going to finish this topic?'. On this occasion, we chose the course *Knowing the Way* to begin working with him. Within this course our intention was delve into different topics of social interest, like, for example, the use of a scarce commodity in our society: water. Toni hated to draw so the exercises were always written. With the exercises, we tried to work both on reflective thought and creativity with questions similar to the following:

'Majorca in the summer turns into a place where many tourists come to spend their holidays, and as a result a lot of water is used. What would you do in order not to waste water in the summer?'

In this first example, the originality as well as the quantity of the answer given was assessed. At another time, we tried to open up his imagination through the use of questions about imaginary situations:

'How would our world change if it ran out of sea water?'

Or through solutions of an inventive nature:

'Imagine that you're taking a sea voyage from Majorca to Argentina. In the middle of the ocean you are all swamped by a storm and shipwrecked. You are in a lifeboat with five other people. In the morning, it's very hot and at night it gets very cool. In the lifeboat you have some food but you don't have any drinking water. What would you do to get enough drinking water until they came to rescue you all? In the lifeboat, you have the following things: ropes, a plastic tarp, lifevests for everyone, two oars, empty plastic bottles, cigarette lighters and a net'.

Conclusions

Today's society calls for a type of school where creativity has a special and privileged space within a curriculum that more and more is designed to supply answers for a very demanding and changeable world. Schooling can no longer be bound to the mere transmission of bodies of knowledge, but to the praxis and mastery of the processes that lead to creativity. In this way, citizens of the future will be able to change from being consumers to being producers of new ideas.

This need is sharpened in the case of our exceptionally-gifted students. We have to promote creativity in the classroom, and to this end it is indispensable that there are professionals prepared both at the theoretical level as well as in their attitudes, in order to respond positively in the face of this new educational challenge.

Fostering *collaborative work* among professionals within and from educational centres helps in the sharing of experiences, doubts and discoveries, at the same time that it diminishes fear of the new and resistance to change. Only in this way is it possible to arrive at a new form of thinking and doing.

Conventional school education, with its stagnant compartmentalised approach to knowledge and thought, is often more of an impediment than a help to creative thinking. The effects of a creative education will be of great impact, educationally and socially: initiative and self-motivation, consistency and

curiosity, autonomous development, a sense of usefulness and of social-setting action, development of the imagination and inventiveness, key for a sense of adventure, fun and enterprise, a really distinct and original education that can benefit all students.

The school must not only be a transmitter of knowledge, but its ultimate aim must be to achieve the free and true maturing of the students, especially for the collective of highly capable students, for those whom creativity will be one of the best advantages (if not the only one) with which we can equip them.

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FOSTERING CREATIVITY AT THE UNIVERSITY LEVEL

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ABSTRACT

The higher education years are of great importance in enabling students to become aware of their creative abilities and in enhancing their creative potential. However, scholars from different countries have observed that generally not much encouragement is provided for university students to express their creativity. Several studies conducted by the author on creativity at the university level are summarized in this article. These studies suggest that many university professors are ill-equipped to influence positively the development of students' creativity. The article also highlights different aspects of the school environment, especially teachers' behaviors which influence students' creative development, that teachers must be aware and should consciously promote.

FOSTERING CREATIVITY AT THE UNIVERSITY LEVEL (Research for this essay was supported by the Brazilian Council for the Development of Science and Technology)

There is a growing recognition of the importance of the higher education years in enabling students to become aware of their creative abilities and in enhancing their creative potential. Authors, such as Shallcross and Gawienowsky (1989), Toren (1993), Cohen (1997), Cole, Sugioka and Yamagata-Lynch (1999), and Alencar (2000) addressed different elements of creativity on higher education, highlighting the classroom climate for creativity, ways of cultivating the students' potential for creative work, as well as the need to improve higher education in order to allowing students to think creatively and imaginatively.

On the other hand, scholars from different countries have observed that generally not much encouragement is provided for university students to express their creativity. Paulovich (1993) criticizes graduate education for not encouraging creative and independent thought. According to her, "grade hungry students are forced to memorize and regurgitate incredible volumes of facts at a ridiculous rate that prohibits even the rare enthusiast from thinking about the material or being intellectually stimulated" (p. 565). Toren (1993) pointed out the urge for transforming education, mentioning the collision of learning cultures when a student-centered program was introduced at the university level that aimed the development of the capacity to be creative and reflective. Tolliver (1985) argued that university teachers inhibit creative students by the selection of knowledge presented to their students as well as through education's regulatory function which seeks to standardize and socialize towards specific goals.

Although the years of higher education are of major importance for the nurturance and development of creativity, the literature reveals that there is a comparative lower number of studies on different factors of university environment, comparatively to the elementary school years. Especially studies on the nurturance of creativity by university professors, as well as studies on characteristics of university professors behaviors that facilitate or inhibit students' creative expression have been much neglected. These and other related topics were investigated by us in the last decade. Our studies addressed the following questions: (a) undergraduate and graduate students' perceptions of their own level of creativity, their colleagues and teachers level of creativity; (b) relationship between university students' perception of their own level of creativity and their results on tests of creative thinking; (c) teachers' behaviors that facilitate and inhibit students' creative expression; (d) university students' perception on the extent to which different aspects related to creativity have been fostered by their university professors. A brief description of the main results of these studies will be presented in this paper. They suggested the need for university teachers to be aware of their role in providing conditions for the students to express their creative abilities. They also pointed to educational practices to be regarded by those teachers who wish to promote creativity in their students.

UNIVERSITY STUDENTS' EVALUATION OF THEIR OWN LEVEL OF CREATIVITY AND THEIR TEACHERS AND COLLEAGUES LEVEL OF CREATIVITY

The question on how university students evaluate their level of creativity was addressed in two studies conducted in a sample of undergraduate and other of graduate students (Alencar, 1996; 1999). A related question to this was previously addressed by us (Alencar, 1984) in a study with elementary school teachers. In this previous study, it was observed that, according to these teachers, most of their students were not creative or presented very low levels of creativity.

In our study (Alencar, 1996) requesting undergraduate students to rate their level of creativity, their university professors and their colleagues levels of creativity, our data indicated that the students perceived themselves as significantly more creative than their university professors. The students also perceived their colleagues as more creative than their university professors However, the difference between the evaluation of their own level of creativity and their colleagues' level of creativity was not significant. Our results also indicated that the university students evaluated their professors as presented low levels of creativity. These results were interpreted by us as a reflection of teachers' behaviors in the classroom. Teachers, in general, do not provide conditions for students to express their creative abilities and this may affect the students' evaluation of their teachers' creativity. Similar results were previously observed by Rosas (1988), who noted lack of incentive for creativity on the part of Brazilian university professors. According to Rosas, with the exception of the art department, most university professors seemed not interested in creativity.

When these same data were collected in a sample of graduate students (Alencar, 1999) our data revealed different results. Besides perceiving their own level of creativity as significantly higher than their undergraduate colleagues, they also considered their professors as significantly more creative. However, similarly to the data obtained with undergraduate students, the graduate students also evaluated themselves as presenting higher levels of creativity, compared to their professors. Differences between the graduate and undergraduate students in their ratings of their own level of creativity were explained by the requirements of the Brazilian graduate courses. During the graduate years, students are requested to develop projects which characterize by the presentation of new and original ideas, besides being stimulated to present more independence of thinking and initiative. On the other hand, in the undergraduate courses, there are less opportunities for students to express their creative abilities in the classroom. As pointed by Slabbert (1994), an environment unsupportive of creativity can inhibit or suppress the students' creative abilities. The lack of opportunity for the undergraduate students' to express their creative abilities might have influenced their perception of their own level of creative potential.

RELATIONSHIP BETWEEN UNIVERSITY STUDENTS' PERCEPTION OF THEIR OWN LEVEL OF CREATIVITY AND THEIR RESULTS ON TESTS OF CREATIVE THINKING

Besides examining how university students rated their level of creativity, their colleagues and their teachers' level of creativity, they were also requested to complete the Torrance Tests of Creative Thinking (verbal, form A). At this occasion, standard directions (Torrance, 1974) were used in administering the tests, except for the inclusion of a 10 minute limit for each subtest. Each of the subtests was scored for fluency (number of different responses), flexibility (number of categories into which the subtests' responses can be classified),. and originality (based on the statistical rarity or uniqueness of the ideas expressed). The scoring guide for originality was based on the responses of 100 Brazilian subjects from secondary school.

Correlations were then calculated between the results in the Torrance Tests of Creative Thinking and in the evaluation of their own level of creativity. Our data indicated significant correlations between the different measures of creative thinking and the students' evaluation of their own level of creativity. Students with higher scores in the Torrance Test of Creative Thinking also perceived themselves as more creative than those with lower scores in the tests (Alencar, 1996).

It is relevant to note that Torrance (1974) described several studies on concurrent validity, using peer nominations and teacher nominations of the students' creativity. In these studies, significant correlations were obtained between these nominations and the results in the Torrance Tests. In our study, it was the students themselves who evaluated their level of creativity, with similar results to those described by Torrance (1974) in the Norms-Technical Manual of his tests, using peer and teachers' nominations. Our data gave, thus, support for the concurrent validity of the Torrance Tests of Creative Thinking.

TEACHERS' BEHAVIORS THAT FACILITATE AND INHIBIT STUDENTS' CREATIVE EXPRESSION

Several authors, such as Torrance (1995), Cropley (1997), Renzulli (1992), among many others, have described creativity fostering teachers. According to Torrance, a fostering creativity teacher respects students' questions and ideas; makes provocative questions; recognizes the value of original ideas; helps students to be aware of their creative talent value; and develop a creative classroom atmosphere. This teacher promotes in the students: Self-confidence, thinking and action independence, curiosity, task commitment, persistence, and drive to experiment and willingness to try difficult tasks.

Also Cropley (1997) described characteristics of creativity fostering teachers, as the following: "(a) encourage students to learn independently; (b) have a cooperative, socially integrative style of teaching; (c) encourage flexible thinking in students; (d) take students' suggestions and questions seriously; (d) offer students opportunities to work with a wide variety of materials and under many different conditions" (p. 98). In addition, Cropley also points that creative teachers tend to give more support for the creative students, besides providing a model of creative behavior and reinforcing creative behavior on the part of the students.

Renzulli (1992) described a theory for the development of creative productivity, which suggests different elements for the promotion of ideal acts of learning. His model includes three main components: The student, the teacher and the curriculum. According to him, the teacher is the most important element and should present three main characteristics: Knowledge of the discipline (domain of the content area); use of instructional techniques which facilitate and encourage creativity; and romance with the discipline (love for the material they are teaching).

The literature reveals, however, that only a small number of research has focused on the teachers' behaviors that promote and those that inhibit creativity. To know more about these characteristics and behaviors, Alencar (2000) conducted a study with graduate students, requesting them to select among all their present and past teachers the one who provided better conditions for the development and expression of the students' creative abilities and to describe typical behaviors of this teacher. They were also requested to choose among their present and past teachers the one who most inhibited the development and expression of the students' creative abilities, describing their most common characteristics and behaviors in the classroom.

The students referred specially to instructional techniques followed by data about teachers' preparation and characteristics of teachers' relationship with their students to describe the facilitating teachers. The facilitating teacher was described as one who provides opportunities for the students to question, to reflect, to participate and to criticize the content discussed in class. Different activities are developed by this teacher during class. Facilitating teachers have a friendly relationship with the students, treating them with respect and cordiality. The facilitating teacher was also viewed as presenting an advanced competence in his/her field. References were also made to personality traits, especially self-confidence, responsibility and enthusiasm.

These data are in accordance to those presented by previous authors, such as Chambers (1973), Torrance (1995), and Cropley (1997). These authors point out to educational practices and teachers' characteristics to be regarded by those teachers who wish to promote creativity in their classes. As suggested by Morgan and Foster (1999), teachers need to become interested in providing opportunities and presenting behaviors which nurture students creative abilities. There is a need for students to be prepared for creative accomplishments and our data on the creativity facilitating teachers surely contribute in this direction.

The inhibiting teacher was described as utilizing lectures, based on knowledge reproduction. Moreover, they were described as presenting the content in a mechanic way, characterizing their classes as monotonous, besides focusing the teachers' attention in a small number of students. The inhibiting teacher usually ignores students' contributions, besides provoking anxiety and fear in their students. They were characterized as authoritarian, arrogant, excessively critical, with low flexibility. Insufficient preparation and limited domain of knowledge were other aspects which characterized the inhibiting teacher, according to the students who participated in the study. These data highlights several educational practices and teachers' behaviors which inhibit the expression of creativity in the classroom, that should be avoided in the educational context.

UNIVERSITY STUDENTS' PERCEPTION ON THE EXTENT TO WHICH DIFFERENT ASPECTS RELATED TO CREATIVITY HAVE BEEN FOSTERED BY THE UNIVERSITY PROFESSORS

Two studies (Alencar, 1995; 1999) were conducted to evaluate the students' perception of the degree to which different aspects related to creativity have been fostered by the university professors: A first one with undergraduate students (N = 428) and a second with graduate students (N = 92). These students filled out an inventory designed by Alencar (1995) to evaluate the frequency of teachers' behavior in the classroom which are conducive to creativity. This instrument consisted of 19 items, which were answered on a five point scale. Examples of the items are:

My university professors in general:
- Stimulate students to ask questions on the topics studied;
- provide an environment of respect for students' new ideas;
- stimulate students' curiosity by means of the tasks required in their courses;
- ask challenging questions in class to motivate students to think and to reason;
- stimulate students' independence.

This instrument was constructed on the basis of a review of theory and research on creativity in schools, including studies conducted by us previously in educational setting (Alencar & Rodrigues, 1978; Alencar, Fleith, Shimabukuro & Nobre, 1987; Virgolim & Alencar, 1993). In general, our results indicated low degree of incentive to different aspects which are associated to creativity.

According to a large number of undergraduate students their university professors in general did not ask challenging questions in class, did not stimulate students' initiative; did not provide an environment of respect for students' new ideas, besides using tests and exam questions that require only the reproduction of the content given in class or presented in the textbooks.

The undergraduate students who participated in the study were from two different universities: One ranked as one of the best in Brazil and another ranked low among Brazilian universities. Our results indicated that the students from the university ranked as one of the best in the country, more than those from the second university, perceived their professors as displaying various behaviors that influence students' creative development positively. Differences were observed, for example, in the following items among these two groups of students: Professors in general cultivate in students interest in discoveries and new knowledges; ask challenging questions in class to motivate students to think and to reason; stimulate students to analyze different aspects of a problem; provide an environment of respect for students' ideas; stimulate students' independence. These differences may reflect the conditions of teaching in the two universities. Most of the professors from the best university have a Ph.D. degree obtained in foreign countries. It has a lower number of students per class and many of its graduate courses are considered the best in the countries. Better facilities and equipments are also available to the professors. The professors usually have time to assist students outside the class. On the other hand, the second university is a private one and most of its professors do not have a Ph.D. degree. In general the number of students per class is much higher and most of the professors do not work full time at the university.

The results obtained with graduate students indicated that these students perceived their professors as providing more favorable conditions for the nurturance of creativity, compared to the undergraduate students. Their average in the inventory was significantly higher compared to the one obtained by the undergraduate students. Differences in the educational climate, as well as in teachers' attitudes, expectations and behaviors in the classroom, with much support for the expression of creativity in the graduate classes, comparing to the undergraduate ones, may explain these results.

CONCLUDING STATEMENT

It is unquestionable the importance of providing an educational environment at the university level that fosters creativity in the students. On the other hand many university professors are ill-equipped to influence positively the development of students' creativity. It is our hope that the studies briefly reviewed in this paper may contribute to highlight different aspects of the school environment, especially teachers' attitudes and behaviors which influence students' creative development. Instructional techniques, teacher-student relationship, and the fostering of an environment that encourage self-confidence, curiosity, risk-taking, task

commitment, are some factors that teachers must be aware and should consciously promote. This is especially necessary in countries , such as Brazil, where several inhibiting practices for the nurturance of creativity are common, such as the reinforcement of the fear of making mistakes, an exaggerated emphasis in reproduction of knowledge, and low expectations about the students' creative potential.

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ESSENTIAL CHARACTERISTICS OF THE GIFTED TEACHER

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ABSTRACT

This paper explores gifted students' perceptions of the most desirable qualities in their teachers. The research involved the administration of a questionnaire to students at an academically selective high school in New South Wales, Australia. The questionnaire sought to determine whether personal or intellectual qualities were more highly valued by the students. Although personal characteristics were more highly regarded by the students, analysis of the open-ended questions reveals a more complex interaction of the personal and intellectual qualities as important for the teacher of the gifted. Gender and grade level differences are also noted.

INTRODUCTION

There would be little argument that the key to the success of any educational program is the teacher. Renzulli's (1968) survey of twenty-one experts in gifted education, for example, determined that the most important element in the success of programs for gifted students was the teacher. Most teacher training programs, today, include statements of the competencies, attributes or qualities that their graduates will gain through the course of their training. Such statements tend to be generic and usually fail to address the needs of specific groups of students. In Australia, for example, scant attention is given to the needs of gifted students in undergraduate teacher training courses. While there are mandates for study in other special education areas, the amount of time devoted to gifted education is dependent solely on the orientations of individuals within the training institutions. The assumption seems to be that the attributes of a good teacher are the same for all students. For gifted education, the question remains as to whether the qualities that make a teacher effective are the same for gifted students as they are for those who are not gifted.

TEACHER CHARACTERISTICS AND BEHAVIORS

In 1980, Renzulli suggested that it is counter-productive to focus on teacher characteristics; instead, he argued, the focus should be on teacher behaviors. An analysis of the literature into qualities of the effective teacher of gifted students demonstrates that while different nomenclature is used by the various researchers, their conclusions inevitably incorporate a complex combination of personality characteristics, knowledge and skills, professional attitudes, and teaching approaches and strategies.

The writers who have researched and subsequently listed the characteristics that are essential or highly desirable in effective teachers of the gifted have drawn on a variety of sources including gifted education experts, teachers, students, and/or parents. A synthesis of their conclusions reveals a number of characteristics (see Table 1 for summary) as recurring themes. These themes can be grouped along three dimensions relating to the teachers' knowledge and skills; their teaching and classroom management style; and their interpersonal qualities.

Table 1: Characteristics of Effective Teachers of the Gifted

Characteristic	Source
has insights into the cognitive, social and emotional needs of gifted students	Bishop, 1980; Burg, 1988; Davalos & Griffin, 1999; Feldhusen, 1991; Hansen & Feldhusen, 1994; Nelson & Prindle, 1992; Whitlock & DuCette, 1989
has skills in differentiating the curriculum for gifted students	Feldhusen, 1991; Nelson & Prindle, 1992; Whitlock & DuCette, 1989
employs strategies that encourage higher level thinking	Feldhusen, 1991; Hansen & Feldhusen, 1994; Nelson & Prindle, 1992
encourages students to be independent learners	Feldhusen, 1991; Goertz & Phemister, 1994; Hansen & Feldhusen, 1994; Nelson & Prindle, 1992; Whitlock & DuCette, 1989
provides student-centered learning opportunities	Bishop, 1980; Davalos & Griffin, 1999
acts as a facilitator or "guide on the side"	Bernal, 1994; Whitlock & DuCette, 1989
creates a non-threatening learning environment	Hansen & Feldhusen, 1994
Is well organized	Bishop, 1980; Feldhusen, 1991; Maddux, Samples-Lachmann & Cummings, 1985
possesses in-depth knowledge of subject matter	Bishop, 1980; Burg, 1988; Emerick, 1992; Feldhusen, 1991; Lewis, 1982; Goertz & Phemister, 1994; Maddux et al., 1985; Milgram, 1979
has broad interests, often literary and cultural	Bishop, 1980
has above average intelligence	Bishop, 1980; Feldhusen, 1991; Lewis, 1982; Milgram, 1979
is a lifelong learner	Bernal, 1994; Emerick, 1992
thinks creatively	Bishop, 1980; Lewis, 1982; Hansen & Feldhusen, 1994; Maddux et al., 1985; Milgram, 1979; Nelson & Prindle, 1992
possesses excellent communication skills	Bishop, 1980; Lewis, 1982
is willing to make mistakes	Bernal, 1994; Whitlock & DuCette, 1989
possesses a sense of humor	Bernal, 1994; Burg, 1988; Goertz & Phemister, 1994; Maddux et al., 1985
is enthusiastic	Feldhusen, 1991; Goertz & Phemister, 1994; Hansen & Feldhusen, 1994; Whitlock & DuCette, 1989

STUDENT PERCEPTIONS OF DESIRABLE TEACHER CHARACTERISTICS

While policy and curriculum documents extol the desirable and essential qualities of good teachers of gifted students, relatively few research studies

have utilized the views of gifted students themselves. In a seminal study, Bishop (1976) examined the characteristics of US high school teachers regarded as successful by their gifted, high achieving students. He found that a combination of intellectual and personal characteristics was highly regarded by the students. In brief, Bishop concluded that the following characterized successful teachers:

- maturity and experience
- intellectual superiority
- high achievement orientation
- commitment to intellectual growth
- favorable attitude toward students
- orderly and systematic approach
- imagination
- engagement in intellectual pursuits

Other studies conducted in the US have pointed to a preference by gifted students for the personal characteristics over the intellectual qualities of their teachers. For example, Lewis (1982) worked with small groups of gifted students in grades three through seven in the US to identify the characteristics of successful teachers of the gifted. The students agreed on a list of 22 essential characteristics, the most important of which included creativity, understanding, patience and honesty. The majority of items listed related to the personal qualities of the teacher.

Abel & Karnes (1994) used the Preferred Instructor Characteristics Scale (PICS) (Krumboltz & Farquhar, 1957) with 49 gifted students from rural, lower socioeconomic background and 49 gifted students from suburban, advantaged backgrounds in the US. They found that the students strongly preferred the personal-social characteristics of their teachers.

Dorhout (1983) also used the Preferred Instructor Characteristics Scale (Krumboltz & Farquhar, 1957) with his study of 279 gifted students drawn from grades five to twelve and 110 of their teachers in the US. Dorhout compared the students' preferences with those anticipated by their teachers. The students preferred the personal-social characteristics of their teachers; secondary teachers believed that students would respond more closely to the intellectual-cognitive end of the continuum. The researcher concluded that secondary teachers need to be more aware of their students' preferences if they are to adequately respond to their needs.

In stark contrast to the findings of these US studies, are the findings reported by Milgram in her study of Israeli children. Milgram (1979) studied 459 gifted and non-gifted students in grades four through six in Israel. One of the instruments used was a self-designed survey called the Student Perception of Teachers Scale (SPOT). Like the PICS, this instrument sought students' preferences for the personal and intellectual qualities of their teachers but Milgram also added the dimension of teacher creativity. This final category relates to the teachers' approaches to classroom organisation, presentation of material and so on. Milgram's subjects demonstrated a strong preference for the intellectual qualities of the teacher above the other two dimensions.

Maddux, Samples-Lachmann & Cummings (1985) used an American version of the SPOT with gifted junior high school students. Unlike Milgram, they found that their students preferred the personal-social characteristics of their teachers over the intellectual and "creativity" characteristics.

TEACHERS OF THE GIFTED: RELEVANT AUSTRALIAN RESEARCH

Like other parts of the world, there has been comparatively little Australian research into the qualities of effective teachers of gifted students. Most research related to teachers and the gifted in Australia has focussed on teachers' attitudes toward, and understanding of, gifted students. Whitton's (1997) study of the practices of 606 primary school teachers in New South Wales, for example, found that these teachers demonstrated a lack of knowledge about gifted children and made only minor modifications to their curriculum. Similarly, McKinnon's (1998) study of early childhood teachers found that they had little awareness of the nature and needs of gifted students and were unable to differentiate the curriculum for such students. This finding was consistent across the research sample despite differences in the age and experience of the teachers. The younger the gifted children, the less likely that their needs would be recognized and met by classroom teachers, according to Wellisch (1997).

In a modified replication of Tannenbaum's (1962) research, Carrington (Carrington & Bailey, 2000) examined the attitudes of preservice teachers toward gifted students. He found that preservice teachers were significantly more positive toward gifted students who were not studious compared to those who were. Although less significant, he also found that gifted girls were less well regarded than gifted boys by preservice teachers.

The importance of changing teacher attitudes to gifted students through training in the field was clearly demonstrated by Gross's (1994) study. Gross reported strong positive shifts in the attitudes of inservice teachers, undertaking a course in gifted education, toward gifted children. Similar conclusions linking teacher training and positive teacher attitudes were drawn by Wellisch (1997) and Whitton (1997).

While it may be possible to extrapolate some of the desirable qualities of teachers of gifted students from these studies, a more complete picture may be gained by exploring the attitudes of gifted students to their teachers. In an exploratory study, Vialle (1998) questioned primary school students (Years 5 and 6) enrolled in a gifted program. In semi-structured interviews, the students were asked to describe the qualities that make a good teacher. The findings from these interviews clearly demonstrated that personal qualities were as highly regarded as academic qualities, a finding that is reminiscent of the study conducted by Abel and Karnes (1994). The students in Vialle's study rated understanding and helpfulness as the key qualities in their ideal teacher. Although their teachers needed to be smart according to 15% of the students, the ability to facilitate their learning through setting challenging tasks was described as a key factor by a large majority of the sample. A sense of humor, creativity and curiosity were also qualities in their teachers that were highly valued by the students. Finally, the students required their teachers to make the work interesting and to be well organized.

Method

Context

In New South Wales, Australia, academically selective schools were established to provide an appropriate learning environment for high school students of above-average ability. The students gain entry by undertaking a standardized entrance test, similar to an IQ test. There are currently 19 such schools in the state among a total of 391 government high schools. While students are required to qualify to attend a selective school, there has been no compulsion for teachers in these schools to have any training whatsoever in gifted education. As a result, it is not uncommon for teachers with little insights into the specific needs of gifted students to be responsible for their education. Given that the teacher is one of the most important elements in an effective education for all students (Ramsey, 2000; Renzulli, 1968), the question arises as to how students in these selective schools regard the quality of their teachers.

This project aimed, therefore, to identify the qualities of good teachers from the perspective of students at a selective high school. The students were asked to identify qualities related to their teachers' academic abilities, personalities, and teaching styles/approaches. This initial phase of the project was designed to form a baseline position on which future research would be built. The ultimate aim of the research is to understand what qualities and behaviours are needed for effective teachers of gifted students and whether gifted students differ from mainstream students in their preferences.

Subjects

The research was conducted in an academically selective high school located in Sydney, New South Wales. Students qualify for entry into the school through their results on the Selective Schools Entrance Test (similar to an IQ test). Not all students would qualify as gifted according to most IQ definitions but they would all be regarded as above average students in ability.
A total of 387 students from Years 7, 9 and 11 participated in the study.

Instrument

The Preferred Instructor Characteristics Scale, created by Krumboltz and Farquhar (1957), was used for a number of reasons. First, the survey was intended as a means by which to gain preliminary data on selective students' preferences. Given that two US studies have also used this instrument with samples of gifted students, it was believed that use of the same instrument would provide a basis for some comparison of Australian students with their international counterparts. The SPOT (Milgram, 1979) was translated into English but required too much modification to make comparisons valid. The Maddux et al. (1985) version of the SPOT was unavailable.

The PICS is a forced-choice, 36-item questionnaire that seeks to identify whether the academic or personality characteristics of teachers are more important to the students. Each item requires the students to select either a personal-social attribute or a cognitive-intellectual attribute. An example is: **I prefer a teacher who:**

θ is an expert.

θ treats us as mature people.

Three open-ended questions were added to the PICS to gather additional information that would augment the PICS results. In these questions, the students were asked to describe the qualities of good teachers, effective teachers and ineffective teachers respectively.

Procedure

The questionnaire was administered to the students in separate year groups. Students were also requested to indicate their gender. The survey results from the PICS were entered into a Microsoft Excel database and means and standard deviations were calculated for males and females, for individual year groups and for the total sample. The open-ended questions were coded for dominant themes.

RESULTS AND DISCUSSION

The complete breakdown of means and standard deviations for our study appears in table 2. We have considered the dimensions of gender and grade level to see if any differences exist among these groups. We would like to have included ability level as well but because of the anonymity of the survey were unable to do so.

One trend that may be observed from a comparison of the grade means is that as students progress through high school, they come to appreciate the intellectual characteristics of their teachers more. Females have a higher preference for the personal-social characteristics than do the male respondents. Nevertheless, the means all still remain firmly within the personal-social end of the continuum. It is important to note the size of the standard deviations, though. This points out the variability within the results that cannot be fully appreciated by the means alone.

Table 2: Means and Standard Deviations of Selective High School Students

Group	N	Mean	SD
All	387	10.27	7.36
Female	197	9.54	7.00
Male	181	11.07	7.70
Year 7	141	8.92	6.90
Year 9	123	9.05	7.07
Year 11	123	13.02	7.44
Year 7 Female	70	8.98	7.39
Year 7 Male	67	8.92	6.54
Year 9 Female	75	8.08	5.87
Year 9 Male	44	10.70	8.66
Year 11 Female	52	12.40	7.26
Year 11 Male	70	13.34	7.56

The results of our preliminary survey with NSW selective high school students supported the findings of the Abel and Karnes (1994) research and Dorhout's (1983) study wherein students preferred the personal-social characteristics of their teachers to their intellectual-cognitive factors.

Table 3: A Comparison of Means and Standard Deviations Across Three Studies

Study	Group	Means	Standard Deviations
Abel & Karnes (1994)	Junior high (n=51)	4.50	5.02
	Senior high (n=44)	4.11	5.12
Dorhout (1983)	Secondary students	8.16	8.11
Vialle & Quigley (2000)	Secondary students (n=387)	10.27	7.36

Open-ended Questions:

The following responses represent students' answers to the open-ended questions. For the purpose of initial analysis, we have examined the responses of students who were at one end or the other of the continuum (that is, those students whose responses scored 0, 1 or 2 and those who scored from 34 to 36).

A score of 0, 1 or 2 represents a high preference for personal-social attributes (n=66). Some of the typical responses of these students included:

Someone who is friendly, open-minded and easy to talk to. (Year 7 Female)

A person that makes a good teacher is one that listens to what the students have to say. (Year 7 Male)

They have a good way of telling you what you need to know and make learning fun. (Year 7 Male)

…has a sense of humour. (Year 7 Male)

A good teacher is one that understands the students… (Year 7 Male)

A good teacher puts the students first, makes the classroom a happy environment, yet still covers all of the curriculum….fair; objective….treat us with respect. (Year 9 Female)

Gets us involved (Year 9 Female)

An interesting and different approach to the subjects covered (Year 9 Female)

Good communication skills (Year 9 Female)

They need to consider their pupils' emotions and feelings, and make the mood of the classroom a pleasant one, where everyone feels comfortable (Year 9 Female)

A good [teacher] is like a good coach of a football team. A good coach knows the players in his/her team and their capabilities. The coach encourages his team and supports the players. He is the team's role model and that makes the team get to know him. (Year 9 Male)

A teacher that caters for the smartest through to the least smart in every class (Year 11 Male)

A teacher should be dedicated to his students (Year 11 Male)

Despite the fact that these students' comments emphasised personal and social attributes, there were several comments that also touched on the teacher's intellectual qualities. These references to intellectual qualities were usually combined with statements regarding personal and social qualities, thereby indicating the complexity of the dynamics involved in effective teaching. Overall, the notion of learning and "covering the curriculum" were important to these students. Some interesting comments included:

A good teacher by my terms is one who knows his/her subject and brings it across to the students in various ways so it is effective and absorbed. (Year 9 Female)

I think understanding makes a good teacher. A teacher that understands where we're coming from and treats us all individually. Also, a teacher that actually has a background in the subject and maybe even likes the subject. Not a boring teacher that just reads from the textbook and has no enthusiasm. (Year 9 Male)

Someone who knows what they're talking about and has the experience, but doesn't act like they are higher than you (Year 11 Female)

Is interested in the subject they teach because it really shows through when they are teaching (Year 9 Female)

Some of the recurring ideas related to the qualities of an ineffective teacher were: boring, too strict (or too lax), criticising or ridiculing students, expecting too much and giving too much homework, shouting, disorganised, not interested in their students.

A score of 34 to 36 represents a high preference for intellectual-cognitive attributes. Only four students scored at this end of the continuum. The most insightful comment to me was from a Year 11 male who had scrawled on the side of the survey, "I could be in physics now happily learning the wonders of magnetism. Why am I doing this?" Other comments included the following:

A good teacher knows what we are being taught, and explains it well. It is good to have a teacher who is friendly towards us and will speak about things other than the work – but this has nothing to do with our education. Too many times have the last set of questions and sections of the subject been rushed and left somewhat incomplete because time was wasted with activities meant to make the class 'pleasant'. A teacher who focuses on the topic and can explain things in greater detail, wasting no time on making things pleasant will produce better students. (Year 9 Male)

An effective teacher presents info in a way that challenges my brain and inspires me to learn more. (Year 11 Male)

A strict teacher, with a core of understanding, expecting a high input and output from their students. Must also be encouraging. (Year 11 Female)

In responding to the question about ineffective teachers, these students all agreed that teachers who were too friendly encouraged their students to slacken off.

CONCLUSION

Although this research is still in its preliminary stages, the survey results demonstrate that the personal characteristics of teachers are highly regarded by selective high school students. This finding is in accord with several US studies that also found a preference for the personal-social characteristics of teachers among gifted students. Nevertheless, an analysis of the open-ended data gathered in the current study reveal that this conclusion may be too simplistic and that the judgements made by students regarding teachers' personal qualities are inextricably linked with the teachers' intellectual characteristics and their teaching strategies.

Our preliminary findings reinforce the need for teachers to be adequately prepared for teaching gifted students. We would suggest that the training of gifted teachers needs to be mindful not only of the characteristics of gifted students but also of the complex mix of intellectual skills and knowledge of appropriate teaching strategies that teachers of gifted students require. Further, the selection of teachers for gifted students should be cognisant of the need for such teachers to have extensive discipline knowledge but, above all, an enthusiasm for the subjects—and students—they teach.

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REFLECTION OF PRESCHOOL TEACHERS ON EVALUATION OF EDUCATION PROGRAMMES FOR YOUNGER GIFTED CHILDREN

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ABSTRACT

The evaluation of educational programs for gifted children is the least developed and most disregarded field within interdisciplinary science about giftedness in the world, especially in Slovenia. Our research includes 66 preschool teachers in Slovenia, who were among the first who participated in realization of first educational programs for young gifted children.

We have studied the level of importance by means of descriptive and causal unexperimental empirical research approach and by means of using monovariant (Mann-Whitney U-test, Kruskal-Wallis H-test) and multivariant (cluster analysis) statistical methods. The level of importance has been attributed to different aspects of program evaluation for young gifted children by preschool teachers. We have found out that there are two distinctive groups, namely the larger group of preschool teachers with higher and the smaller group with lower level of perception of the importance of complex evaluation.

INTRODUCTION

In Slovenia with its two million inhabitants there are 64151 children in state and private kindergartens integrated in 3523 divisions, which means 26,4% of the population at the age of 1 to 2 and 70,2% at the age of 3 to 6. In these kindergartens there are 7329 employed preschool teachers (statistical information, 2000).

On a declarative and school legislation level there is an official program (The White Book, 1995) and the curriculum (L. MARJANOVI¨, UMEK, 2001), which considers individual development differences, guarantees a vivid educational offer and also special program possibilities for young gifted children. Here we think of special classes for preschool children, foreign language, music, dance, sport and other specialized enrichment and programs of interest. The used strategies of teaching and learning include individualized work, differentiating contents, work on projects, work in smaller groups, specialized playrooms, work sheets and other additional material. The evaluation of programs for young gifted children isn't mentioned neither in legislative documents nor in professional literature. There are only a few individual articles with the description of rare programs.

PURPOSE, DEFINITION

The main purpose of the empirical research is:
1. Research work of the level of importance of different evaluation views on programs for young gifted children, as estimated by educators considering some relevant characteristics
1.1.   Title (no title, mentor, counselor)
1.2.   Organized education in the field of young gifted children
1.3.   Independent education in the field of young gifted children
2. Identification of internal homogeneous and external isolated groups of preschool teachers regarding the evaluation of the level of importance of different views on evaluation of programs for young gifted children.

DETAILED PROBLEM ANALYSIS OR RESEARCH PROBLEM ANALYSIS

Research and theoretical premise of forming evaluation criteria is represented by modern conceptions of knowledge, learning and teaching (B. MARENTI¨ PO ARNIK, 2000), then characteristics of successful programs for gifted children in the world (G.A. DAVIS, S.B. RIMM, 1998) and the results of evaluation effectiveness of education programs for preschool children in the USA and in Europe (E. KAMENOV, 1982).

Due to the fact that we are talking about experienced reflection of programs for young gifted children in formation and pre school teachers' participation as regards typology, formative evaluation prevails. Evaluation program concepts of educators of young gifted children are in a way subjective and based on their pedagogical experience. This research work includes 30 evaluation criteria and discusses educators' reflection on program regarding young gifted children.

The following program evaluation criteria are included in the research work:

V1 Equal attention to results as well as to processes.
V24 Equal evaluation of products and processes.
V2 Equal degree of attention to intellectual, social as well as emotional development.
V3 Equal degree of attention to psychical processes and to educational contents.
V8 Consideration of program adaptation for child s needs.
V4 Consideration of movement dynamics of child's interests.
V5 Consideration of hidden curriculum .
V6 Consideration of long-term and short-term goals.
V7 Consideration of connection of planned goals with education process results.
V9 Consideration of the fact that goals and results have been directed to higher psychical processes.

V10 Consideration of positive changing of broader educational environment, parents, teachers, pupils etc.

V11 Consideration of measurement validity and objectivity.

V12 Consideration of clearly and exactly set goals.

V13 Consideration of vertical and horizontal connection with other programs.

V14 Consideration of low structured programs, adapted to child s needs.

V15 Consideration of metacognitive skills, self-recognition.

V16 Consideration of young gifted children, who are not included in a program, which has been intended for them.

V17 Conception of evaluation of young gifted children as a part of general routine strategy evaluation of all programs and preschool teachers.

V18 Consideration of appropriate time and financial means

V19 Permission to get an insight into efficiency of programs for gifted children for kindergarten boards, parent, school guidance services, all educators, school etc.

V20 Consideration of parents' and children s approval of programs.

V21 Program evaluation needs to be considered already in the planning phase.

V22 The most important goals is program improvement.

V23 Consideration of changes in a family.

V25 The measurement, which relate to criterion of desired achievements or advancement of expected abilities, are more important than measurement which relate to test norms.

V26 Evaluation instruments should be adjusted with program goals.

V27 Factors, which have an essential influence on program success should be supervised well.

V28 Consideration of a child s change after he had taken part in a program.

V29 Consideration of a difference between program evaluation and evaluation of educators or teachers.

V30 Consideration of balance between quantitative and qualitative evaluation.

VARIABLES

1.- Independent variables.
1.1.- Educator s title.
1.2.- Organized education from the field of young gifted children.
1.3.- Independent education from the field of young gifted children.

2.- Dependent variables.
2.1.- 30 views of program evaluation for young gifted children.
2.2.- Joint results of evaluation of importance level of individual views on programs for young gifted children.

METHODOLOGY

1.- Research method

Empirical research has been based on a descriptive and causal nonexperimental method.

2.- Research sample

Our research includes 66 educators of preschool children, who have voluntarily decided to participate in postgraduate advanced study courses. Postgraduate courses with a title Encouragement of children s creativity in kindergartens took place in March and April 2000 in Slovenjske Konjice. This was the first systematical training in the field of young gifted children and also an important professional and motivational progress in care about young gifted children. Participants have systematically worked on contents of terminology, identification and education of young gifted children. The seminar was presided over by JASNA CVETKOVIˇ LAY, who holds an European advanced diploma in educating the gifted, ECHA, Nijmegen.

Final number of our intentional sample is due to 20,2% fall off (some participants haven t returned the questionnaires) 52 educators with different titles (mentors, counselors) and experiences in the field of education of young gifted children.

3.- Procedure of gathering information

The procedure of gathering information has been carried out by post in June 2001. We have used an evaluation scale, which is structured from the introductory part for record of general personal data on evaluators (title, previous training) and from the central part with 30 four-stage numerical evaluation scales for the measurement of importance level for different views on program evaluation for young gifted children. The used estimation instrument includes the following measurement characteristics:

3.1.- Validity

Based upon relevant foreign and home scientific findings and on similar already applied instruments we have defined 30 views (criteria) of evaluation of programs for young gifted children. The instrument has been besides the mentioned rational validation empirically validated with the process of factorization;

In view of the fact that the first factor explains 23,5 of variance, namely more than presumed lower limit (20%), this instruments has suitable validity.

3.2.- Reliability

Cronbach's coefficient alpha indicates, that this is an instrument with suitable degree of reliability (Æ = 0,872); this has also been confirmed by factorization result, namely the percentage of explained variance with common factors as indicator of lower limit of reliability (according to $r_{tt} = h^2$), which is to 73,41 ($r_{tt} = 0,857$).

3.3.- Objectivity

We have excluded subjective researcher influence by means of a process of indirect gathering of information (by post). The objectivity of evaluation is based on numerical four-stage scale, which enables undisputed understanding of numerically expressed degrees of answers (estimations).

4.- Processing of data

We have calculated relevant parameters of basic descriptive statistics with all estimation views of evaluation and with the joint result on evaluation scale (measures

of central location, measures of variation, skewness, kurtosis, KOLMOGOROV-SMIRNOV's test of normality of distribution). Nonparametric tests have been used in order to test the effects of three included independent variables on ordinal dependant variables (MANN-WHITNEY'S U-test, KRUSKAL-WALLIS' H-test) and on numerical variable general F-test (analysis of variance) and F-test of homogeneity of variances.

The identification of internal homogeneous and external isolated groups has been based on WARD's method of hierarchical clustering. Measurement characteristics of instrument have been estimated by means of factor analysis (validity, reliability) and CRONBACH's coefficient alpha (validity).

The obtained data are shown in tabular form and frequency distribution of the end result on the scale (polygon) and the process of clustering units to groups (dendrogram) are represented graphically.

RESULTS AND INTERPRETATION

1.- Analysis results of evaluation of importance of different aspect of evaluation program for young gifted children, connected to the whole sample of preschool teachers. We have analyzed the importance of individual aspects of evaluation of program for young gifted children and the evaluation of the entire program.

2.- Analysis of individual aspects of evaluation of program for young gifted children. We have calculated arithmetical medium of evaluations, its importance and aspects (criteria) for each viewpoint (criterion) and on the basis of this fact we have organized all to an arranged row.

TABLE 1: Aspects (criteria) of evaluation arranged according to their average (x) importance.

Rank	aspect	x
1	V2	3,71
1,5	V21	3,63
1,5	V8	3,63
4	V20	3,58
5	V4	3,54
6	V22	3,48
7	V3	3,42
8	V5	3,38
9	V10	3,37
10	V27	3,35
11	V28	3,34
12,5	V23	3,33
12,5	V12	3,33
14	V9	3,31
16	V30	3,27
16	V25	3,27
16	V6	3,27
18	V19	3,25
19	V15	3,21
20	V24	3,17

21	V26	3,15
22,5	V18	3,12
22,5	V13	3,12
24	V11	3,02
25,5	V16	2,98
25,5	V29	2,98
28	V1	2,96
28	V17	2,96
28	V7	2,96
30	V14	2,60

Regarding the fact that aspect have been evaluated on the four-stage scale (4 the highest, 1 - the lowest) the calculated average data are rather high (over 2,6) and more aspects are evaluated equally (V21 and V8; V23 and V12; V30 and V25 and V6; V18 and V13; V16 and V29; V1 and V17 and V7). Thus the sample of preschool teachers is rather high and homogeneously defined in 30 criteria of program evaluation for young gifted children. The highest places are taken by the following:
- V2 (equal attention to intellectual, social and emotional development)
- V21 (consideration of evaluation in the phase of planning)
- V8 (adaptation to children s needs)
- V20 (parents' and children s approval of a program)

The average under 3 have the following:
- V16 (young gifted children, who aren t included in the program)
- V29 (distinguishing of program evaluation and evaluation of preschool teachers)
- V1 (equal attention to processes and results)

In the last place there is V14 (low program structure), which means that preschool teachers prefer more structured approach in work with young gifted children. Preschool teachers then prefer more articulated preparation, strategies of teaching and learning and program evaluation.

Analysis of the end result on the evaluation scale
The graphical overview of the end result and calculated values of some basic statistical parameters shows the tendency with included sample of preschool teachers towards higher evaluation of included aspects of evaluation and therefore of entire program evaluation for young gifted children.
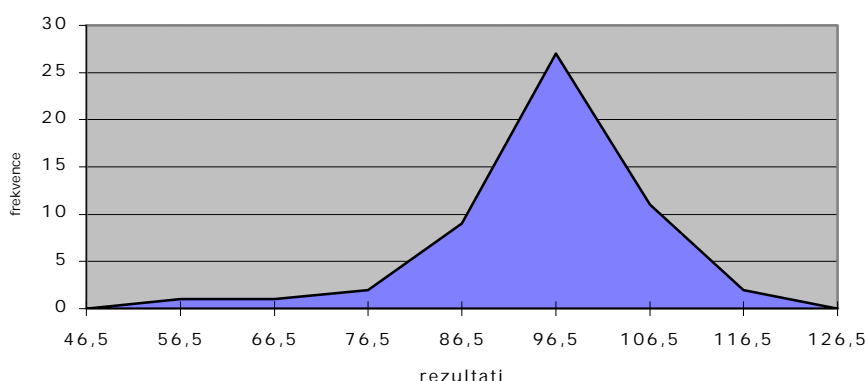
Picture 1: Frequency distribution of the end result of estimation of importance level of program evaluation for young gifted children.

Our distribution doesn t deviate statistically significant from normal distribution, yet it is more pointed (kurtosis = 4,262) and a little asymmetrical to left (skewness = -1,063, Me = Mo = 100 > x = 97,69), which is due to more homogeneous and at the same time prevailing higher estimation of different aspects of program evaluation for young gifted children. This finding is advantageous as it allows an assumption that preschool teachers are prepared to work with young gifted children according to complexly structured programs, for the development of which their evaluation is needed, namely rational as well as empirical, formative and summative and besides internal also external the evaluation of their effectiveness (J. SAGADIN, 1999, p. 198-205).

The results of analysis of differences among groups of preschool teachers in the estimation of importance level of different aspect of program evaluation for young gifted children.

We have controlled the influence of three factors, connected with preschool teachers: the title, organized education and self-education in the field of young gifted children, namely the influence on evaluation of importance of individual aspects (criteria) of program evaluation and of the entire program.

Analysis of differences regarding the title

On the basis of the data there aren t any statistically significant differences among preschool teachers with different titles (P>0,05) with exception of three aspects, namely V3 equal attention to processes and contents (x^2 = 10,841, P = 0,004), V5- consideration of a hidden curriculum (x^2 = 5,954, P = 0,051) and V17- evaluation as an integral part of general evaluation practice (x^2 = 6,053, P = 0,048) and a higher tendency (P<0,10) at V18- guarantee of time, means (x^2 = 4,643, P = 0,098). The mentioned aspects have been rated the highest by preschool teachers counselors and the lowest by preschool teachers without a title. There are also other aspects, which have been rated higher (not statistically important) by counselors as by mentors and preschool teachers without a title.

Our example has shown that the higher the title the higher the estimation of importance level of most included aspects (criteria) of program evaluation for young gifted children and the entire program evaluation.

TABLE 2: Results of F-test (analysis of variance) of analysis of difference among preschool teachers of different titles in the end result on the evaluation scale of importance of different aspects of program evaluation for young gifted children.

Title	Mean x	Std. Deviation s	F-test of Homogeneity of variances		ANOVA	
			F	P	F	P
none	96,500	7,151				
mentor	95,833	11,271	1,033	0,364	2,160	0,126
counselor	102,357	7,438				

The presumption of homogeneity of variance (F = 1,033, P = 0,364) on which the correct use of general F-test or analysis of variance is based on, is justifiable. Considering the result (F = 2, 160, P = 0,126) the difference among preschool

teachers with different titles isn t statically important, it is however noticeable form the average that there are some differences in the direction of higher estimation of importance of program evaluation by preschool teachers counselors, namely preschool teachers with the highest title.

Our result could be understood as a consequence of various different professional activities of preschool teachers, which on the one hand enabled the title counselor and on the other hand also knowledge on the importance of program evaluation.

Analysis of differences regarding the organized education in the field of young gifted children

In the group of preschool teachers with a frequent and infrequent participation in organized education we have noticed statistically important difference just in one case, namely in estimation V5   consideration of a hidden curriculum (Z = 2,214, P = 0,027), the importance of which has been higher evaluated by preschool teachers, who are also frequent participants of organized education. More expressive tendency of differences (P<0,10) in the same direction has been noted in the case of first three aspects:
- V1   equal attention of results and processes.
- V2   equal attention of intellectual, social, emotional development.
- V3   equal attention of psychical processes and educational contents so that programs are adapted to children s needs.

However we can t ignore some other aspects which also show higher average ranks in the group of preschool teachers who participate in organized education more often. Consequently we can say that organized education in the field of young gifted children has a positive influence on estimation of importance of specific aspects (criteria) of program evaluation.

The following test shows the effects of organized education on estimation of importance of program evaluation for young gifted children on the whole.

TABLE 3: The results of F-test (analysis of variance) of analysis of difference among preschool teachers with a different degree of frequency of organized education in the end result on the evaluation scale of importance of different aspects of program evaluation.

Organized Education	Mean x	Std. Deviation s	F-test of homogeneity of variances		ANOVA	
			F	P	F	P
Often	101,000	10,356	0,114	0,737	1,176	0,283
rarely	97,000	10,005				

F-test of homogeneity of variances shows that supposition is justified (F = 0,114, P = 0,737) and as well as the result of general F-test, namely that noticed differences among averages isn t statistically important (F = 1,176, P = 0,203). We can however notice a higher average common result in the case of the group of preschool teachers, who are frequent participants in organized education in giftedness. We can conclude that an organized education in the field of young gifted children is a process with positive, but statistically unimportant effects on preschool

teacher s perception of the importance of program evaluation of young gifted children.

Analysis of differences regarding the self-education in the field of young gifted children

We can see from the data that there are several aspects of program evaluation for young gifted children. The importance of these aspects has been statistically importantly different estimated by preschool teachers with different frequency of self-education. These aspects are:
- V10 positive changing of broader educational environment (Z = 2,334, P = 0,020)
- V11 consideration of measurement validity and objectivity (Z = 2,042, P = 0,041)
- V16 consideration of young gifted children, who aren t included in the program (Z = 1,980, P = 0,048)
- V18 consideration of appropriate time and financial means (Z = 2,071, P = 0,038)
- V28 consideration of things that are different after a child has participated in the program (Z = 1,964, P = 0,049)

In addition in three cases there is a clear tendency of difference (p<0,10), namely:
- V20 consideration of parents' and children s approval (P = 0,076)
- V23 consideration of changes in a child s family (P = 0,061)
- V26 instruments adjusted with program goals (P = 0,098)

Every mentioned and some others with less expressed difference aspects of program evaluation are evaluated by preschool teachers, who show more self-education as those with less self-education.

This results indicate that the process of self-education is to greater extent as the process of organized education a factor, which has an important positive influence on the estimation level of several different aspects of program evaluation for young gifted children and also for the entire program, which we will also statistically confirm.

TABLE 4: The results of F-test (analysis of variance), analysis of difference among preschool teachers with a different frequency degree of self-education with common results on the evaluation scale of importance of different aspects of program evaluation for young gifted children.

SELF-EDUCATION	Mean x	Std. Deviation s	F-test of homogeneity of Variances		ANOVA	
			F	P	F	P
often	100,926	7 ,580	1,845	0,180	6,391	0,015
rarely	94,200	11,365				

The reference to general F-test (ANOVA) is in this case also based on a justifiable supposition of the homogeneity of variances (F = 1,845, P = 1840). We can notice form the result that there is statistically important difference between arithmetical medium of the end result of estimation of different aspects of program evaluation (F = 6,391, P = 0,015). Preschool teachers, give more attention to self-

educate in the field of young gifted children often estimate the importance of evaluation high in comparison with preschool teachers, who don t give less attention to self-education. Our case proves irreplaceable, positive, statistically important effects of the process of permanent autonomous professional education of preschool teachers.

Summary of analysis of differences

In the process of supervising the influence of three factors (title, organized education, self-education) on estimation of the importance of specific aspects of program evaluation and the entire program evaluation for young gifted children we have noticed:

Higher estimation by preschool teachers counselors and preschool teachers, who frequently take part in organized education and especially self-education in the field of work with young gifted children.

The results of clustering preschool teachers to groups after the estimation of the importance level of different aspects on program evaluation for young gifted children.

In order to identify groups of preschool teachers, which are due to the evaluated level of importance of different aspects of program evaluation for young gifted children more internal homogeneous and at the same time external isolated we have carried out a procedure of hierarchical unity to groups after WARD's method with the previous calculation of euclydian distance between units.

The analysis includes all presented (30) aspects of program evaluation for young gifted children, which have been estimated by preschool teachers (n=52) according to the level of importance on a four-stage numerical evaluation scale. The obtained clustering is clear from the dendrogram.

From the dendogram we can clearly see the biggest distance between two adjoining levels of joining, which dictates where to cut the tree. In this way we have to branches which means, that in our case clustering into two groups would be most appropriate. The characteristics of such identified groups have been defined on the basis of the arithmetical medium of estimation of the importance level of specific views on program evaluation for young gifted children.

TABLE 5: Arithmetical medium of specific aspects on program evaluation for young gifted children in two groups of preschool teachers.

	aspects	group 1	group 2
V1	2,976	2,900	
V2	3,761	3,500	
V3	3,500	3,100	
V4	3,642	3,100	
V5	3,500	2,900	
V6	3,404	2,700	
V7	2,976	2,900	
V8	3,666	3,500	
V9	3,333	3,200	

V10	3,623	2,700
V11	3,190	2,300
V12	3,428	2,900
V13	3,309	2,300
V14	2,642	2,400
V15	3,285	2,900
V16	3,142	2,300
V17	3,190	2,000
V18	3,428	1,800
V19	3,404	2,600
V20	3,690	3,100
V21	3,809	2,900
V22	3,595	3,000
V23	3,476	2,700
V24	3,285	2,700
V25	3,309	3,100
V26	3,261	2,700
V27	3,452	2,900
V28	3,428	3,000
V29	3,000	2,900
V30	3,404	2,700

If we compare arithmetical mediums of groups according to individual aspects we can notice two distinctive groups (internal homogeneous, external isolated) in the structure of our data. The first group is represented by most preschool teachers (n=42 or 80,8%), who has evaluated the importance of all (30) aspects of evaluation higher as the second, smaller group (n = 10, or 10,2%). If we consider the title of preschool teachers, we can conclude that all preschool teachers-counselors (n = 14) are in the first group, namely in a group with higher average evaluation of the importance of different aspects of program evaluation, while the second group consists of 23,3% of preschool teachers mentors and 37,5% of preschool teachers without a title.

The obtained solution of hierarchical clustering of samples of preschool teachers indicates that there is a favorable climate for complex evaluation of programs for young gifted children.

CONCLUSION

Basic findings of our empirical research of the importance of different aspects (criteria) of program evaluation for young gifted children, as estimated by preschool teachers are the following:

1. Preschool teachers generally estimate the importance of specific aspects of program evaluation for young gifted children rather high.
2. The estimation of the importance level of aspects of program evaluation is dependant on all control factors, connected to preschool teachers. The higher degree of professional activity of preschool teachers (higher title, more organized

education and self-education) is the cause of higher evaluation of different aspects of program evaluation for young gifted children.

3. Regarding the estimated importance level of different aspects of evaluation there are two distinctive groups of preschool teachers, namely the larger group with higher level of evaluation and the smaller group with the lower level of evaluation, which doesn t consist of preschool teaches -counselors, namely preschool teachers who realize programs for young gifted children with the highest title. The latter belong to a group, which is inclined to program evaluation for young gifted children.

The obtain results on the one hand show the existence of rather favorable estimation for program evaluation and on the other hand the need for quality professional education of preschool teachers and for various others professional activities for the acquirement of higher titles. The latter, as shown in our case, is an important professional basis for higher perception of the importance of specific aspects of program evaluation and the evaluation of program for young gifted children as a whole. This is the matter of influencing the process of permanent advanced study and development of program evaluation for young gifted children. This however is an extremely important contribution in the direction of meeting the needs of young gifted children and also their optimal individual personal development.

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TEACHER TEAMS, CURRICULUM AND ASSESSMENT: MEETING THE NEEDS OF TALENTED LEARNERS IN THE SECONDARY SCHOOL

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ABSTRACT

To provide challenging curriculum from elementary through secondary school for talented learners, teachers need opportunities for cross-grade curriculum planning. Using a high-level benchmark assessment as a guidepost, teacher teams can develop and implement enabling activities to facilitate rich instruction for their students. This paper traces the curriculum work of a vertical team of teachers who used benchmark assessments from the Advanced Placement examinations in English Literature and Composition to plan for talented learners from grades three through twelve.

As they move toward secondary school, talented learners' interests and patterns of abilities continue to differentiate. Given the diversity of interests, readiness, speed of acquisition and opportunities available, how do teachers respond to talented learners' need for a high level curriculum? In particular, how do teachers respond to learners whose curricular needs extend beyond individual classroom units of instruction and single grade levels? Talented learners in love with an idea and pursuing advanced content and skills do not respect the boundaries of the teaching unit or the yearly curriculum. What structures must be in place to assist these prodigious learners in accessing a curriculum that provides the depth and complexity to engage them for extended periods of time?

One way to address the curricular needs of talented learners is through the design and implementation of cross-grade or multi-year curricular planning teams (Robinson, 2000 a). The purpose of this paper is to describe the work of teacher teams in American elementary, middle and high schools who used the structure of a vertical team to organize collaborative curriculum planning. Although this form of cross-grade curriculum teaming can be used with many content areas, the focus of the work for the team reported here is in language arts (Robinson, Dickerson & McCallister, 1999).

Vertical Teaming. To organize multi-year curriculum planning for academically talented learners is some schools have formed a vertical team. Vertical teams include teachers in a single content domain; such teams differ from the more common grade-level teams prevalent in American middle schools.

The typical middle school team includes teachers from each of the major core content areas—mathematics, social studies, language arts and science—from a particular grade level, for example the 7th grade teachers. In contrast, the vertical team includes teachers from a single content area or from closely related content areas across several grade levels. For example, middle school language arts and literature teachers might form a team which included the 6th, 7th, and 8th grade teachers.

Recently, we have begun to look at issues of curricular scope and sequence through a particular type of vertical team, the Advanced Placement vertical team (Robinson, 2000 a & b). Advanced Placement is a program developed and administered in North America by the College Board, an organization of colleges, universities and secondary schools. The Advanced Placement program was developed collaboratively by a small group of secondary schools and universities who believed that academically advanced high school students could benefit from studying first year college level material while still in the high school setting. Thus, the Advanced Placement program is a mildly accelerative option. As defined by the College Board, an Advanced Placement (AP) Vertical Team is a group of educators from different grade levels in a given discipline who work cooperatively to develop and implement a vertically aligned program aimed at helping students acquire the skills necessary for success in the Advanced Placement program (College Board, 1996).

Student Assessment and the Vertical Team. In the AP Vertical Team, the benchmark expectation used to align the curriculum is the Advanced Placement examination. All teachers on the team from elementary through the high school are conversant with the expectations for student performance represented by the examination.

It is important to recognize that the use of student assessments in curriculum planning is a two-edged sword. On the positive side, a well designed and challenging assessment provides clear guidance about what content and skills are important. When accompanied by a set of criteria for assessing the performance, a rubric for example, the assessment can become a rich and exciting teaching tool. On the negative side, exclusive focus on assessment as an end in itself rather than on the learning it represents can result in the narrowing of the curriculum, an unintended deleterious effect of assessment initiatives.

Although a full discussion of the issues surrounding the linkage between curriculum and assessment is beyond the scope of this paper, there are existing resources available (See English, 1992). In the example of cross-grade curriculum planning described here, the teacher teams used the expectation of the AP examination as a guidepost. It is significant that AP examinations are voluntary in the schools whose teachers we studied. A mandatory assessment might function differently, but this is an untested hypothesis in the context of this work. It is also a possibility that assessments other than AP exams, (for example, locally developed assessment tasks), might serve the same function of focusing

cross-grade curriculum planning teams on high level student expectations. It seems reasonable that whatever its source, an assessment task which captures challenging and valuable knowledge and skills will serve as a useful benchmark for teacher cross-grade curriculum planning.

Curriculum Across the Grades. To demonstrate how a team of teachers coordinated an important concept across grade levels, examples from the discipline of language arts used by a teacher team spanning grade three through grade twelve are summarized. Using a released question from an Advanced Placement examination in English Literature and Composition, I traced the enabling instructional activities used by the teachers in the elementary, middle school and early high school grades. These activities were the outgrowth of team discussions about the development, selection and placement of instructional activities and assignments which prepared students to meet the challenge of a first year college level benchmark while still attending a secondary or high school.

The English Literature and Composition benchmark question focuses on the development of characters in novels and plays. Characterization is an important "big idea" in the study of literature. Whether the reader intends to become a serious scholar of literary analysis or a more informed pleasure reader, the characters brought to life by authors are often the most memorable aspect of a novel or a play. In its most sophisticated form, characterization can be used to illustrate or to illuminate the theme of a work of literary fiction. However, to reach such an understanding or to be able to analyze the elements of characterization independently in an unfamiliar text, students need opportunities to read and discuss literary selections with complex characters long before they reach high school. The following examples from the English vertical team in the Pulaski County Special School District in Little Rock, Arkansas demonstrate how teachers articulated a set of instructional learnings about characterization across multiple grade levels.

Characterization in the Benchmark. The first step in tracing the enabling activities is to examine the benchmark question released by the College Board. Over the years, the released questions reflect a continued interest and focus on characterization although the approach and content of the question change each year. The following example examination prompt begins by posing a question about the influence of an absent character in a literary work and suggests a non-prescriptive list of novels and plays for the student to consider. Specifically, the question states,

In some works of literature, a character who appears briefly, or does not appear at all, is a significant presence. Choose a novel or play of literary merit and write an essay in which you show how such a character functions in the work. You may wish to discuss how the character affects action, theme, or the development of other characters. Avoid plot summary. You may select a work from the list below, or you may choose another work of comparable literary merit suitable to the topic.

A list of 29 specific suggestions of novels and plays appears after the question. The suggestions include a range of works spanning centuries and cultures—from Shakespeare's <u>Twelfth Night</u> to Samuel Beckett's <u>Waiting for Godot</u> to Ralph Ellison's <u>Invisible Man</u>. Students can make choices about which work and which absent characters within that work will be the focus of their essay.

The previous benchmark assessment gives students choices in terms of specific characters, works of literature and possible approaches to consider; however, all the suggestions call for high level thought. The advanced learner who responds skillfully to this kind of challenging question does not arrive at such a performance level by studying characterization in a couple of short stories in the fall semester of the senior year. Deep understanding of characterization and the power it has to convey theme and meaning are built over time with the aid of teachers who know what kinds of curricular experiences their students need as they move through the grades from elementary to high school.

The following examples of characterization activities at various grade levels represent what a vertical team of teachers can do to build successfully on a "big idea" like characterization in literature.

<u>Grade Three</u>. In this district, a team of teachers delivers core instruction to talented learners in an articulated elementary, middle and high school as part of a comprehensive gifted program. The team begins "character study" by grade three. Representative third grade reading choices include: <u>The Little</u> <u>House in the Big Woods</u>, <u>Bunnicula</u>, <u>Charlotte's Web</u>, <u>Ben and Me</u>, <u>And Then What</u> <u>Happened Paul Revere</u>, and <u>The Velveteen Rabbit</u>. One of the activities used at the third grade level asks students to describe the characters in <u>Bunnicula</u>, a popular trade book. This imaginative novel contains several characters; some human, some animal from which students might choose. At the third grade level, the activity is an early form of being attentive to details used to "paint a picture" about a character.

Another third grade activity asks students to "Compare the main characters in <u>Sarah, Plain and Tall</u> and <u>The Little House in the Big Woods</u>. The teacher reports that students read <u>Little House</u> and view <u>Sarah</u> on video. Readers familiar with these two works will be able to identify similarities in the two—the main characters were both girls uprooted from their homes and living in a frontier setting. In other words, the teacher expects the students to look for similarities—an elementary version of "compare" in the standard compare and contrast essay common in more advanced writing assignments.

<u>Grade Four</u>. Students in the fourth grade study mythology. Characters found in myths often represent a significant concept or personal characteristic of "type". In one sense, characters in mythology are a kind of recognizable prototype character like the brave hero or the vengeful wife.

To develop their understanding of characterization, fourth grade students are asked to "Contrast the courage of Prometheus with the foolhardiness of

Phaeton." Although students generally respond by writing a contrast paragraph which summarizes the ways in which the two characters differ, they might complete the assignment in others ways, too. For example, dyads of students can conduct mock interviews with someone who "knew" both mythological characters. Or, students might be asked to capture the essence of the differences in the two characters visually in a collage or a mobile. Whatever the mode of student response, this kind of assignment is the complement of the "compare" assignment given in third grade. In the fourth grade, the students are asked to look for differences in characters; in the third grade activities, similarities. Again, both kinds of characterization activities at the elementary level, prepare students for writing compare and contrast essays and for understanding that important information about characters is communicated in several ways—by how they look, what they say and what they do.

Grade Six. At the sixth grade level, the teacher team placed works like Julie of the Wolves, Slake's Limbo, James and the Giant Peach, and The Hobbit. At this level, one of the representative language arts activities asks students to "Discuss the changes that occur in Bilbo's character. Use specific examples to support your ideas." In this activity, two further refinements in the understanding of characterization are expected of the students. First, the students are asked to consider how a character changes. The main character of The Hobbit, Bilbo Baggins, is an excellent example of a character who changes throughout the course of the novel. The difference between characters who change (round) and characters who do not change (flat) is an important distinction for young literary scholars to grasp. Authors use both types of characters extensively, but for different reasons. Round characters usually communicate the message of the story through the ways they change. Flat characters are often used to communicate a single characteristic or insight about people; they are common in comic or humorous works. In contrast to a round character who usually serves as the protagonist or main character, flat characters are often part of the backdrop or landscape of the story. Quest novels like Tolkein's The Hobbit make use of round and flat characters and provide the students and teacher with opportunities for investigating both types of characterization. In addition to mastering content about character development, students are asked to support their ideas about Bilbo's changes with specific examples from the text. Thus, they are developing the skills of close reading and use of supporting evidence as well as an understanding of the literary concept of characterization.

Grade Eight. In grade eight, the team selected several reading choices designed to coordinate with the students' study of American history, including the Colonial period, the Civil War and the Westward migration. Example titles include A Gathering of Days, Tituba of Salem Village, The Red Badge of Courage, Shane and O Pioneers ! Several of the novels include the study of characterization, but shorter works are used as well. To explore characterization at this level, Mary Kathryn Stein, the eighth grade member of the English vertical team notes, "Here's an idea about helping students see how character is

established by the selection of detail... I take the one paragraph of Katrina in The Legend of Sleepy Hollow by Irving. I have the students list the details...Then I ask 'How tall is she?' and other mundane items of description and we see how Irving created the character of a flirt by his careful selection of detail" (Stein, personal communication).

Grade Nine. By grade nine, students are expected to use details as evidence for making their own inferences about characters. Ninth grade teacher, Jane Ledbetter explains the difference between direct and indirect characterization to her students in her treatment of this topic at this grade level. In direct characterization, the author directly states the character's traits in the text; for example, "Estella was very self-centered." In indirect characterization, the author gives details about the character's appearance, personality, background, and relationship to other characters in the work. Students learn to infer from telling and specific details available in the text. They might infer that Estella was self-centered from her failure to inquire about anyone else's wants, her frequent use of the word "I" in conversation, and her concentration on her appearance.

Jane uses character charts to help students organize evidence and inferences found in one of the novels placed at the ninth grade level, Great Expectations. Jane comments, "I think Dickens' direct style of developing characters makes it easy for young students to understand characterization." (Ledbetter, personal communication). Students generate blank charts with two columns; one headed EVIDENCE and the other INFERENCE. Any of the major characters of Dickens' novel can be analyzed using character charts since he piles up a rich cache of details about each one of them. For example, Pip, was an orphan (evidence) and therefore probably lonely (inference). He was undersized (evidence) and therefore possibly malnourished (inference). He responded to adults with a "Sir" (evidence) and therefore was polite and mannerly (inference).

In both the eighth and ninth grade example activities, it is possible to trace the increasing expectation that students understand an author's use of detail in order to bring a character to life through appearance, gesture, conversation, reaction to other characters, and others to him. Students begin to connect the use of language, word choice and selection of details to the characters an author creates.

Grade Ten. By tenth grade, students are expected to move beyond analysis of details, evidence and inference to an understanding of the complexities of characters in literature and how these complexities contribute to the overall impact of the work. In this particular school, World Literature is the focus of Sophomore English, and the texts introduced at this grade reflected cultural diversity as well as representative literary works across several centuries. Works placed at this grade level include epic poems like Sir Gawain and the Green Knight and Beowulf, dramatic literature such as Macbeth and A Dolls House and several novels—One Day in the Life of Ivan Denisovich, Tale of Two

Cities, Don Quixote and Les Miserables. These extended works provide rich opportunities for exploring the human condition. To encourage an understanding of characterization, Missye Tyler, the 10th grade English teacher, offers students the choice of this in-class writing prompt, "Many works of literature feature a female character who endures a tragic experience. Choose a play which contains such a female character and show how the author's use of the feminine perspective contributes to a deeper understanding of the character and to the play's meaning. Your essay must be based on one of the following dramas: A Doll's House, Medea, Glass Menagerie, Oedipus Rex. Write only about one drama. Avoid plot summary." (Tyler, personal communication).

Missye's example activity allows students choices in the works they discuss. It also provides some familiarity with the kind of expectation they will encounter on an AP examination question. Like the AP examination prompt, Missye reminds students to avoid plot summary and to provide specific references. The preparation work done in grade eight by Mary Kathryn and in grade nine by Jane is directly relevant to Missye's assignment on the relationship between character and meaning. With increasing complexity as the students move through the grades, these three teachers have provided opportunities to analyze literary characters at more than a surface level. How does an author create a character with selective detail? What inferences can be made from detailed evidence about a character? Does an incident reveal a character or does a character drive the action of a work in the first place? These are questions about the big idea of "characterization" that the Pulaski County English teachers want to lead their students to ask and to answer.

Team Organization. Skillfully articulated curriculum from grade three though grade twelve is not accomplished quickly. These examples of an aligned set of activities are the outgrowth of a team who collaborated on curriculum development over a period of years (Robinson et al, 1999). The team spent two years discussing curriculum ideas and plans before committing scope and sequence to paper. To support the cross-grade curriculum planning, teams were organized within buildings. In other words, the elementary teachers in grades three through six constituted one building level team. A second team including teachers in grades seven through nine was organized in the junior high school. Across the parking lot, the high school team met with teachers representing grades ten through twelve. The three building level teams tended to meet in some cases weekly or monthly to discuss curriculum. In addition to the building level vertical teams, the teachers viewed themselves as members of a "super team" which included all grades three through twelve across three separate buildings. According to one teacher, the super team functions with one to two meetings per year which focus on discussions of the benchmark assessments. The particular strength of the super team is that the 12th grade English teacher has the opportunity to discuss curriculum with the third grade language arts teacher at least once a year. Such opportunities for cross-grade planning are very rare in American schools.

Summary and Implications. One approach to the development of talents is through the provision of challenging curriculum (VanTassel-Baska, 1995). Rather than focusing solely on lesson and unit level curriculum development, planning which spans several grade levels is more likely to meet the needs of advanced students for curriculum of sufficient depth and complexity. The vertical team, a group of teachers in a single content domain with representatives from multiple grade levels, is the practical vehicle for accomplishing such cross-grade curriculum work. The implications for schools implementing vertical teams fall into three areas: team management, curriculum planning, and linkages between the cross-grade curriculum and benchmark assessments. In terms of team management, schools will need to provide time and support for teachers to meet regularly within their buildings and an annual opportunity to meet with the extended elementary to high school team. In terms of curriculum planning, teachers' mastery of key concepts and skills within their discipline and pedagogical knowledge concerning placement of specific lessons at particular grade levels are crucial to meeting the needs of the talented learner. In terms of assessment, vertical team teachers at all grade levels from elementary to high school need the expertise to analyze a benchmark assessment, and they need the opportunity to discuss with team members how they might contribute to the enabling instruction that precedes it. A seamless curriculum stitched across grade levels by a knowledgeable team of teachers is one way to meet the needs of talented learners.

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EDUCATING THE GIFTED: A CRITICAL OVERVIEW OF INTERNATIONAL RESEARCH

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ABSTRACT

This overview considers international scientific research on the development and education of gifted pupils. It identifies some of the most important developmental and practical implications from the very varied mixture of methods and findings - sometimes resulting in quite opposite conclusions. The selection of studies illustrates dominant themes from the scientific research rather than practice alone. Overall, the conclusion is to encourage a move away from concern for already highly achieving pupils to developing unrealised high-level potential, using a wider and more dynamic approach.

INTRODUCTION

Worldwide, the picture for the gifted is improving. There is now a much wider acceptance in many countries that all children have the right to function at their best - and that includes the gifted. The most encouraging new trend is to perceive children more flexibly, so that gifts can be seen as taking many different forms; they may also appear in quite unexpected situations and at different points during a life-time. However, this variety in how and when gifts develop makes it even more difficult to know how to provide an appropriate education.

But whether or not the gifted get their needs provided for often depends on political and social attitudes as much as resources. For example, in some rich countries such as in Scandinavia, it is still not entirely acceptable to recognise and provide for outstanding potential, though things are beginning to change there. In other much poorer countries, such as China and Eastern Europe, educational emphasis has for many years been placed on practical provision for excellence. This is largely through specialist schools, which have produced so many outstanding achievers in specific areas such as sports and mathematics. In the West, there has been a steady growth in the development of theories and models, mostly from the USA.

1. SPECIFIC PROBLEMS OF RESEARCH ON GIFTEDNESS IN CHILDREN

There are special problems in investigating giftedness in the context of general child development, and the quality of research varies widely. It is essential for any practitioner, whether administrator, teacher or parent, to know where and how the original research was done before applying the results. Additionally, the subject of giftedness attracts self-styled 'experts' who have little understanding of scientific evidence, but who may set up activities for the gifted.

Problems of identification

Most researchers who set out to investigate gifted children try to identify them first. Yet Hany (1997) has estimated there are more than 100 definitions of giftedness around, almost all of which refer to children's advanced progress in psychological constructs, such as intelligence and creativity, or simply high marks in school. Social or business talents are rarely scientifically investigated. Unrealised high level potential can often be missed because of the wide variety and changing nature of human abilities and what is valued in the social context.

Intelligence

In Western thought, the concept of intelligence is strangely mixed. It is seen as being both the inherited raw material to be developed as well as the product of that development in the form of 'intelligent' behaviour, such as capacity for learning, so that school success is taken as the 'self-evident' criterion of IQ test validity. But in Japan and other non-western countries, success is largely attributed to effort (Amano, 1992). It may, in fact, be the environmental culture of hard work which enables youngtsters with lower IQs to be more successful than others of greater measured ability (Flynn, 1991).

The single IQ score is often dominant as a measure of giftedness: selecting children who score within a defined top percentage, though a more rounded and humane picture of a child is emerging. But even in the investigation of intellect, the tests cannot describe learning and thinking processes, nor predict high level creative production (Cropley, 1995). What's more, they are not even a sensitive measure of a gifted intellect because of the 'ceiling effect', the upper limit of the tests being too low to provide a satisfactory distinction between the top few percent, so that some investigators contentiously calculate scores over the top of the normed scale (e.g. Gross, 1993; Silverman, 1993).

So much current research is indicating that intelligence, however defined and measured, whether unitary or in multiples (Gardner, 1983; Sternberg 1985; Gagné, 1995), is only part of the complex dynamics of exceptionally high-level performance, which must combine both opportunity and motivation. The view of intelligence which seems to have the widest current acceptance refers to its dynamic elements, an individual way of organising and using knowledge in an adaptive and goal-directed way. This is heavily dependent on the social and educational environment, such that children in poor environments, without those supports, will be handicapped in the development of their learning and coping skills (Freeman, 1992a).

The discussion as to what is giftedness and the identification of gifted children is destined to run and run. No firm definition is in sight. But then, maybe a definition is not the best starting point for helping the wide variety of the most able children.

Problems of methodology

Perhaps because gifted children are a minority, a high proportion of research is done on highly achieving children selected for holiday-schools or special gifted education – without either comparisons with other children or any follow-up. But without such comparisons, it is difficult to know which aspects of their behaviour are unique to the selected ones and which are common to all children?

It is usual, for example, for one group of children who have expereinced some form of special education to be compared with another group which has had no extra attention. What are the effect of the provision compared with those of the extra attention? Why is this programme the most appropriate for the gifted when no other children have experienced it? Perhaps it would be good for everyone. Then again, the children selected for the programme were normally high achievers to start with and so would be expected to be even higher achievers at the end than those without that extra stimulation. Very many educational activities for the gifted, though, do not have any evidence of effectiveness to support their actions with children.

Some studies look back at the childhoods of outstanding adults (e.g. Goertzel, Goertzel & Goertzel, 1978; Radford, 1990). However, there are well recognised concerns with this method, mostly related to the opportunities people had in past times. But more recently, for example, in an often referenced study, Benjamin Bloom (1985) looked back at the lives of 120 young people of "world-class levels" of accomplishment. He distinguished several important helping factors, such as parental encouragement combined with discipline and good teaching. It seems to make sense. But no comparisons were made with their siblings, even though from his conclusions all the children in those families should have reached world-class levels. What is more, because almost all the interviews were done by telephone, there was no independent rating of the family's circumstances and behaviour.

Biographical work has shown how so many who became outstanding in later life were not gifted as children. In his investigation into great people of this century, such as Freud, Einstein, and the dancer, Martha Graham, Howard Gardner (1993), found that even by the age of 20 only Picasso's work was so outstanding that his world stature could have been predicted.

Studies of giftedness can be very small scale. Feldman (1986), for example, followed-up just six American boy "prodigies" for 10-years, who unfortunately did not keep their advantage as adults. Nevertheless, a complex theory of giftedness emerged from the study. Then there were the three Australian children studied by Gross (1992) who were described as "profoundly gifted" with IQs of 200. These three were very unhappy. They hated school and refused to go, and were without any friends because they had "nothing in common except the accident of chronological age" (p.114). Nothing? Can we say that they are typical of all highly gifted children? Freeman never found such suffering in her own investigations into dozens of children with equally high IQs.

Longitudinal studies
Follow-up studies of gifted children can be very informative in indicating aspects of children's behaviour which might predict adult giftedness, that is, whether the gifts were lasting or simply precocity. The best known longitudinal study reflects the methodological problems of its time, that of Terman in the 1920s. He examined a very varied sample (toddlers to young adults) of IQ 140+, who he called "geniuses" mostly the children of the university staff in California, but did not recognise that they had experienced superior physical and educational nourishment. So, when he compared them to the general population he found that they were clearly above-average in every possible way, including physique and leadership – and generalised

this to all high IQ children. Recent research, though, shows that Terman's subjects were not more successful as adults than others of the same high-level social and economic backgrounds - regardless of their IQ scores (Holahan & Sears, 1995). This was also true for the specially educated children from the Hunter School for the Gifted in New York, 40 years on (Subotnik, Kassan, Summers & Wasser,1993).

The continuing Munich Longitudinal Study of Giftedness in Germany (Perleth & Heller, 1994) began in 1985. Its sample of 26,000 children were identified on a wide variety of cognitive, personality and achievement factors through testing. The team devised 30 identification scales, which disclosed a significant number of under-achievers who were more likely than the others to be anxious, easily distracted, and with lower self-esteem.

In a recent review of 14 (all but one American) longitudinal studies, in spite of their great variety in design and much loss of subjects over time, the writers concluded that timing is extremely important in identification (Arnold & Subotnik, 1994). The later the prediction the more accurate it is. This also true for predictions from biographical studies (Howe, 1995). For the most reliable prediction of all, information should be collected at different points in an individual's life, at best with subject-specific measures. The child's own interests appear to be an excellent indicator of adult attainment (Heller, 1988). In a four-year investigation of talented teenagers, Csikszentmihalyi and his team *(*1993) found that children learning to cope with difficult tasks depended heavily on social support: the stronger the support the more developed the skills; so the environment can be extremely important in the development of gifts.

From so many longitudinal studies, however, it appears that a child's advanced school achievement is not the most reliable predictor of adult success.

2. HEREDITY OR ENVIRONMENT

There are psychologists who argue that giftedness is available to anyone who is prepared to put in practice at almost any subject they choose (Howe, 1995; Ceci, 1990). Environmental influences, they say, are the essential factor in the development of excellence, and there is laboratory work which shows great increases in skills with heavy practice, though even in that controlled environment some people still perform better than others (Ericsson & Lehman, 1996).

The argument that giftedness must have a genetic base comes mainly from the Minnesota studies of identical and non-identical twins separated at birth by Thompson and Plomin (1993). The researchers have concluded that there is "considerable genetic influence" on the development of gifts, but that there is no single gene for giftedness. These studies suggest that about 70% of measured IQ is accounted for by genes (the strongest correlation found for any characteristic), as are about 50% of personality differences, and about 40% of differences in personal interests. In line with this, Bouchard, Lykken, McGue, Segal, & Tellegen (1992) have argued that specific talent may be an 'emergenic' trait, that is one which depends on a particular configuration of genes, so finely balanced that any small difference will produce distinct changes in behaviour.

Gender has emerged as the strongest single influence across international studies of giftedness. Gifted boys and girls appear to be different, both in the way they regard their gifts as well as their educational experiences (Freeman, 1996). Gifted girls may be more like boys in their intellectual interests and behaviour, but more like other girls in their social-emotional reactions (Stapf, 1990), notably in underestimating their abilities (Reiss & Callahan, 1989). They may have to face conflicts between achievement, and 'femininity', and consequently become more depressed than equally able boys (Luthar, Zigler & Goldstein, 1992).

But, research on gender (as with all other areas) depends on the context. The situation in the UK, for example, throws considerable doubt on research reporting inherent differences of aptitude between boys and girls, notably the work at SMPY (Benbow & Lubinski, 1993). In British national examinations, girls are now achieving more highly throughout school than boys in <u>every</u> subject, including mathematics and physics, and data from e.g. Australia, Russia and Holland are somewhat like those in Britain. Yet most research on gifted children comes from the USA and Germany, where girls are still way behind boys in science, to the extent that Kerr (2000) writes from the USA of gender as "intractable, excluding gifted women from colleges and academic opportunities." (p. 649). It can be seen that such results reflect societies and cannot be generalised to the world.

3. EMOTIONAL ASPECTS OF BEING GIFTED

There is no reliable evidence that giftedness *of itself* is associated with emotional problems. This was clear in Freeman's 27-year comparison study of gifted and non-gifted children across Britain (Freeman, 2001). This work was unique in its psychological in-depth interviews with all the subjects and their families in their own homes, and the teachers in the schools. The children were also given a wide variety of psychological tests, and their environmental circumstances were rated. The initial aim was to find out why some children were described as gifted, while others - of identical measured ability - were not. It became clear that those who had been labelled 'gifted' had significantly more behaviour problems than those - of equal ability - who were not so labelled. Emotional problems in the children had come from other difficulties in their lives - even though the giftedness often got the blame – and even 27 years later most of the young people from the more unhappy homes were still more disturbed than the others.

Yet it must not be forgotten that the gifted do have some particular challenges. They are, after all, exceptional. They may, for example, be encouraged by others to believe that they are too clever to have normal relationships with ordinary people and are - in a sense - informed that they can expect emotional problems because they are often expected to have them (Freeman, 1997).

As children, the gifted are more likely to receive extra pressure from parents and teachers to be continually successful. This problem was specifically mentioned in a follow-up of 1964-1968 Presidential Scholars in America (Kaufman, 1992). Although the ex-scholars continued to do well professionally, they often described how as adults they still relied on old memory skills to provide them with an identity.

Problems can arise because a child's gifts produce reactions in others which may be too difficult for the child to adjust to. Abilities may develop at different and extreme rates, which can bring difficulties of developmental coordination (Terrassier, 1985; Zha, 1993). The parents of highly able children can themselves have resulting emotional problems, either feeling inadequate, or trying to gain social advantage from living vicariously through their child. Whatever problems already exist in the family, these can be intensified when there is an unusual child present (Freeman, 2000).

The gifted are subject to widely different kinds of images and expectations - from emotional handicap to perfection. However, a study of 291 world-famous men were found with few exceptions, to be sociable and "admirable human beings" (Post, 1994) The researcher concluded that "Genius as a misunderstood giant is one of the many false stereotypes in this field." (p.31), although he did find that the artists, rather than the scientists, were somewhat more likely to have emotional problems.

4. EDUCATING THE GIFTED

Styles of learning

Gifted achievers appear to think and learn differently from others, to have the ability to regulate their own learning strategies more often and more effectively. They also better at transferring their learning skills to new tasks. In fact, it is possible that measures of self-regulated learning could even provide the best indication of giftedness (Risemberg & Zimmerman, 1992; Shore & Kanevsky, 1993). Both younger pupils and less able older pupils need more external regulation by the teacher (Span, 1995). Research with young children has also found an extra quality of playfulness among the gifted learners (Kanevsky, 1992). Differences in problem-solving strategies between high and average school performers were investigated in Canada (Shore, Coleman & Moss, 1992). The children thought aloud and this was audio-taped and analysed. The performance of the more successful learners was closer to that of experts, because they made more reference to previous knowledge, rather than to information only presented in the problems.

Knowledge is , of course, vital to outstanding performance: individuals who know a great deal about something will be better at it than those who do not (Elshout, 1995). But this knowledge must be flexibly organised for both accurate fast processing, and deeper more considered processing. Research with people in creative work (e.g. scientists by Simonton, 1990) indicates that above a certain high level, some personal characteristics such as independence may contribute even **more** to reaching the highest levels than intellectual factors.

There is evidence of a wide difference in teacher identification and attitudes towards the gifted, whether refusing to recognise them at all (Ojanen & Freeman, 1994) or believing that they can do anything (Carr & Kurtz-Costes, 1994). It is encouraging though, that an overview by the British Schools' Inspectorate showed that in schools where the gifted were given special attention the effects often spread to raise the teachers' expectations for all pupils, sometimes producing an improvement in the school's overall examination results (DES, 1992).

However, exceptional adult success resulting from specially designed educational programmes for the gifted is not promising. In fact, by the age of 40 to 50, none of a sample of 210 New York children selected for the Hunter School for the Gifted and provided with a broad rich education, had done any differently than others of that background who had not gone to that school (Subotnik, Kassan, Summers & Wasser, 1993). The authors suggest that the problem may have been that the children were selected by IQ, and we now know that other aspects of the child's life can be more important for success in the world, such as determination and opportunity. Programmes for the gifted have been found to provide social benefits (Wagner, 1995).

Specific educational concerns

Boredom can sometimes be a problem for the gifted, such as a child with a curious mind in a dull classroom (Feldhusen & Kroll, 1991; Freeman, 1992b). It can become a bad habit, especially when developed early, with consequent lowering of motivation for learning. To relieve this unpleasant experience, youngsters may escape into daydreams or deliberately provoke disturbance.

The success of acceleration in its many forms is very dependent on the context in which it is done, such as the flexibility of the system, how many others in a school are accelerated, the child's level of maturation, and the emotional support received (Southern & Jones, 1991). Where the general school standard is high there is probably no need for acceleration, and there are many other ways of helping the gifted without removing them from their friends. Neither acceleration nor general enrichment are adequate as total measures. There must be clear focus for the greatest effectiveness (Arnold and Subotnik, 1993).

CONCLUSIONS

- **Specific problems of research in this area** Rather than spending energy on searching for definitions of giftedness, it would be more productive to look at the interaction between individuals and their opportunities for learning, thereby aiming to discover unrealised potential. Greater scientific rigour is needed in studying giftedness, to improve the value of the effort and money spent.
- **Heredity or environment** To reach a standard of excellence, children must not only have the potential but also generous material provision, teaching and encouragement.
- **Emotional aspects of being gifted** The gifted are at least as emotionally strong as any other children, but encounter some specific challenges.
- **Educating the gifted** Education should promote the development of self-regulatory-activities, which include techniques for flexible thinking and competent action. Guidance should be provided towards self-selection for extra specialisation towards excellence.

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GIFTEDNESS: A HUMANISTIC PERSPECTIVE VERSUS GENOME SCIENTIFIC PROGRESS

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ABSTRACT

A growing globalisation process is underway on a planetary level, which tends to dilute physical and intellectual borders among cultures and continents. This process is a catalyst of changes that directly influence areas of teaching: social; educational, genetic and environmental. The manipulation of genes is being considered namely for medical applications, but, notwithstanding "legal interdiction" the use of such knowledge is also envisaged to create superior intelligent humans.

Globalisation offers a unique opportunity to surpass human potential, through the development of the gifted. The giftedness within an humanistic viewpoint versus scientific progress is discussed.

Introduction

Changes is a natural state in life of man as a social being, and whether individuals or governments all resist change desperately. Currently, a growing globalisation process is underway on a planetary level, which tends to dilute physical and intellectual borders among the various states and continents. This process is a catalyst of changes that directly influence several areas of teaching.

Understanding such rapid change taking place in society and its effects on educational programs for the gifted, fundamentally involves knowledge and linkages in four main areas:
- demographic movements;
- social values;
- educational reform movements and educational goals.

Genetic and environmental influence ought similarly to be considered, as they predominant elements in the development of intelligence, talent and creativity in the gifted (Ridley, 1999; Damasio, 1999; Siegel, 1999). The most recent data on genetics and cognition strongly support that intelligence is a diffuse or global quality of mind, but they also suggested that the genes related to an individual's cognitive capacities are those that are linked to school achievement and vice-versa (Plomin & DeFries, 1998; Perleth, Sierwall & Heller, 1993).

Scientific progress increasing affords man powerful techniques to the point of enabling he alteration of nature's ways themselves: an example is the race for the manufacturing of animal clones, the de-codification of the genome, etc.

Globalisation offers a unique opportunity to surpass human potential, especially through methods and policies aimed at propitiating the conditions for the identification and development of the gifted, within the humanistic perspective of service to society.

Science and Technology versus Progress

It is old the desire of man to control the course of life. A few years ago, these ideas could be found in scientific fiction books and in the development of medical scientific investigations. Those demonstrate the intention of modern man to understand and to control the nature and the many limitations he was facing. Now the dream is starting to be reality. It is already possible to predict, that in a near future the possibility to create hybrid / super human beings, with a subsequent social non equilibrium among citizens scientifically demonstrated in the "superior quality" of some sequences of DNA. In fact, the science provides something that is new: its increasing power to play with the human being, meaning the manipulation of genome patrimony providing the capacity to predict the future the creation of gifted beings.

The development of such innovations is directly related with the relationship:

Science – Technology – Progress

having in mind that is possible to interfere in one without modifying the others. Thus, for example, the consequences of atomic bomb, that every body is afraid, in a certain period was dissociated from the atom scientific knowledge and used to make war: the scientific structures loose the control of atomic power and the atomic usage, whatever it is, it remains immune to the caused damages.

All over the world and mainly in Europe and USA ethical commissions organised symposiums with the participation of scientists, jurists, physicians, etc., publication of books, articles and the preparation of legislation that allow such scientific practices. The solution for this issue, certainly, is to recognise the inherent risks to these new technologies. A probable response is to find out reasonable limits though consensus resulting of a generalised and constant discussion among the society.

Alternative: A Humanistic Perspective

The scientific-technological development is providing important innovations in order to create new ways of life, today being in such a position that the scientist can exceed the limits of the human evolution (e.g. human clones).

We should not forget that the scientific progress is affected by theories and social-economic factors which are established by the social environment of scientific development. This way, it has to be developed from inside of this evolution / innovation process ALTERNATIVES that provide a scientific development capable to superimpose the human potential, namely through methods and politics that aim to provide conditions of development and identification of the gifted, to serve the society in a HUMANISTIC perspective.

The structure of science targeting to the social progress is this way regulating its development, not having the need to promote modifications at genetic level in the human being to obtain pre-programmed children to be gifted. In a global perspective, the production of scientific knowledge should be seen always in interaction with economics, politics, education, etc., and therefore, to influence and be influenced by those. Thus, the best way to "control" the scientific progress (more precisely its real life applications), beyond the legislation, is to propose and to demonstrate the validity of scientific methods having the target of the human potential – the identification / development of the gifted children. Thus, the gifted children must be identified in their pre-school years or in their first year of primary education. If the gifted children are not identified very early, they may not receive appropriate support (continuous enrichment, optimised educational strategies, encouragement of each child' social relations are integral to gift development, etc.), and consequently, they will not develop optimally (Karnes & Johnson, 1990; Coriat, 1990; Robinson, Roedell & Jackson, 1979). From the three years old, such a prediction is quite reliable (White, 1971).

In fact, the Parliamentary Assembly of the Council of Europe (1994) on the education of gifted children (4[th] disposition of Recommendation 1248) stated the importance of recognising children' special needs at the earliest possible time and of providing special education provisions for gifted children from pre-school onwards. In reality, the use of fast and economic methods in the early identification of gifted and talented children seems to be fundamental to carried out the identification and appropriate development of gifted children (Benito & Moro, 1999).

CONCLUSIONS

The ways of working of the educational system dedicated to the giftedness at global level, should be composed by the:
- implementation (early identification, entourage, methodology and educational programs);
- management (legislation, administration, objectives and research);
- resources (family, public and private organisations, etc.).

Taking into account these points is possible to propose alternatives / models, based in methods and politics that aim to identify and to develop the gifted in the social and economic environment. This way, it is being provided to the society opportunities to develop the human potential in a humanistic perspective in a clear opposition regarding the practices of genome manipulation targeting to create and to control pre-programmed gifted human beings.

The early identification and development of gifted and talented children should be an active key player and of anticipation in this new world of information, scientific innovations and progressively more interactive. Such knowledge is fundamental to understanding the complexity inherent in the educational processes of talent development.

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TAPPING THE CREATIVE POWERS OF GIFTED AND TALENTED CHILDREN:
THE FUTURE OF EDUCATION IN A GLOBAL CIVIL SOCIETY

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One legendary truth-seeker, Albert Einstein, once said: "Many of the things you can count, don't count. Many of the things you can't count, really count." Learning is something that *really* counts in advancing human development while caring for our individual well-being.

Everyone in this room is united by a single mutual interest: realizing human potential through lifelong learning. That's our passion and commitment as learners and educators. We're here to grow the lives of naturally inquisitive children, while growing our own lives in the process.

Each of us is exploring various ways and practices of helping our gifted children freely apply their imagination and knowledge to the best of their abilities. That's what I would like to discuss today: some effective ways of tapping the enormous potential of our children, enabling them to live the richest lives imaginable!

Novelist Aldous Huxley has written: "The secret of genius is to carry the spirit of the child into old age." The color slides I'll be showing serve many purposes, least of which is to entertain ideas and possibilities with the 'spirit of the child.' Think of this visual information as creativity catalysts for generating those flashes of genius *Ahas!* that challenge and motivate us to rethink what we do – in order to do it better, or to understand what we do better.

What are some of the *creative powers* of these young thought leaders who share our joy of learning and discovery? Is it their unique ability to learn at an accelerated rate? Maybe. Is it their ability to creatively see the world in new and insightful ways – or 'think different,' to borrow Steve Job's playful phrase? Perhaps. Is it their ability to identify and focus on a specific problem, and swiftly envision possible solutions? Probably.

All twelve of the following points highlight some of their creative powers, the essence of which is embodied by the ability to "think like a genius." That is, to think, create and perform at one's highest level to achieve one's goals and reach for one's dreams. Genius thinking is an amalgam of action-oriented innovative thinking that involves boldly intuiting, integrating and transforming information and ideas, risk-taking and reasoning with applied imagination, among many other things which I'll try to scope out and touch upon. Please keep in mind that my

points are not intended to be prescriptions for teaching gifted children. Rather, they're simply offered as signposts for guiding us in building the sort of enriched learning environment these children need to flourish. R. Buckminster Fuller, one of the visionary, Renaissance thinkers of the 20[th] century who managed to translate more dreams into reality than most, once remarked: "We're all born geniuses." However, we seem to spend our formative years "de-geniusizing ourselves," to paraphrase Fuller. Observe any two year-old as s/he transforms an ordinary stick into seven unique creations within seven minutes, and you'll see creative genius at work. You'll see an open mind that's focused, fluid, imaginative, unbounded by constraints and self-limitations. The moment we begin to categorize the nature, meaning and purpose of this protean stick – the minute we start to see it as only one thing and not another – we initiate the process of compartmental-ized thinking. And this form of thinking quickly narrows the possibilities of what some-thing can be. Compartmentalized thinking closes the lens of creativity. It curbs the play of imagination.

Point #1. Seeing the Bigger Picture. We would be wise to heed the words of Bucky Fuller as we experience these reflections on serving the needs of our gifted and talented children. Let's "start with the universe [of learning] and understand, as Fuller did, that "any sub-categorization of it is arbitrary".

Think of what this means when it comes to defining the bigger picture of education for gifted children. Any picture that welcomes the full discovery and development of their passions and interests strikes me as a broader view of our collective goal. Providing our children with basic knowledge, thinking skills and intellectual resources is not enough. We need to also take their education a step further by helping them see the central role they play in inspiring others *to experience* the same deep passion, enthusiasm and joy for learning as these accelerated learners enjoy. That, I hope, becomes the larger ambition of our gifted and talented education-al programs and initiatives: using the experiences and wisdom of these advanced learners to help realize human potential. That's the bigger play and playing field: Fostering great learning experiences for everyone, and working together to cultivate these experiences over a lifetime. That's how we keep our minds forever agile and ageless.

So, first, we need to ask that all-encompassing basic question: What does "learning" mean to our gifted and talented children? What does it entail, and what makes it so memorable? They know. So why not find out what they know already, and build on this knowledge?

There's a curious passage from E.L. Konisberg's book, *From The Mixed-Up Files of Mrs. Basil E. Frankweiler*, that makes me rethink the experience of learning. Konisberg writes:

"Claudia said, 'But, Mrs. Frankweiler, you should want to learn one new thing every day. We did even at the museum.'

"No," I answered, "I don't agree with that. I think you should learn, of course, and some days you must learn a great deal. But you should also have days when you allow what is already in you to swell up inside of you until it touches everything. And you can feel it inside you. If you never take time out to let that happen, then you just accumulate facts, and they begin to rattle around inside of you. You can make noise with them, but never really feel anything with them. It's hollow".

For many gifted learners, the world of information and ideas resembles this sculpture, entitled "Simplexity: Seeing the Simple in the Complex." Inside the 4,000 lbs of raw lumber that resembles the chaotic habitat of a beaver's lodge is a quiet, calm, simple, orderly space. Rather than running from the chaos of diverse perspectives and conflicting worldviews, the viewer is invited to discover a hidden order or pattern to them. Therein lives the reality behind the concept of "unity in diversity" – a reality that everyone must see and experience to believe.

Todd Siler, "Changing Minds" exhibition at Ronald Feldman Fine Arts, New York City, 1997.

Reflection time is crucial for real learning to take place. Children need the unstructured time and space to internalize the information, knowledge and concepts they're exposed to daily inside and outside the classroom. Dave Master, a remarkable training manager for Warner Bros. Feature Animation, has a clever "Reflection Writings" course he offers his film animation students which basically prompts them to respond to these three questions: "What? So what? Now what?" Master's course uses a wide range of interactive, exploratory think-ing techniques that drive the inquiry process through those fundamental questions.

Learning isn't just about **experiencing** new ideas and information. It entails **reflecting** on your experiences, and **applying** what you learned as ingeniously and wisely as possible.

Point # 2. Seeking Out "Best Practices" of Teaching and Learning. We need to constantly search for those exemplary practices in school programs worldwide, and not simply GT programs, to enrich the experience of learning for gifted and talented children. One engaging way to do this is have our students embark on an Information Hunting & Gathering expedition as extra credit homework assignment. Part of their task is to first profile the "best" qualities and attributes of the programs they think might help them grow. This will help them come to understand on their own why they would want to explore and adopt these programs.

Here are four organizations I would steer them towards in this action research assignment, giving them no more information than these names to go by and begin their Internet search: the DISCOVER Program at University of Arizona; the Israel Arts and Science Academy (IASA) in Jerusalem; the Technology Empowerment Network (TEN) whose Projects include Schools Online. This is one of the six projects chosen by the Education Steering Committee of the World Economic Forum's *Digital Divide Initiative*; and, the Open World Learning group in Denver, Colorado.

Point # 3. Exploring the Commonsense Behind Customized Learning. Gifted children learn at different speeds and times, taking different paths and routes to learning and self-discovery.


If you look closely at the learning curve for many of our world's thought leaders in all fields, you may be surprised to learn how slowly many of these exceptionally gifted and accomplished thinkers-and-doers actually learned. One story that makes this point explicit is the formative years of Winston Churchill. Apparently Churchill had to repeat fourth grade a number of times before he became proficient in using his reading and writing skills. But once he grasped the communicative power and structures of language, he soon mastered these skills. Suddenly, they had a real purpose and relevance to him that made sense.

How do we make the gifted children's "learning and understanding curve" go up exponentially – without stressing out these special learners?
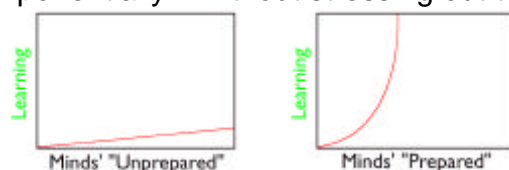
Some of the most effective catalysts for preparing inquisitive minds to learn are great questions. We need to frequently ask gifted and talented children what the most intriguing and richest questions are that pique their curiosity. Sometimes a single, seemingly simple question can seed the imagination of gifted children and help prepare their minds for a discovery or insight.

Question Answer   **Complementarity**

Freedom   Discipline   **Balance**
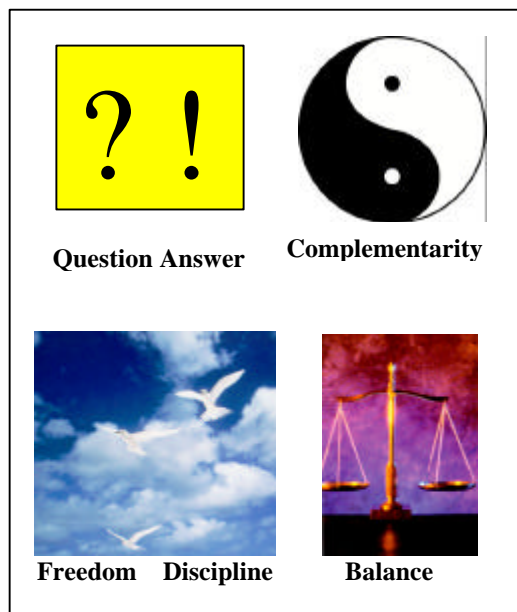
Here are some open-ended questions that are fun for gifted children to muse:

A. What natural phenomena fascinate you the most, and why? (Gravity? Friction? Adhesion? Magnetism? Centrifugal force? Conductivity? Time? Space?) What are some of the most perplexing psychological phenomena? (Love? Hatred? Peace? Aggression? Apathy? Neutrality? Balance?).

B. What is "the nature" of nature? The Swiss Symbolist painter Paul Klee asked himself this question for a lifetime, as did countless other artists, scientists and mathematicians.

C. "Whence did we come? What are we? Where are we going?" The French Impressionist painter Paul Gauguin pondered those three questions over his lifetime; they're questions posed in the Talmud and other timeless philosophical works.

D. Kids love science fiction and fantasy. How can we use the refreshing imagination and insights that evolve out of science fiction literature to drive fresh scientific inquiry into real, urgent issues today?

"Science fiction is a literature of questions dominated by one: What if? And it has asked variations of that basic question thousands of times, guided at its best by rigorous thinking and speculations," writes Keith Ferrell, a novelist and former editor-chief of *Omni* magazine.

Non-fictional science is a literature of answers ruled by one: Let's see. Specifically, let's see the truth and beauty behind how things work: from the tiniest specks of matter to the whole spectacle of the universe. Let's see how beauty and truth work altogether in some astonishing synthesis, enriching our lives by deepening our experiences of life. Let's see the invisible forces of our minds that make the things we imagine visible, tangible and "real." Let's just see.
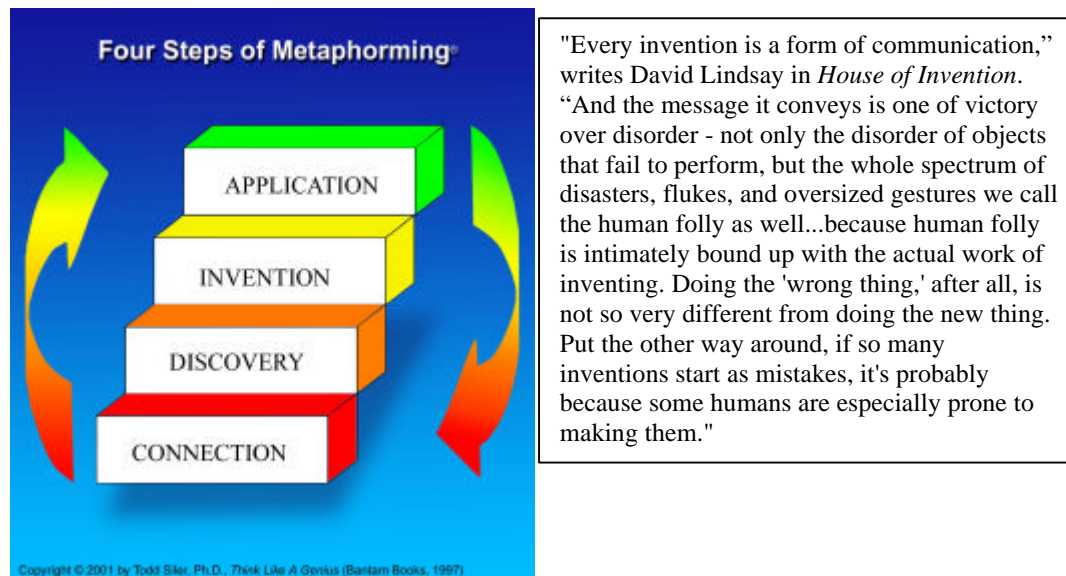
Point # 4. Cultivating the "spirit of genius" in gifted children
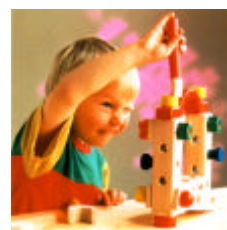
What is this "divine" creative spirit, and how do we best nurture it? Let's ask for a Show-n-Tell from our gifted children. What examples do they have in mind when they think of "genius thinking" and ingenious inventions and innovations? What films stand out? Which books do they hold in high regard? Which acts of ingenuity inspire them? Thinking out-of-the-sandbox, or in it?
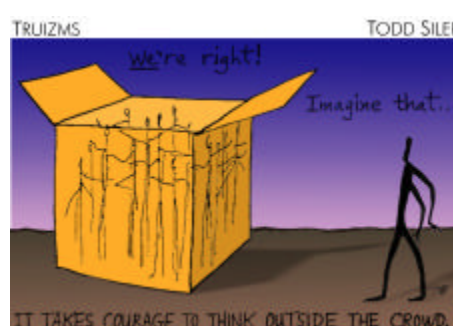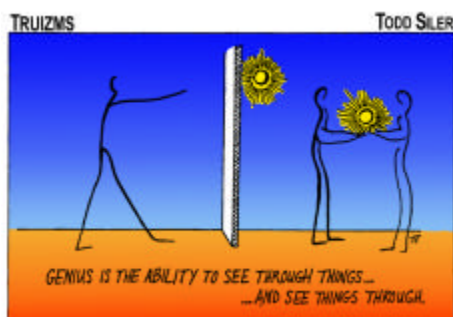
Seeing through the "walls" of compartmentalized knowledge expresses one of the most important facets of Metaphorming: the ability to "x-ray" a situation – to look beyond the surfaces of things and see the essence of something. Seeing the simple in the complex, and seeing things not only for what they are, but also for they can be – with imagination: *That's genius!* Sculptor Tony Smith knows it well, as he studies a wasp's nest for inspiration and ideas.

"Every invention is a form of communication," writes David Lindsay in *House of Invention*. "And the message it conveys is one of victory over disorder - not only the disorder of objects that fail to perform, but the whole spectrum of disasters, flukes, and oversized gestures we call the human folly as well...because human folly is intimately bound up with the actual work of inventing. Doing the 'wrong thing,' after all, is not so very different from doing the new thing. Put the other way around, if so many inventions start as mistakes, it's probably because some humans are especially prone to making them."

Metaphorming takes us up these virtual steps to solve a problem, to achieve a goal, to invent something, or to simply see how far we can go in connecting, discovering, inventing and applying our imaginations. It walks us up these stairs to new heights of communication.

Point #5. Rethinking what we teach and value in gifted education.

We need to continually evaluate what's really important to teach, and what isn't; what we value, and what we don't. Basic knowledge? Basic thinking skills? Commonsense? Knowledge vs. Wisdom? For me, knowledge is understanding our mistakes. Wisdom is learning from them. We tend to be brilliant about explaining away our mistakes, as we fully understand why we made them. And yet, we make them again and again. Currently, teaching tends to emphasize the gaining of knowledge, as opposed to the getting of wisdom. The former is fairly quantifiable – but the latter is not.

How do you decide whether or not one kind of knowledge is more important or valuable to teach than another? Why do we overvalue the "hard" sciences [physics, chemistry, biology] while undervaluing the "soft" sciences [psychology & social sciences]? Both lead to breakthroughs and advancements in human development. Both draw us deeper into the mystery of understanding nature.

Point # 6. Valuing the importance of dreaming, imagining and doing… "heroic" deeds.

"Without heroes, we are all plain people and don't know how far we can go," wrote Bernard Malamud in *The Natural*. Gifted and talented students (including gifted teachers, counselors and mentors) all need heroes. Who are they for us? Do they change, as we change? How can we help each other to become our own heroes – or to do heroic deeds – in the fields and professions we're drawn to excel in?

Point # 7. Helping gifted children discover their hidden potential – and perhaps, even their life's purpose, or "message."

"My life is my message."
- Mahatma Gandhi

Many gifted children find that humanitarian spark of Goodwill early in life, and want to become serious contributors in bettering humankind. To this end, they're motivated to help others "find their way out of the dark," or solve an "unsolvable" problem, or steer someone toward discovering some aspect of their own potential. These are all noble ambitions, indeed. And, of course, we need to not only encourage them but also provide any resource, such as books, films, exhibits, or cultural events, which might help them accomplish their bold goal. A recent popular film, "Pay It Forward," speaks to this point exactly and ventures this humble notion: 'Sometimes, all it takes is the right idea.' In this case, sometimes it takes the right resource to mobilize the right idea. These inspired gifted students are often curious about other thought leaders and humanitarians whom they might follow in their footsteps, such as the Nobel laureate physician Albert Schweitzer, civil rights activist Dr. Martin Luther King, Jr., or the Renaissance jazz musician Billy Taylor, among countless others.

Can one life have multiple messages, or must we focus on having only one message? Imagine how Leonardo da Vinci would have responded to this mundane question with his multi-faceted interests and mastery of disciplines. Perhaps, he harbored many messages and lives to live each with its own destiny. The historian, playwright and author Jacob Bronowski combined a wealth of diverse messages about the natural integration of the arts and sciences into his broad message: We need to use our creativity in responsible ways to build a more humane, global civil society. His life's message was woven into his classic books, *The Ascent of Man* and *Science and Human Values.*

Once again, our treasured examples and personal bibliographies are part of the treasure chest of resources inquisitive minds need to grow their aspirations.

Point # 8. Allowing gifted children to define and model what "success" means to them.

The 19th century British statesman and novelist, Benjamen Disraeli, wrote: "The greatest success in life is for a person to be ready when their opportunity finally comes".

I had a roommate at MIT who was one of the best pure mathematicians in the world at 19 years old. Dr. Shai Haran was determined to make his big breakthrough in abstract geometry by 27 years of age. "After that age," he said matter-of-factly, "I wouldn't have the brain power…and I wouldn't be successful". To cheer up Shai, I'd wink and quote the comedian, George Burns, who said: "I'd rather be a failure at something I love, than a success at something I hate".

If we polled gifted children about the nature of success, no doubt we would find a common thread that connects their responses. What would some of these responses be? Ask your students how well they think we're doing as educators in preparing their minds to be successful in real-life problem-solving.

If only it were this easy! Here's the map and navigational tools you'll need to reach your goal. *Go for it!*

Knowing full well about the hardships and painful struggles that await them, sometimes the hardest thing for a concerned parent or teacher to do is to "let go" and allow our gifted children to move in the direction they naturally want to move toward in pursuing their passions and interests. We need to trust ourselves as teachers and mentors that our gifted children will be successful, especially if we enable them to be – using the best skills and strategy we can offer to help them think for themselves. As every good educator knows, this independent thinking involves *real* learning, which is fun, playful and personally meaningful!

Ultimately, we need to trust that they will find their way in the wilderness. And should they "fail" at achieving what they aspired to do, so be it. At least they reached for their aspirations and challenged themselves to accomplish something that was personally meaningful and important to them. Anything less would have been less of a full life. We have the responsibility as teachers to guide them to ask: What does success or failure really mean. Because, more often than not, we can help them learn how to transform their mistakes and failures into useful knowledge that creates a new path to success.

The quest for success and excellence is always operating flawlessly in the minds of our gifted children. Few individuals in the field of gifted education understood this fact more profoundly than my rare friend Raphi Amram, one of the champions of gifted learners of all ages. Raphi had so many vivid examples of what "success" meant to the extraordinary students attending the Israel Arts and Science Academy in Jerusalem, which he helped found and develop with Robert and Mary Jane Asher.

Point # 9. Seeing similarities between seemingly dissimilar things.

Above, Marcel Duchamp: Sixteen Miles of String, 1942; part of the 'First Papers'

Kenneth Snelson's tensegrity sculpture, "Mozart."

"Newton's apple and Cezanne's apple are discoveries more closely related than they seem," writes the psychologist Arthur Koestler, author of *The Act of Creation*.

If you paired Koestler's thought with Albert Einstein's irreverent remark – "If at first an idea is not absurd, there is no hope for it" – you begin appreciate what many advanced thinkers regard as the key to understanding the world of "discontinuous" original ideas, and the forceful intuitions that power them.

Think about the importance of fostering this kind of "discontinuous thinking" in which ideas seem to come out of nowhere to surprise us with chance discoveries and fresh insights. Often the ideas are generated when seemingly opposite or different things are shown to be similar. Think about how this form of innovative thinking continually challenges the minds of gifted children.

What are some of the more unusual conceptual and creative connections gifted children have made? What are some of the more 'absurd' ideas we need to consider, in order to advance the work our teachers do?

Describe how our gifted students could benefit from exploring various "absurdities." It's the type of playful assignment the French playwright Eugene Ionesco might have advocated as well – extending his concepts in *The Theatre of the Absurd*.

Consider the thirty-year study of the atom by one of our great contemporary artists, Kenneth Snelson, whose passion for understanding the nature of structure led him to integrate the worlds of art, science and engineering in novel ways. Snelson courageously questioned the validity of the traditional scientific model of the atom first proposed by physicist Niels Bohr. His pioneering work took him – and us – to a whole new horizon of awareness and appreciation for the structures of nature. It resulted in his being awarded two U.S. Patents on the atom – and, equally important, an ongoing debate with the scientific community about their current representations of nature's core building block. It was a triumph of vision, insight and imagination confronting an established scientific interpretation of the facts. And the jury's still out!
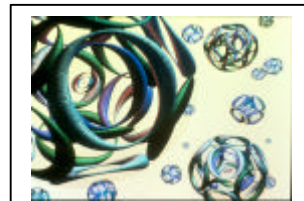
Kenneth Snelson's "Atomscape," a novel visualization of the atom.

Point # 10. "Dimensionalizing" & enriching the learning experience.
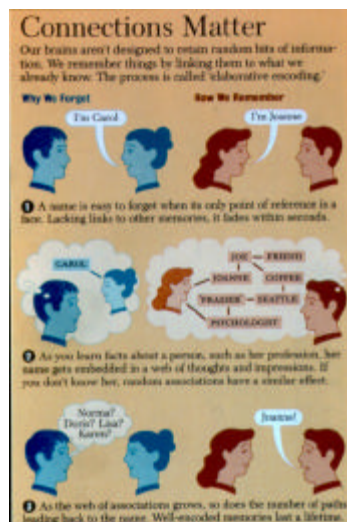
"How Memory Works," Geoffrey Cowley and Anne Underwood, *Newsweek*, June 15, 1998. Diagram by Christoph Blumrich.

Using the Metaphorming process, a group of venture capitalists give form to their ideas and knowledge about developing one of their high-technology start-up

"Elaborative Encoding"   =   "Metaphorming" and 5-D Symbolic Modeling

There's a critical body of research on memory and learning that is emerging from the brain sciences that every educator must know. In fact, we'd be foolish to ignore it. I would like to briefly mention a few things about this work, which I believe will greatly improve the process of teaching and learning by helping people retain the information longer.

Neuropsychologist Daniel Schacter of New York University and researchers at Johns Hopkins have been exploring the connection-making mechanisms of the human brain that are used to embed information and sensory stimuli in long-term memory. They refer to the process as *elaborative encoding*. Apparently, the hippocampus, a complex structure situated in the heart of the brain, is listening for two pieces of information to determine whether it will hold and store or dump information it receives based on these two criteria: (1) its emotional significance (i.e., how it relates to a person's passions or interests, and (2) its perceived relevance to current knowledge (i.e., how it relates to something you know already). As this article and diagram from *Newsweek* heralds– CONNECTIONS MATTER – the brain doesn't like to store random bits of information. Instead, to remember things, it tries to create a web of associations, using all of its modalities, not simply visual associations, to embed the information. This is necessary for making the information more personally relevant and meaningful to the individual. That's how we not only remember new experiences, but also use them to grow our knowledge.

Just about every educator has had that aggravating experience when we've spent weeks teaching our students some piece of curriculum the national standards insist we teach only to have them forget the information a day or so after they've taken their final exam or surprise quiz. Clearly, we weren't communicating with them in a way that had any lasting meaning.

Communication is the turnkey for everything: from learning to innovation. For me, communicating amounts to having a clear sense of what another person knows or feels or believes. But how do we do that without actually seeing and experiencing another person's knowledge or feelings and beliefs? As we learn to share our hidden treasures of tacit knowledge with one another, we communicate.

That's what "Metaphorming" is all about: improving human communication by using all the tacit and explicit knowledge we possess to make endless connect-ions, discoveries, inventions and applications based on this existing knowledge. All our senses and intelligences work together in an integrative way to this end.

The word *Metaphorming* invokes the idea of transforming one thing (a word, object, image, idea, or expression) into some new thing through implied or physical comparisons. It's a transformative process. The term is derived from the Greek word *meta* which means "between," "after," "beyond," "transcending," and *phora*, or "transference." Through Metaphorming one can move beyond the constraints of verbal thought and written communication, transferring from one object or concept to another a new meaning or set of associations.

Metaphorming is an intuitive way of learning how to learn, by making the learning process more personally meaningful, relevant and purposeful to our own lives. It makes the information we either want or need to know relate to things we're interested in or are reasonably familiar with. Also, the process of Metaphorming does not rely on the written and spoken word to convey one's ideas, or to express one's feelings and emotions.

Think about how our words and figures of speech are 1-Dimensional, in so far as when I use the word, say "freedom," no one is quite certain what I mean by that term. Even if I describe it or tell you a story about what freedom means to me, I still may not be communicating clearly enough to help you see below the surface of that word. But our understanding deepens the moment I show you some pictures (2-D) of what I think freedom means, and then show you some forms or structures (3-D) that represent some of the forms freedom takes. By adding the element of time and motion (4-D) to show the and demonstrate the types of changes freedom brings, I further increase its meaning. Finally, when I "think symbolically" (5-D) about what freedom means to me or could mean to others – and when I use a range of communication tools (visual metaphors, physical analogies, etc.) and media to express and relate the examples of what I have in mind – our shared vision of what freedom means not only becomes clearer; it grows exponentially.

The ability to think symbolically about any concept, in grasping its potential meanings and implications, is one of the keys to unlocking the power of communication. It helps make our abstract, ambiguous concepts as concrete and tangible as possible – without explaining away their poetic mystery or ambiguity.

So, I refer to the symbolic models as "5-D" structures, because they embody 1-D, 2-D, 3-D, and 4-D (time and motion) perspectives. The 5th dimension relates to all forms of symbolism, or symbolic languages, such as words, images, objects, signs, stories, metaphors, analogies, etc., which are multidimensional and spatial in nature. Participants collaborate in building these symbolic models that contain a wealth of ideas, knowledge and creative solutions.

Metaphorming is the act of connecting and transforming "metaphorms" (i.e., analogies, concepts, metaphors, comparisons, figurative and/or physical connections, symbols, signs, stories, allegories, puns, hypotheses, premises, etc.). In case you're wondering, *everything* is a metaphorm – even if you don't intend it to be! The tree outside your door. The lake and ocean. Schools and companies. People and communities. Ideas and events. Literally and figuratively speaking, *every thing* we can see, touch, taste, smell, feel, create, and imagine is a metaphorm.

(Left) A team of chemical engineers collaborate in creating a 5-D Symbolic Model™ that represent the essence of their ideas about a new intranet server for sharing company knowledge with their 1,300 employees in 90 countries. Using common materials, the engineers give form to their thoughts, viewpoints, vision-mission-goals-tasks. (Right) 5-D Symbolic Model of a curricular unit on "Environmental Studies," created by middle school science teacher Archie Farin.

Imagine this scenario: Gifted and talented children are regularly given the opportunity to fully express their ideas, feelings, viewpoints, and intuitions about any subject, topic, issue, or problem. Working individually or collaboratively, they use some simple tools that great inventors and innovators have used for millennia to convey their vision, to make their thoughts tangible and visible, to realize a dream.

And imagine that, for the first time, everyone has equal footing on a "leveled playing field." Consider the impact this experience of collaboration have would have in getting children to share their world of ideas with the larger, integrated world in which we all live. Consider how this activity would help people see below the surface communication to gain a deeper understanding of one another's ideas, knowledge, experiences, goals and aspirations.

One way to do this is to "dimensionalize" the communication process which tends to be as flat as a piece of e-mail or fax paper. Let's face it: few people on this planet can write with the depth, richness, and soul of Dylan Thomas and Toni Morrison! Most likely your daily communications at work are as dead as a flat-lining cardiac patient. Words alone have an inherent one-dimensionality to them that don't speak to our multi-dimensionally-thinking hearts, minds and hands. This presents all sorts of serious communication problems – especially, when you consider how little we really understand one another or one another's work and purpose. And yet we're expected to work together. Right? I mean, "Hey, **I told you** so! Didn't you get my memo, dummy!" The truth is: we want to be shown more, and told less. "*Show me* – don't just tell me – what you mean".

That's the gist and genius of Metaphorming. That's the process of making one's thoughts tangible and visible, using every medium imaginable (images, visual metaphors, familiar signs, symbols, objects, music, motion, physical analogies and so forth) to get one's ideas across. The symbolic models provide a much-needed coherence and clarity that ensure everyone gets to see what's on each other's mind rather than simply guessing or presuming. They're all-purpose creativity and communication tools that accelerate the deep exchange of knowledge, ideas and viewpoints. In effect, they help people understand one another better.

One unique feature of this model-building tool is its speed: The models blast through the usual intellectual, cultural and language barriers that block or foul up effective communication. This hearty tool stimulates borderless thinking. It frees the mind to rise above the stifling habit of compartmentalized thinking and communicating. Once people step out of their silos, they begin to re-connect with that invaluable thing called imagination. They begin to tune into their passions and unrealized potential. They begin to re-connect with and draw on their many intelligences and learning styles.

These multidimensional symbolic models are not unlike the virtual creations that your brain constructs in the cyberspace of its networking nerve cells. It's also

a physical construction that individuals or a group of willing participants create together, which conveys their thoughts, feelings, ideas, knowledge, experience, shared vision and goals. This physical, symbolic model might resemble a fun, child-like construction that a kindergartner could create. But upon closer inspection, this deceptively simple model is a veritable "mountain of golden information" that's just waiting to be mined for its rich ideas, insights and opportunities.

This approach to improving communication and deepening understanding consistently taps the unconscious and preverbal aspects of the mind in remarkable ways. It also makes the unconscious conscious. At the same time, it jogs our analytical minds to examine our sense of knowledge.

I'll never forget this one symbolic model created by a middle school teacher. It was a tiered construction with four neatly sculpted layers of materials gently resting on one another. The plume of water springing out of the top of this construction represented the fountain of learning, which the whole experience of education offered. Part of the experience involved reading great books, which she listed here in her virtual Library of Congress. On one side of her list she included these books (from top to bottom): Margaret Mitchel's *Gone With the Wind* to Anne La Mott's *Bird by Bird*; and on the other side was this listing (from top to bottom): from Wilsen Rawls's *Where the Red Fern Grows* to Georgia Heard's *Writing Toward Home* to Jon Robbins's *Dictionary for a New America* and, finally, to Mary Pipher's *In the Shelter of Each Other*. When I stood back and looked at this rich reflection on the nature of education, I wondered how gifted children could entice everyone to drink from this fountain and feel continually refreshed from the unique experiences and resources that education offers them. This symbolic model was a watershed of inspiration for those who were willing to look below the surface of its construction to see the beautiful hidden messages in the well of its being.

By helping gifted children see the possibilities of learning, we help them grasp the potential of their lives as inspired learners and teachers.

One of the most valuable gifts we offer gifted children is the recognition that they are lifelong learners, creators, explorers, discoverers, inventors, innovators, and communicators. They're Metaphormers who think like geniuses.

Everyone is born a Metaphormer. It's up to each of us to develop our innate ability to think, create and perform at our highest level, in order to solve problems, to explore opportunities, to realize our potential, and to make our dreams come true.

Point #11. Lessons of the Leopard Whiptail Ray: A Portrait of A Natural Learner


(The Latin words, *Himantura undulata,* speak to its undulating form.)

This Leopard is one of the sleekest, most elegant looking creatures in the Animal Kingdom. Its effortless movement – with the speed and glide of a shark – has the same fluid-like motion of a large jellyfish that defies gravity. Its wing-like pectoral fins help it to maneuver the seas with the greatest of ease. If there ever was a creature that embodied the expression – "Go with the flow" – this is it!

Some basic lessons for teaching gifted children include: being agile; being flexible; being inquisitive; being responsive; and, being courageous.

Watching this magnificent creature navigate its world, I thought about the importance of establishing goals and how we move towards them: openly, and always keeping an eye out for those unexpected detours. The Leopard Whiptail Ray has its goal – survival – and yet it still manages to take those detours to satisfy its curiosity. I think we need to approach the education process in a similar way: with a line of sight to our goal, lifelong learning.

Point # 12. Refocusing on building lifelong learning and communication skills.

Learning = Creativity + Critical Thinking + Experience + Discovery + Understanding + Communication + "Y"
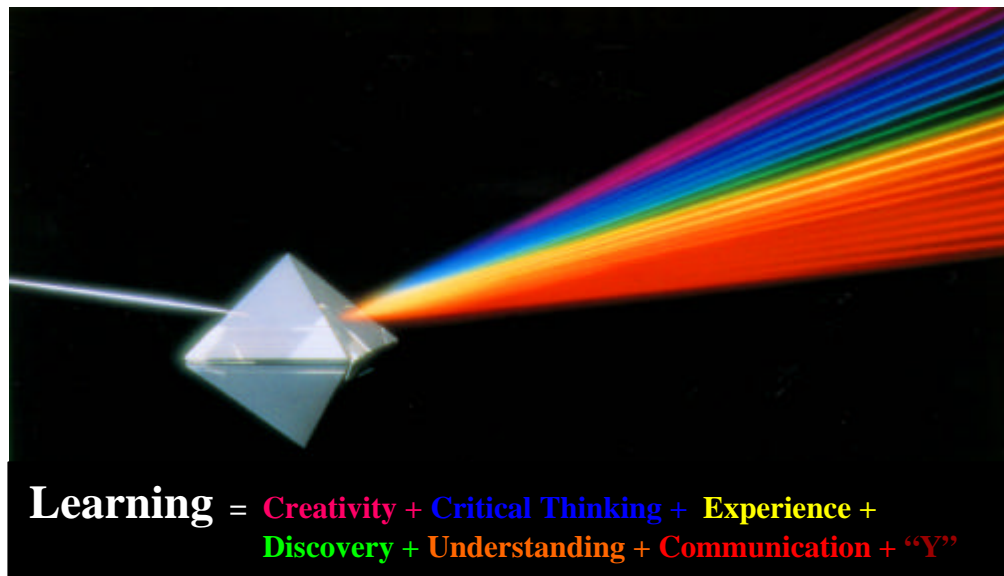
© Todd Siler, Ph.D.

There are many other elements and variables, or "Y"s, we could link with this virtual Algebraic equation for "Learning" (above), including Inspiration, Motivation, Meaning and Purpose. Any one of these variables influences the equation and our experience of learning.

The ability to learn – or inability – determines our health, happiness, self-worth, and success in life. The act of learning and applying what you learn is an "act of creation," to use the psychologist Arthur Koestler's insightful phrase. It's an act that is brilliantly described and researched and developed in Drs. Robert and Michele Root-Bernstein's informative book, *Sparks of Genius: The 13 Thinking Tools of the World's Most Creative People* (Houghton-Mifflin Company, 2000). I'd like to read a short excerpt from *Sparks of Genius*, which I'm certain will resonate with you on many levels in so far as it relates to our understanding of the many facets of creativity, intelligence and learning. The Root-Bernstein's write:

"While the universality of the creative process has been noticed, it has not been noticed universally. Not enough people recognize the cross-disciplinary nature of intuitive tools for thinking. Such a myopic view of cognition is shared not only by philosophers and psychologists but, in consequence, by educators, too.

Just look at the curriculum, at every educational level from kindergarten to graduate school, is divided into disciplines defined by products rather than process… Morever, at the level of creative process, where it really counts, the intuitive tools for thinking that tie one discipline to another are entirely ignored. Mathematicians are supposed to think only "in mathematics," writers only in "words," musicians only "in notes," and so forth. Our schools and universities insist on cooking with only half the ingredients. By half-understanding the nature of thinking, teachers only half-understand how to teach, and students only half-understand how to learn." (Chapter 1: "Rethinking Thinking," p. 12).

The Root-Bernstein's point out that these universal, timeless tools are not limited to those they've identified. Furthermore, the tools are seamlessly linked to one another. As the Root-Bernstein's show so convincingly, each of these tools is essential for growing our individual and collective minds. They recommend many practical and personal ways we can use these tools to inform and express ourselves – emphasizing the importance of using many 'modes of human expression' and 'forms of communication and interaction' to effectively convey our experiences. They also illuminate many important distinctions between "product" and "process," which they believe are neither adequately understood nor accurately represented in the academic practice of the theory of multiple intelligences. In many respects, the Root-Bernsteins's *process-oriented* "Tools of Thought" complement Howard Gardner's *product-oriented* "Multiple Intelligences". Needless to say, I'd strongly recommend you explore their exceptional work and apply these tools to suit your needs.

One indispensable resource to add to your reading list is the rich work of Mihaly Csikszentmihalyi, who, to my mind, puts it all together in his unique understanding of our experiences of the creative process and its products. His inspiring books *Flow: The Psychology of Optimal Experience* (HarperCollins, 1990) and *Creativity, Flow and the Psychology of Discovery and Invention* (HarperCollins, 1996) provide many powerful insights into the creative minds and actions of gifted and talented children.

Perceptions define reality. Change people's perceptions, and you change reality.

We have to work hard to change people's perceptions about the reality of gifted and talented children. There's an unspoken, stilted perception held by the general public and media that these self-motivated, sparkling children don't need any special attention. "They're so smart and ingenious, let'em go figure it out on their own." I can't tell you how many times I've heard these sorts of glib,

thoughtless statements, which usually culminate with this rallying cry: "Why is it so important to focus on the needs of gifted kid, when there's a multitude of disenfranchised, disadvantaged kids who desperately need our full support and encouragement?" This question may remind you of a parallel reality and dispute concerning the aggressive steps being taken toward advancing the sciences and high-technology that support NASA's initiatives. Why are we investing so much energy in this surreal work, when we should be taking care of those "real" problems of the world: poverty, pollution, overpopulation, international security and peace? It's as though two groups of people are looking at psychologist Abraham Maslow's "Hierarchy of Needs" and are stuck seeing only one thing: either the summit or the base of the pyramid, and nothing in between…not even the pyramid itself, which can be turned on its head or its side and transformed into something new: a new relationship and meeting between needs.

Some Prime Concerns from a select group of GT Teachers

Lately, the prime directive for most public schools in the United States is to "get those test scores up!" This order has placed an inordinate amount of importance on the getting of "4s" (out of 4), on certain standardized tests in which 1 = Basic knowledge of a discipline, 2 = Partially Proficient, 3 = Proficient, and 4 = Advanced. While we're at it, perhaps we should add a "5" number to represent "Mastery." This may well be the most important score of all, given that Mastery involves understand-ing how to apply one's imagination to really "advance" one's knowledge and continually transform this knowledge in new ways with new actions and purposes in mind.

Bombarding our students with batteries of tests, and putting constant pressure on them to get those "4"s can – and does – turn kids off to learning altogether. It often shuts down their curiosity and smothers their imagination. In the end, they barely recognize much less appreciate the simplest acts of learning and creativity in everyday life. Ask a gifted 6th grader who's hopelessly stressed out about her endless homework, and you're likely to hear and see this WHATEVER attitude played out.

So the task at hand for us educators is to foster innovative thinking and integrative thinking, rather than focusing exclusively on imparting disciplinary knowledge for the sole purpose of test taking and academic preparedness.

What do we do with those gifted children who just "don't fit in"? If you have a gifted artist who can barely do any other academic work, how do you teach this individual to grow his or her life? How to you help her realize her full potential? Some solutions in recent years have included teaching these students using inter-disciplinary programs and methods that link various sources of knowledge to the individual's passions and interests. But there are not enough of these specialized programs in place to serve the needs of our broad population of gifted learners.

We need to become better at spotting and harnessing the awesome power of frustration and anger, and then re-directing it to "do good," to improve

something, to be constructive. Many gifted children are intensely frustrated and filled with angst. Reaching them in time remains one of the more difficult tasks of our GT teachers. But even when we reach them, how do we deal with these uncommonly gifted learners who burn with so much anger, which is often driven by a lifetime of disappointments. Why all the anger? Many will point to all the roadblocks and obstacles they feel they can't remove from their path to self-realization. It's as if one boulder after another obstructs their path to realizing their creative potential. I know about this crushing frustration first-hand. I was one of these pained kids who quietly exploded inside with rage. It frightens me to think about what would have happened if I hadn't found my passion for the arts and sciences at fifteen, and totally focused my creative energies on constructing rather than destroying things. Duke Ellington's melodic statement about re-directing one's energies rings the bell of truth for me: "I merely took the energy it takes to pout and wrote some blues".

One veteran GT teacher in Colorado, Dr. Suzanne Peterson, recently informed me that, from her perspective, "We're not looking developmentally at the bigger picture of personal growth. We're also not considering what's developmentally appropriate. No one seems to know." Many teachers are deeply concerned that, as a society, "we don't allow children to be children." In fact, there's considerable confusion over our definitions of "children." Just listen to the disturbing reports and discussions stirred by the American judicial and law-enforcement work, for example. Almost everyday, it seems we're being forced to rethink our judgments on childrens' crimes & punishments. Just watch the ratings for commercial movies with hard-core adult subject matter, content and situations drop lower and lower to reach the curiosity of our children.

It seems we're being asked to think about what it means to be a "child." Just imagine how difficult it must be to a gifted and talented child who's wondering what it means to think as an adult…about improving the state of the world.

SUMMARY

Preparing the minds of gifted and talented children to envision the future – and create what they envision – will involve the integration of all media and means of learning and teaching. It's a huge job for everyone, and not simply educators.

"Choose a job you love and you will never have to work a day in your life," Confuscius advises us. Gifted children tend to make learning the best [right] "job"

in the world – and consequently, they change the world by helping ourselves discover just how exciting and adventuresome the act of learning is!

One of the most powerful media influencers, AOL Time Warner, has the right idea when it comes to marrying entertainment and education as they look to the future. Their recent advertisements and Internet spin this message: "We make your life BETTER, EASIER, MORE ENJOYABLE." That's not a bad tagline for extolling the benefits and virtues of learning! It's a tagline that bodes well with gifted children.

To end this keynote address on a personal note: I've always enjoyed the phil-osophy of ancient Greece – in particular, Presocratic philosophy. Some years ago I came across one of the extant fragments of the philosopher and mystic, Heraclitus, who had written in 500 BC: "Know the thought through which all things are steered through all things." I must have contemplated that wise statement at least a thousand times since I first digested it. I've come to conclude that this 'thought' is *Metaphorming*. It's not simply an act of Metaphorming, which it is. It's also the essence of Metaphorming.

For me, 'all things are steered through all things' by Metaphorming. Basically, the process of Metaphorming *connects everything with everything*, to increase the meaning and usefulness of all information, ideas, know-how, knowledge and wisdom. Moreover, Metaphorming transforms everything it connects into something new and purposeful. It's a universal process of creative and critical thinking that underlies the act of learning, discovering, inventing, innovating, and communicating.

As you re-frame your views on learning – continually enlarging your field of view in the same way Charles and Ray Eames did in their classic film and book, *Powers of Ten* – you begin to see the bigger picture of learning and knowledge; and, you begin to see how this picture will be shaped forever by the ever-expanding vision of our gifted and talented children. For me, the bigger picture will always resemble the Russian nesting doll metaphorm, which bears a potentially infinite number of "nested" realities…with one reality embedded inside another without limits.

WHO WILL BE THE GIFTED OF THE FUTURE?
"… Protect the Children of the Poor as through Them Wisdom will Bloom…"

Erika Landau
Director and founder of the Young Person's Institute
for the Promotion of Creativity & Excellence
Israel

In 1998 some prominent creativity researchers were asked to give their opinion about the state- of- the- art of creativity and giftedness (Roeper Review, September 1998). It was very clear to see that there was a "paradigm shift" which had already been foreseen by Feldman in 1992. Questions and research had moved from the original topic of psychometric preoccupation of gifted children to the analysis of the life and achievements of the eminent innovators in Western culture.

Simonton (1990) thinks that it is very important to learn from longitudinal research, in a method he names "historyometry". The row data for historyometry studies come not from contemporary subject tools but rather from eminent, famous personalities, most of whom are already dead, but whose developmental route, by which they became creative and eminent, is important in our work with gifted children with the goal of their becoming accomplished adults.

For the past two decades, Simonton has devoted his work to longitudinal studies, and their sum total has led him to appreciate how extremely complex the phenomenon of giftedness actually is.

The mystery of the creative development of the gifted lies in the question why gifted children and creative geniuses, who seem to be cut from the same stock, do not necessarily represent the end-points of a single developmental trajectory.

Among the questions Simonton offers for future research in our field, I found these two to be the most interesting:

1. *What contribution do childhood trauma and adversity make to the emergence of extraordinary adulthood creativity?* Early studies seem to show that gifts and talents emerge from well-adjusted, stable and affluent families (Terman 1925) and highly supportive family environments (Bloom 1985). In contrast, inquiries into the histories of eminent geniuses show that many of them came from troubled and adverse home circumstances (Simonton 1994).

2. *What is the impact of cultural marginality on the realization of creative potential?* Early studies point out the over-representation of majority culture populations among the gifted. Later research on eminent innovators shows that children of minorities and immigrants are not necessarily disadvantaged, but rather enjoy different domains, challenging unusual creativity. Even bilingualism seems to make a contribution to the acquisition of creative aptitudes.

There is strong prejudice in many cultures, that minorities do not make any effort to progress or integrate, but rather walk in the footsteps of social cases, depend on social institutions, wait to be helped, take the role of "victims" of destiny and the system, and blame everything and everybody but themselves. Their off-springs will not be ambitious, will not try to prove themselves and therefore will not achieve.

On the other hand, it is common knowledge that lately the winners of many competitions in the USA have been South Koreans or other Southwest Asians in origin. One or two generations ago the winners were Chinese or Jews, whose parents emigrated to the States.

Listening to Holocaust deniers, one can hear many justifications, rationalizations and even complaints, that Jews had always been "the winners" in sciences, business, literature and journalism, and that this was the reason for the hatred against them. Those "winners" were mostly the off-springs of emigrants from Eastern Europe to Western Europe.

So, is emigration a condition for success? Does the fact of being a minority create the motivation to prove oneself? Is the atmosphere in emigrant families so warm and protective that it makes children stronger in mind and soul? Is it the personal example of hardworking parents that makes children work hard as well? Or is it the drive and vision of the parents that their children should achieve everything they were not able to achieve?

Is it the fact that emigrant children are brought up seeing things from different aspects, naming things twice - in both their mother tongue and the language of the culture they live in - and therefore develop the flexibility needed for a creative approach to life, learning and experience, both intellectual and emotional?

In the past ten years I have noticed a certain trend in our children, that points to a weakening of the drive to know more, to look perpetually for more information and new interests instead of dwelling on problems. Parents come for advice on how to cope with children's perpetual and never-ending demand for new things.

As one parent put it: "The more we give the kids, the more they want." Some of the parents had worked quite hard in order to build a stable and stimulating home for their children. However, it is unclear whether this affluence has contributed to greater motivation and responsibility. In fact, the opposite might be the case. Even the slightest effort is avoided: if their parents cannot drive them to school or to our workshops, they will not come by foot, nor take the bus – they will order a taxi. There is an increasing concern about the lack of motivation in school children and soldiers. Many gifted children are among them.

An American colleague with whom I spoke some years ago used the expression **"Cornucopian Kids"** in connection with this issue. Lately I've been thinking about it and I like his metaphor even more: The **Cornucopia** is the mythical horn of plenty, overflowing with fruits and vegetables, a symbol of abundance, used in paintings and sculptures.
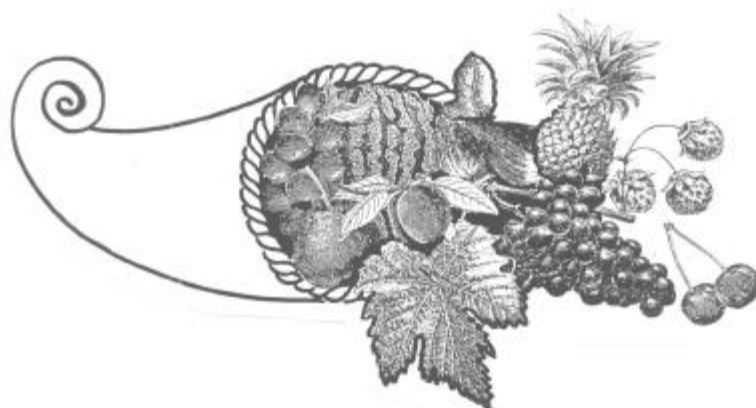
This metaphor fits very well into the image of the family of gifted children. Parents give their children things even before they want them, as one child once told me, and then they wonder why their children are never satisfied, and why the more they get the more they want.

What worries me the most is that our gifted children will not actualize their wonderful potentials if they are not prepared to work hard, persevere in their doings, look at things from different aspects, and invest their interest and energy so that whatever looks like a difficulty becomes a challenge.

In my work in counseling parents, especially in the past decade, I have realized that the aim of many of them is to make their child happy. Many problems arise when the drive of the mother is to make the road of the child as smooth as possible. The father, on the other hand, wants the child to meet challenges, to do something in order to achieve the set goals – to prepare the child for life.

We often have discussions with parents over the goals of clever parenting. It is hard for them to conceive that in order for them to be good parents they have to be bad sometimes (in the eyes of the child and often bearing their own guilt feelings). They cannot educate without limits, but children, especially gifted children, hate and fight these limits.

In the Western world, parents want to be friends with their children, in contrast to Eastern cultures where the institution of parenting is clearly set and respected. Being in good communication with your son and daughter does not mean that you should give up on being a parent. The child needs the parent figure in order to identify with, to learn from the "know - how" of being. I can quote one of my patients, a very intelligent young man, who said: "My parents wanted to be my friends. I had many friends, but I had no parents to learn from."

Going back to the questions posed at the beginning of this presentation, could we - or should we - learn from the family lives of minorities, that the example of hardworking parents, solving problems out in the open, is the source of their children's knowledge about life, which develops emotional maturity at a rather early stage?

Should we come to the conclusion that children of minorities, growing up with two languages, develop the notion that things have at least two names, two aspects - a very important basis for developing creativity? Should

we learn from this that exposing children at an early age to two or even more languages could challenge something in them that was not realized until now?

Minorities live in their new cultures in a very warm and intimate family circle, as we learn from memoirs and see in photographs and movies. The hardworking father, the warm and loving mother, always busy doing something for their family, are the pillars and source of energy to come home to from a strange and sometimes cruel world. This life, in two different worlds, two different languages, with personal examples of hardworking, loving parents, is grasped as hard but challenging. The children accumulate **knowledge** at school, and learn about **life** at home. This makes them not only knowledgeable but also emotionally mature (Eva Hoffman's "Lost in Translation" gives wonderful insight into the process of such adaptation to the new culture of a sensitive young girl coming from Poland to "America".)

In one of our studies we tried to explore the inter-relationships between intelligence, emotional maturity and creativity in gifted children. Emotional maturity is defined as the strength, the courage and the ability to actualize individual potentials within the frame of social demands. Our hypothesis was that emotional maturity would have an effect on creativity, independent from intelligence.

221 children, aged nine to thirteen took part in the research. All were measured for emotional maturity, intelligence and creativity, as well as the effect of emotional maturity on intelligence and on creativity. Among the highly intelligent group, emotionally mature children were more creative. These results demonstrate that giftedness is conditioned not only by high intelligence but that emotional maturity has its share, and that interaction of the two facilitates creative behavior – the actualization of the whole personality (Landau&Weissler, 1998)

Janos & Robinson (1985) bring forward evidence from multiple sources to a positive relationship between psychological maturity of the child and his/her intellectual level. Namely, it was found that gifted children are more emotionally mature than non-gifted children. Gifted children were found to be more psychologically and psychologically-emotionally mature as displayed by their scores on moral judgement tests as well as by their play interests.

Based on my credo that the highest intelligence cannot manifest itself without a corresponding emotional maturity, I have come up with an interactive model of giftedness:

An interactive model of giftedness

The World of Information: Opportunities and Challenges for the gifted and talented

This model illustrates the view that giftedness is an interconnected system of multiple influencing factors originating both from within the child and from his environment. It is a combination of high ability (intelligence, creativity etc.), strengthened by the mature self that bestows courage and motivation, persistence and enthusiasm. The A-C and B-C slopes in Figure 2 represent the child's internal world, while the A-B slope represents the environment's encouragement which gives him/her the intellectual challenges and information as well as the courage to manifest his / her ability.

The emotional maturity does not merely enable the child to use. His/her intelligence but also liberates this use in a way that results in creative products. The creative act widens and deepens previous thought frameworks, and therefore can be compared to entering unknown terrain. It is for this act, especially, that courage is needed, and it is the creative manifestation that will be mostly influenced by emotional maturity, independent from intelligence.

Miller (1998) studying and analyzing the many biographies of Einstein contemplates an interesting riddle – the phenomenon Einstein-Poincare. Henri Poincare, gifted from early childhood, was in 1905 one of the most important and knowledgeable mathematicians. Albert Einstein, 25 years his junior, entirely unknown, published three articles which changed science all over the world, and made him famous.

Poincare, who was a professor at the Sorbonne knew all the facts Einstein did, but is was the latter, an unknown clerk at the patent office in Bern, who founded the Relativity Theory.

Both Poincare and Einstein had a warm and positive family background, both were individualists, both played childhood games that were both solitary and complicated, and were similar in their persistent way of thinking. Poincare was well accepted and liked by his teachers; Einstein was in perpetual feud with his. Poincare's family was wealthy, Einstein's – poor. The career of Poincare climbed securely according to his expectations as well as those of his environment; Einstein's scientific career was full of obstacles and had not been accepted in any academic institution when he wrote the famous articles that made him eminent.

What was it that made Einstein more creative than Poincare? Was it the perpetual discussions with his teachers, the difficulties (economic as well as academic), the many hurdles in his path, the fact that he hardly went to school and stopped going there all together at the age of 15-16? Was it the existential struggle that prepared Einstein better than the smooth way of Poincare's climb?
Is it possible that difficulties and adversity are the challenging developmental trajectories for creative and producing individuals?

Miller (1998) thinks that is was the visual way of thinking that made Einstein more creative. I personally learned from both Miller and Einstein that visual challenges should be included and developed much more, in the education of the gifted.

Frasier, Garcia and Passow (1995)speak of three reasons for underrepresentation of minorities within the frames for gifted children:

a) Test Bias - biased standardized testing, prejudiced or unfair to ethnic minorities, to economically disadvantaged, and to individuals whose first language is not English.

b) Selective Referrals – teachers' attitudes toward -and knowledge about- minority students and the type of school those students are likely to attend.

c) Reliance on deficit-based paradigms: the focus on deficits makes recognition of the strengths difficult.

In addition to proposals for designing strategies for reducing or eliminating bias and stressing cultural strengths rather than deficits other recommendations for modifying traditional assessment procedures, such as:

a)   the use of multiple criteria and nontraditional measures and

b)   modifying the selection criteria.

One of the main goals of Frasiers research (1995) was to identify ten core attributes of the giftedness construct to be used to develop a procedure for identifying and educating economically cultural groups.

The ten core attributes describing the giftedness construct are: COMMUNICATION, MOTIVATION, INTERESTS, MEMORY, PROBLEM SOLVING ABILITY, IMAGINATION / CREATIVITY, HUMOUR, INQUIRY, INSIGHT, REASONING.

To determine the applicability of Frasier's ten cores attributes, Gibson (1996) carried out a study in Australia, identifying gifted,urban Aboriginal students. She found an eleventh core attribute of the giftedness construct INTRAPERSONAL / INTERPERSONAL ABILITY.

This ability attribute was defined as an unusually heightened understanding of self and others, including descriptions as knowledge of own strength, emotions, sensitivity to feelings and needs of others, self confidence and maturity. It is this ability I referred to when I spoke earlier of emotional maturity.

This research, says Gibson, has provided the basis for the development of an approach for identifying gifted students from culturally and economically diverse backgrounds in Australia.

To end with a question: the Programs for minority children, in the last decade, have brought about very good results in the awareness of their potentials and their strengths. Those Programs challenged them, motivated them to actualize their potentials into strengths. Should we not learn from this and look for ways to challenge our cornucopian, gifted children to work harder, in a more creative way, from a balanced personality, in order to actualize their potentials?

"… Protect the children of the poor, as through them wisdom will bloom…" (The *BabylonianTalmud).*

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This publication is organized in three big parts:

Part I: Definition and identification of giftedness and talent

Neuroimaging the gifted brain. John G. Geake, Oxford Brookes University, Harcourt Hill, Oxford, UK

Conception and appraisal of personal intelligence. Wu-Tien Wu, National Taiwan Normal University, Taipei, Taiwan ROC

Identification and selection of gifted children. Fei Xu, The High School Affiliated with RENMIN University of China, Beijing, China

Screening Test for the early identification of gifted children. Yolanda Benito Mate, University of Valladolid & Huerta del Rey Center, Valladolid, Spain & Jesus Moro, Ministry of Health, Valladolid, Spain

Project for early identification of gifted children. Christina M. B. Cupertino, Paulista University, Sao Paulo, Brazil

Adaptation to high-ability identification. Ainhoa Manzano, Enrique Arranz & Fernando Olabarrieta. Basque Country University, Spain

Metacognition, Personal intelligences and values in gifted secondary school students. Miriam Hume Figueroa, University of Castilla-La Mancha, Toledo, Spain

Expanding the conception of giftedness to nurture leaders for a global community. Joseph S. Renzulli, Rachel E. Sytsma & Kristin Berman, National Research Center on the Gifted & Talented, The University of Connecticut, Storrs CT, USA

Giftedness and associated disorders: Gilles Tourette Syndrome. Yolanda Benito, University of Valladolid & Huerta del Rey Center, Valladolid, Spain

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Part II: Emotional and social development of giftedness and talent

Implementing aptitudes: Eurotalent Symposium. Jean Christian Brunault, ATPS University of Tours, Tours, France; Noureddine Boufalgha, Gespare, Tunis, Tunisia; Carl D'Hondt, BEKINA, Kortrijk, Belgium; Adriana Melo-Salinas, Gespare, Lima, Perou; Federica Mormando, SUPSI, Italy; Mary L. Parkinson, AUSIT NAATI, New Town, Australia; Robert Pagès, CNRS (hon.) and University Paris VII, Gespare Founder President, Paris, France; Pierre Paoletti, FRACTALES, Lille, France; Jean-Charles Terrassier, ANPEIP Founder President, Nice, France; Hilde Van Rossen, BEKINA, Kortijk, Belgium; & Dmitry V. Ushakov, Institute of Psychology, Russian Academy of Sciences, Moscow, Russia

The relationship between cognition, emotion, and achievement: If only children didn't think. Paule L. Eckhaus, Skills Education Center, Hawthorn VIC, Australia

Social stands against conceptual innovations in giftedness. Mercé Martínez Torres, University of Barcelona & Flavio Castiglione, Mentor Psychopedagogic Center, Barcelona, Spain

The Montgomery computer scholars: Gifts emerge from prison. Cynthia Kobel, Kenneth & Harle Montgomery Foundation, Chicago, & Terry Stirling, Northeastern Illinois University, Chicago IL, USA

Gifted children with learning disabilities: Relevant environmental factors. Raquel Pardo de Santayana, Faculty of Education (Department MIDE). University Complutense of Madrid, Madrid, Spain

I don't need a label – I know how bright I am!. Rosemary A. Starr, Burwood VIC, Australia

Social myths in giftedness. Leopoldo Carreras-Truño & Flavio Castiglione, Mentor Psychopedagogic Center, Barcelona, Spain

Moral reasoning across the curriculum. Lesley Henderson, Flinders University, Adelaide SA, Australia

The safe: a safeway to science education for gifted youngsters. Netta Maoz, Weizmann Institute of Science, Rehovot, Israel

Gifted women rocking the boat: Perceptions of merit in the corporate culture. Carole C. Peters. Subiaco, WA. Australia

Building family-professional relationships in gifted programs. Linda M. Mitchell & Kay L. Gibson, Wichita State University, Wichita KS, USA

Self-psychology and hermeneutics: A new information gathering system for counseling the gifted. Alper Sahin, Robert College, Istanbul, Turkey

A research survey of overexcitabilities traits of gifted and talented students in Taiwan. Hsin-Jen Chang, National Taiwan Normal University, Taipei, Taiwan ROC

The ideas of mothers of gifted children about children's development: An exploratory study. Maria Conceição Gomes & Daniela Cunha, Colégio Paulo VI, Gondomar, Portugal

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Part III: Educative interventions for gifted and talented children

Bloc I: Education Policy

The international education policy for gifted children. Coordinator: Juan A. Alonso, Huerta del Rey Center, Spain, President of Iberoamerican Federation of World Council for Gifted and Talented Children, Vice-President of European Committee for the education of gifted children and youngsters, Eurotalent, Member of Executive Committee World Council for Gifted and Talented Children (1997-2001). Margarita Alvarez, mother, Spain. Carmen Cretu, University of Al.I.Cuza, Iasi, Director National Center for Teacher Training, Romania. Joao Ary, Secretary of Committee on Culture and Education, Council of Europe. Luzimar Camoes Peixoto,Vice-secretariat of Special Education, MEC, Brazil, Coordinator General of Special Education. Josep Varela, Representant of Council of Europe, Member of Committee on Culture and Education; & Susan Morgan-Cuny, European Social Charter Secretariat

A study on Korean Presidential Decree of the promotion act of educating for the gifted and talented. Myoung Hwan Kim (Kim Institute for the Korean Gifted). Eon Joo Kim (Chungnam National University). Koon Hyun Lee (KAIST). Geun Chul Yuk (Kongju National University). Sang Chun Lee (Kyungnam University). Chul Hoon Ham (Catholic University). Jong Deok Ha (Jaeneung College). In Ho Park (University of Incheon). Ho Kam Kang (Inchon National University of Education) & Sang Chan Park (KAIST)

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Bloc II: Educative Programs

What is Schoolwide Enrichment? And how do gifted programs relate to total school improvement?. Joseph S. Renzulli, National Research Center on the Gifted & Talented, University of Connecticut & Sally M. Reis, University of Connecticut, Storrs CT, USA

Acceleration and advocacy: the challenge continues. Lynne Mackenzie-Sykes, Australian Gifted Network, Melbourne VIC, Australia

Mentoring for talent development with at-risk populations. Ken W. McCluskey & Andrea L.A. McCluskey, The University of Winnipeg, Winnipeg, Canada

Logical thinking and investigation skill of gifted children. Ho-Joung Choi. Kyung-Hee University, Seoul, Republic of Korea

Mathematically gifted elementary students' problem-solving strategies: A case study. Astrid Heinze, Westfälische Wilhelms-University Münster, Münster, Germany

Gifted programs on a shoestring. Mary Carmen Galea & Maria Fantauzzi, Toronto Catholic District School Board, Toronto ON, Canada

Highlights Project: Major characteristics of gifted students in Rio de Janeiro. Marsyl Bulkool Mettrau & Maria Cláudia Dutra Lopes Barbosa, University of the State of Rio de Janeiro, Rio de Janeiro RJ, Brazil

Science gifted/talented education system in Korea. Ho-Kam Kang, Inchon National University of Education, Inchon, Korea. Kang, Lee, Sang-Chun (Kyungnam University). Kim, Myoung-Hwan (Kim Institute for the Korean Gifted). Ha, Jong-Duk (Jaeneung College) & Park, In-Ho (University of Incheon)

Some group experiences with gifted students. Susana Guerra Barrera, Huerta del Rey Center, Valladolid, Spain

Exploring the Reggio Emilia approach for young gifted children. Kay L. Gibson & Linda Mitchell, Wichita State University, Wichita KS, USA

Cross-cultural and cross-generational perceptions of intelligence and giftedness in Australia. Anthoula Kapsalakis, Mary Ainley, Terry Nienhuys, Victoria University, University of Melbourne, Melbourne VIC, Australia

Changing the educational system through an example: The short history of "Schule Talenta Zürich". Jean-Jacques Bertschi, Bertschi Consulting, Zürich, Switzerland

The management system of working with gifted children in the Republic of Kazakhstan. Umit Zhexenbayeva, Daryn Center, Almaty, Kazakhstan

A staff development program in gifted education - Mexico, Janet Saenz & Marcela Gonzalez. Autonomous University of Tlaxcala, Mexico

The challenging pupil and the inclusiveness of the school in an egalitarian school system. Ole Kyed, Psychological Service Municipality of Lyngby-Taarbaek, Denmark & Kirsten Baltzer, Royal Danish School of Educational Studies, Denmark

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Bloc III: Education and creativity development

Classroom Creativity climate inventory: Assessing the school environment for Creativity. Denise de Souza Fleith. University of Brasilia, Brasilia, Brazil

Encouraging creativity in exceptionally gifted students. Rosa Isabel Rodríguez Rodríguez, University of the Islas Baleares, Palma de Mallorca, Islas Baleares, Spain

Fostering Creativity at the University level. Eunice Soriano de Alencar, Catholic University of Brasilia, Brazil

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Bloc IV: Teacher Training

Essential characteristics of the gifted teacher. Wilma J. Vialle & Siobhan Quigley, University of Wollongong, Wollongong NSW, Australia

Reflections of preschool teachers on evaluating education programs for younger gifted children. Ivan Ferbezer, University of Maribor, Maribor, Slovenia

Teacher teams, curriculum and assessment: implications for talented learners in secondary school. Ann Robinson, University of Arkansas at Little Rock, Little Rock AR, USA

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Bloc V: Present and Future of giftedness and talent Education

Educating the gifted: A critical overview of international research. Joan Freeman, Middlesex University, London, UK

Giftedness: A Humanistic perspective. Paulo Braga Fernandes, APEPICTA, Portugal

Tapping the creative power of the gifted and talented: The future of education in a civil society. Todd Siler, Founder, Psi-Phi Communications, Englewood, Colorado, USA

Who will be the gifted of the future?. Erika Landau, Young Persons' Institute for Creativity & Excellence, Tel Aviv University, Tel Aviv, Israel