

# **Reaching Gifted and Talented Children: Global Initiatives**

Edited by  
Eleoussa Polyzoi and Cathrine Froese Klassen



Selected papers from the  
2007 WCGTC World Conference  
held at the University of Warwick, England

# Reaching Gifted and Talented Children: Global Initiatives

Selected Papers from the 17<sup>th</sup> Biennial World Conference

**THE WORLD COUNCIL FOR GIFTED AND TALENTED CHILDREN (WCGTC)**

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## **Editors**

**Eleoussa Polyzoi**

Director of Enrichment and Talent Development

University Liaison to the WCGTC

University of Winnipeg, Canada

**Cathrine Froese Klassen**

Executive Administrator

WCGTC

University of Winnipeg, Canada

## **Design and Layout**

**Stephen Klassen**

University of Winnipeg, Canada



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**Manufactured by Polar Bear Productions Ltd.**

This book is dedicated to Michael Pyryt (1953 - 2008).

WCGTC Canadian delegate, Dr. Michael Pyryt, Director of the Centre for Gifted Education (University of Calgary) and Chair of the American Educational Research Association's Special Interest Group: Research on Giftedness and Talent, will be remembered for his professional expertise and passionate dedication to the cause of gifted education and for his unqualified integrity, compassion, and personal humility. He was an encouragement to all who knew him and had the privilege of working with him.

# Acknowledgments

---

We would like to acknowledge a number of individuals who have brought this volume to life. Thanks are due to the authors of each chapter, whose insights regarding how we can best meet the needs of gifted and talented children and youth in our society are not only unique but grounded in diverse research approaches designed to create, test, and apply best practices in gifted and talented education.

We would also like to thank Belle Wallace for sorting the initial set of papers submitted for consideration for this publication.

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Although the editing was the most time-consuming task in the assembly of this volume, the formatting and reference checking was also a critical step between the book's editing and its actual production. Our gratitude goes to Morna Christian who devoted many hours to this arduous and exacting work—a task which she completed with precision and dedication.

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However, our combined efforts would be to no avail if it were not for the organization responsible for hosting the conference from which these papers emerged. We are grateful to the World Council for Gifted and Talented Children, Inc. which provided partial financial and human resource assistance for the creation of this volume. We hope that the featured articles, collectively, support the Council's mission to advocate for and reach the gifted and talented children of this world so that they can realize their potential.

Finally, a great debt of gratitude goes to our families, particularly Dimos and Stephen, whose patience, encouragement, and belief in this volume have sustained us as we burned the past-midnight oil and kept the fibre optic cables active between Athens, Greece, and Winnipeg, Canada in a long-distance editing exploit, especially as we approached the completion of this project.

As we look ahead, we are excited to announce that this publication will be followed in 2010 with a new tome, based on exemplary papers from the World Council's 18<sup>th</sup> Biennial Conference in Vancouver, British Columbia. We are delighted to be working together, once again, as coeditors, and anticipate that this second publication will continue to yield rich, new insights in the field of gifted and talented education.

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# Contributors

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**Abigail Allan** (Ph.D.) completed a doctorate in Natural Resource Management at Massey University in New Zealand. She is an outdoor enthusiast, actively teaching young adults rock climbing and general outdoor skills. Dr. Allan has been the administrator for several gifted student programs and been a mentor to participants. Her academic interests are centered on the sustainable management of the natural environment.

**Phil Baker** (M.Ed.) has been a classroom teacher, a special education teacher, a resource teacher, principal, school psychologist, enrichment consultant, and coordinator of special services. At present, he is Assistant Professor and Director of the University of Winnipeg Education Centre, an "access" program developed to prepare disadvantaged individuals from diverse cultural backgrounds to teach in inner-city settings. Mr. Baker has taught several courses in the special education and gifted domain, and authored or co-authored numerous articles, chapters, and books in the areas of creativity, gifted education, and at-risk children and youth.

**Saniye Bencik** (M.Sc.) is a research assistant in the Department of Child Development and Education at Hacettepe University, Ankara, Turkey. In 2006, she completed a Master's thesis entitled "An Investigation of the Relationship Between Perfectionism and Self-Concept in Gifted Children." She is currently completing her Ph.D. on the development of gifted children.

**Fatma Çalişandemir** (M.Sc.) has studied at Gazi University in Ankara, Turkey, and Süleyman Demirel University in Almaty, Kazakhstan. She is currently a Ph.D. student in the Department of Child Development and Education at Hacettepe University in Ankara, Turkey.

**Richard M. Cash** (Ed.D.) is Director of Gifted Programs for the Bloomington Minnesota Public Schools, the United States of America. Throughout his career, he has taught primary and middle grades, as well as graduate-level courses. His areas of expertise are brain-based learning, differentiated instruction, and gifted education. Dr. Cash is a highly sought-

after professional developer who has worked with schools throughout the United States, and internationally, on developing educational environments where student learning is encouraged through engaging, enriching, and enhancing experiences.

**Kay Ellison** was, until recently, Co-coordinator of the Gifted and Talented Programme at Palmerston North Girls' High School, where she was responsible for the Year-9 module "Thinking for a Change." In 1999-2000, she audited post-graduate courses in gifted education at the Torrance Centre for Creative Studies at the University of Georgia. She has presented papers in Australia at the Rising Tides Conference in Wellington and at the 15<sup>th</sup> WCGTC Biennial World Conference in Adelaide.

**Bruce R. Farthing** (M.A.) completed his graduate studies at Canterbury University, United Kingdom. Since then, he has pursued a career in secondary education at Otaki College, located in a small Māori community, and at Waitakere College, located in a more multicultural community in West Auckland. Currently, Mr. Farthing is Deputy Principal at Otumotai College in Tauranga. Mr. Farthing tutors in the social sciences for the University of Waikato's off-campus teacher-education program. He has been heavily involved with curriculum and assessment initiatives in New Zealand, has research interests in the delivery of history to young people, and has authored numerous publications in this area.

**Joan Freeman** (Ph.D.) is founding President of the European Council for High Ability (ECHA), former Editor-in-Chief of the journal, *High Ability Studies*, Senior Vice-President of the College of Teachers (United Kingdom), and a Fellow of the British Psychological Society. She has written sixteen books that have been translated into various languages, and hundreds of academic and non-academic publications. She is a frequent invited speaker at conferences around the world. Currently, she is a visiting professor at Middlesex University, London.

**Cathrine Froese Klassen** (M.A.) is the Executive Administrator of The World Council for

Gifted and Talented Children at its Headquarters in Winnipeg, Manitoba, Canada. Cathrine began her career as a high-school teacher. Besides holding key leadership roles in provincial curriculum committees and professional associations, she was English Department Head at her school, Advanced Placement Coordinator, and Coordinator for Gifted and Talented Programming and Critical Thinking in her school division in Winnipeg. She has taught courses at both the University of Manitoba and the University of Winnipeg, and continues to teach in the Faculty of Education at the latter institution.

**John Geake** (Ph.D.) is Professor of Education at Oxford Brookes University, Oxford, United Kingdom. He is External Collaborator, Functional Magnetic Resonance Imaging of the Brain (fMRI) Centre, University of Oxford, where he conducts fMRI research on the neural bases of high, creative intelligence. He is the founding convener of the Oxford Cognitive Neuroscience Education Forum and an Advisory Member of the British Parliament All-Party Group on the Future of Science and Technology Research for Education.

**Piotr Gindrich** (Ph.D.) is a researcher, author, and website creator. He works in the Department of Special Psychopedagogy, Institute of Pedagogy, at the University of Maria Curie-Skłodowska (UMCS) in Lublin, Poland. His areas of research interest include: dyslexia, learning disabilities (LD), including comorbid disorders, mental retardation, eating disorders, vision impairments, inclusive education, and giftedness and talent development in LD and non-LD individuals. He has authored three books on special education addressing the psychological and social effects of various disabilities.

**Julie Graham** is a consultant on Gifted and Talented Education working with an English Local Authority to provide policy guidance and training. She is a Trustee of the National Association for Able Children in Education (NACE) and has represented NACE in work with the English government's Department for Education. She was formerly principal of an elementary school and attained Beacon status. With colleagues, she has published, since 1982, curriculum extension materials for use by teachers when working with gifted children.

**John D. Holland** (Ph.D.) is Associate Professor at the Institute of Natural Resources and Head of the post-graduate Environmental Management Program at Massey University, New Zealand. His research and teaching interests include satellite tracking of endangered species, ecological economics, mentoring talented and gifted scholars, and practical theology.

**Mary I. Irvine** is currently Advisor for Secondary Gifted Education at the University of Waikato in New Zealand. She completed a Dip.TESL and advanced diplomas in Teaching and Human Relationships while teaching at a multicultural secondary school in Wellington, New Zealand. She completed a four-year Education degree at Waikato University, where she was admitted to the Golden Key Honours Society for high achievement. At Otumotai College, Tauranga, New Zealand, Ms Irvine established a Learning Centre where personalized learning programs are negotiated for specific purposes.

**Zdzisław Kazanowski** (Ph.D.) is a researcher in the Department of Special Sociopedagogy, Institute of Pedagogy, University of Maria Curie-Skłodowska (UMCS) in Lublin, Poland. His research studies involve mental retardation, families with disabled individuals, multiple handicaps, the social integration and segregation of the mentally handicapped, giftedness and talent development of the disabled, and the effectiveness of inclusive education. He has authored two books on mild mental disorders and inclusion, as well as over 30 articles on special education.

**Janusz Kirenko** (Ph.D.) is both Director of the Institute of Pedagogy and Chief of the Health Education and Pedagogology Department at the University of Maria Curie-Skłodowska (UMCS) in Lublin, Poland. He is a leading academic researcher, author, and well-known artist in the Lublin region. His scientific interests focus on the sexual and social rehabilitation of the physically handicapped (especially individuals with spinal cord injury), multiple disabilities theory and practice, the importance of social supports, quality of life, and the siblings of people with disabilities or medical conditions. He has authored or co-authored 12 books on special education, rehabilitation, health and disability, as well as over 120 scholarly articles.



**Madeleine R. Lambert** is the Gifted and Talented Coordinator at Otumoetai College in New Zealand, where she is also a teacher of English. She has taught for ten years in New Zealand and overseas. In 2007, Ms Lambert was awarded a Ministry of Education Teacher Scholarship to pursue her M.Ed. in literacy and gifted education at The University of Waikato. She continues to be a strong advocate for gifted students.

**Ken W. McCluskey** (Ph.D.) is Dean and Professor of Education at the University of Winnipeg, Canada, and has twenty-five years' experience as a school psychologist, special educator, and administrator in the public school system. He is a recipient of the Canadian Council for Exceptional Children's national publications award, and the University of Winnipeg's teaching, research, and community service awards. Dr. McCluskey has presented and written extensively on topics such as mentoring ADHD, gifted education, creativity, and talent development.

**Heather Meikle** is Coordinator of the Gifted and Talented Programme and Head of Biology at Palmerston North Girls' High School in New Zealand. She is also the convener of the Regional Science and Technology Fair and the secretary of the New Zealand International Biology Olympiad group. In 2007, she led the New Zealand team to the 2007 International Biology Olympiad in Canada.

**Nilgün Metin** (Ph.D.) is a Professor in the Department of Child Development, Faculty of Health Sciences, Hacettepe University in Ankara, Turkey. In 1989, she completed her doctorate; her thesis addressed the importance of integration on the development of children with Down's syndrome. Her current research involves the development and education of normally developed, mentally handicapped, and gifted children.

**Sheena R. Millar** was educated at The University of Waikato, New Zealand, where she completed a B.A. in English and History. Since then, she has taught at Te Puke High School. Currently, she is Head of English at Otumoetai College in Tauranga, where she is developing the Māori Achievement (gifted) class.

**Zofia Palak** (Ph.D.), is Chief of the Department of Special Psychopedagogy at the Institute of Pedagogy, University of Maria Curie-

Skłodowska (UMCS) in Lublin, Poland. She is researcher, author, and editor of ten monographs and over thirty articles on special education theory and practice. She is concerned with the education and rehabilitation of the blind and visually impaired. Her research interests concentrate on the integration of the visually handicapped and their quality of life, as well as the burnout syndrome among special and mainstream education teachers. She has authored, co-authored, and edited more than ten monographs. She is also former Vice-Dean of the UMCS Institute of Education.

**Andrzej Pielecki** (Ph.D.) is lecturer and researcher in the Department of Special Psychopedagogy, Institute of Pedagogy, University of Maria Curie-Skłodowska (UMCS) in Lublin, Poland. His scientific interests focus on visual impairments and blindness. His publications include several books on partial vision and the special and mainstream education system in Poland. Dr. Pielecki lectures on the effective teaching of children and adults with special education needs. He is former Vice-Dean of the UMCS Institute of Education.

**Eleoussa Polyzoi** (Ph.D.) is Professor of Education at the University of Winnipeg (UW), Canada. She has published extensively in the areas of evaluation, language development, childcare, and comparative education. Her research on the Eastern Europe education system was published by Routledge/Falmer Press in a volume co-edited by Michael Fullan and John Anchan. She was Director of a major CIDA project: *Russian Teacher Training for At-Risk Students*, a joint initiative of UW and the Russian Academy for Advanced Professional Standards and In-Service Teacher Training. Her current research involves an examination of respiratory health, housing conditions, and school absenteeism, conducted by a team of researchers from the universities of Winnipeg, Manitoba, and Harvard.

**Sally M. Reis** (Ph.D.) is a Board of Trustees Distinguished Professor and Professor of Educational Psychology at the University of Connecticut in the United States of America, where she also serves as Principal Investigator of The National Research Center on the Gifted and Talented. Dr. Reis was a teacher for fifteen years, working with gifted students at all levels. She is a prolific author and has



conducted numerous workshops around the world. She is co-author of *The Schoolwide Enrichment Model*, *The Secondary Triad Model*, *Dilemmas in Talent Development in the Middle Years*, and *Work Left Undone: Choices and Compromises of Talented Females*. Dr. Reis is a past-president of The National Association for Gifted Children.

**Joseph Renzulli** (Ph.D.) is a Board of Trustees Distinguished Professor at the University of Connecticut in the United States of America, where he also serves as Director of the National Research Center on the Gifted and Talented. His work has centered on the development of theories and research related to broadened conceptions of human potential, on the identification and development of creativity and giftedness in young people, and on organizational models and curricular strategies for differentiated learning environments and total school improvement. A focus of his work has been on applying the pedagogy of gifted education to the improvement of learning for all students and using technology to promote high-end learning.

**Edwin C. Selby** (Ph.D.) is a Program Associate at the Center for Creative Learning and an Adjunct Professor at the Fordham University School of Education in New York, the United States of America. Dr. Selby has written extensively on problem-solving style, creativity, Creative Problem Solving, and programming for talent development.

**Donald J. Treffinger** (Ph.D.) is Director of the Center for Creative Learning in Sarasota, Florida, the United States of America. He served as Editor of the *Gifted Child Quarterly* (1980 - 1984), as Editor-in-Chief of *Parenting for High Potential* magazine (2000 - 2007), and is now a member of the *Gifted Child Quarterly* Editorial Advisory Board. Dr. Treffinger has written extensively on problem-solving style, creativity, creative problem solving, and programming for talent development.

**Belle Wallace** is Director of Thinking Actively in a Social Context (TASC) International, past President of the National Association for Able Children in Education (NACE, United Kingdom), Editor of the journal, *Gifted Education International* (AB Academic Publishers), and international consultant on gifted and talented children. She has been a member of the Executive Committee for the World Council for Gifted and Talented Children, and has pub-

lished extensively on the development of problem-solving curricula across the multiple capacities for all levels of students. Recently, she was made a Fellow of the Royal Society of Arts for her services to education.

**Chris Yapp** (Honorary D. Tech) is an Executive Technology Strategy Consultant with Capgemini, United Kingdom. He has been in the information technology industry since 1980, most recently at Microsoft. His interests lie in scenario planning, futurology, and the strategic and management implications of Information and Commitment Technology (ICT). He has edited and contributed to a number of books, most recently the *Personalization of Learning in the 21<sup>st</sup> Century*. He is an Associate of the Think Tank DEMOS. He is a Fellow of both the Royal Society of Arts (RSA) and the British Computer Society (BCS). He is a Patron of the National Association for Able Children in Education (NACE) and a Trustee of World E-Citizens. He is a member of the Information Society panel of UNESCO, United Kingdom. Dr. Yapp holds an M.A. (Oxford) and an honorary D.Tech from Glasgow Caledonian.

**Gökçe Yilmaz** has pursued undergraduate studies at the Middle East Technical University in Ankara, Turkey, and graduate studies at Hacettepe University in the Department of Child Development and Education Department. Since 2007, she has been working at the Child Protection Center, Gazi University Hospital, in Ankara.

# INTRODUCTION

*If you can imagine it, you can achieve it;  
if you can dream it, you can become it.*  
—William Arthur Ward

---

This volume, *Reaching Gifted and Talented Children: Global Initiatives*, represents selected exemplary papers presented at the biennial conference of the World Council for Gifted and Talented Children (WCGTC) held in Warwick, United Kingdom, in 2007.

The theme of the conference, "Worlds of Giftedness," is reflected in the papers selected, moving from the global context in the Prologue with Chris Yapp's paper, "It Takes a Global Village to Educate a Child," to the local context in Joan Freeman's paper that focuses on the lived experiences of gifted individuals in "Tracking Gifted Children into Adulthood."

This tome provides new developments in the field of gifted education, ranging from a neurobiological examination of the nature of intellectual development and memory; an Internet-based enrichment program for developing the gifts and talents of students; creative problem-solving and mentoring program to reclaim marginalized, at-risk populations; and the Māori concept of giftedness in program initiatives implemented at Otumotai College in New Zealand.

The publication is organized into three parts: Curricular Initiatives, Special Populations, and Around the World.

In **Part 1, Curricular Initiatives**, McCluskey, Treffinger, and Baker describe the Amphitheatre Model that identifies the key components of an effective school enrichment program for talent development. It is a pragmatic model that considers the complexity, diversity, and strengths of students, educators, communities, and schools.

While brain research may not appear to be directly linked to curricular content, its implications are significant for the manner in which curricular initiatives are designed. Geake, in "The Neurobiology of Giftedness," reports on

neuroimaging studies of brain structure and function that suggest that giftedness is characterized by enhanced executive capability and by a more effective working memory, including rapid information processing. Although still in its infancy, this field provides some insight into ways of nurturing giftedness in the developing minds of children.

The learner's prior knowledge, needs, and desires also must be respected in the creation of any curricular program. In the next paper, "Creating a Climate for All Talents to Flourish," Wallace urges the reader to consider the student's voice in preparing effective, inclusive, gifted learning experiences in the classroom. Wallace bases her appeal on the results of a 2006–07 case study of 12 schools in England.

Next, Holland, Meikle, Ellison, and Allan, of New Zealand, describe a unique science education program in their paper "Inspiring the Talented: A University and Secondary-School Collaboration." This three-year university mentorship program involved high-school girls with an interest in and talent for science. Students' participation in this university-sponsored program resulted in greater appreciation for the complexity of science, increased independent thinking, and enhanced academic confidence. Many students selected science and related fields (e.g., engineering, ecology, and mathematics) when pursuing university studies.

It is not enough to simply expose gifted students to high-level curriculum. In the last article of this section, Treffinger and Selby illuminate the complex relationships among the three constructs of giftedness, creativity, and learning style. Understanding how these three constructs are linked will lead to more effective curriculum design, instruction, and assessment.

Research, programming, and policy for gifted and talented youth are all requirements in the advancement of gifted education, and particularly so for academically at-risk populations—the theme of the next section of this volume. **Part 2, Special Populations**, begins with McCluskey's article, "Reclaiming 'Lost Prizes'". The author describes various projects in Manitoba, Canada, that combine creative problem solving and mentoring to reclaim marginalized, at-risk populations, for example, troubled, high-school dropouts, disadvantaged Aboriginal teens, and Native-Canadian inmates.

In the next article, Cash identifies numerous cases of underachievement among American gifted learners and offers five principles of instruction that teachers of gifted students may follow to keep their students motivated and on track.

Finally, Polyzoi, in "Enrichment Opportunities for Educators: New Directions for Helping At-Risk Youth in Russia," describes a major CIDA joint initiative which involved teams of both Russian and Canadian specialists in at-risk education who delivered intensive teacher training in Russia. This project included reciprocal visits to model program sites in Moscow, Russia, and Winnipeg, Canada. The impact of this program has been sustained through changes in policy, curriculum, and education in pedagogical universities across the Russian Federation.

In addition to the at-risk programs in Canada, the United States, and Russia, described in Part 2 of this volume, the final group of papers in **Part 3, Around the World**, provides insight into the gifted education initiatives that have been undertaken in still other countries, namely, Turkey, Poland, and New Zealand. Another paper from the United States included in this section, presents a comprehensive Internet-based enrichment program that can be readily used world wide for developing giftedness and talents.

Renzulli and Reis introduce Part 3 with their article on the Renzulli Learning System (RLS), developed in the United States of America at the University of Connecticut. The RLS is built upon the Enrichment Triad Model, designed in 1977 by the first author, and is widely used in gifted education around the world.

What follows is Metin, Bencik, Yılmaz, and Çalisandemir's paper, "Gifted and Talented Children in Turkey: A Chronological Review." This is a compilation of all of the studies on gifted and talented children conducted in Turkey between 1948 and 2007. The authors' research reveals that studies on gifted children in Turkey have increased dramatically during the period in question, but especially in the last decade. Areas of greatest focus were on the academic needs of gifted students in the school system, and the socio-emotional development of gifted children and adolescents.

The penultimate paper in this section by Palak, Kirenko, Gindrich, Kazanowski, and Pielecki addresses the role of the Psycho-Educational Counseling Centers in Poland. In addition, the authors identify relevant institutions, organizations, and societies that assist gifted youth, their parents, and teachers in their country.

Part 3 ends with Farthing, Irvine, and Morgan's paper, "Mapping the Journey: Putting Māori Perspectives of Giftedness into Practice." It explores the theory surrounding the Māori concept of giftedness and the implementation of culturally appropriate pedagogy for gifted youth within Otumotai College in New Zealand.

Freeman, in the Epilogue to this volume, provides seminal research on the lives of 210 gifted and talented youth, first interviewed in 1974, and a subset again 30 years later. The author found that childhood precocity, exceptional intelligence scores, top school marks, and grade skipping were not a passport to recognizable giftedness in the adult world. Instead, adult success at all levels of ability was a result of hard work, emotional support by family, and a positive outlook on life.

While there is great diversity in the state of gifted education in the countries as reflected in the papers published in this volume, there is an equally great diversity in the gifted and talented learners whose needs educators and researchers seek to address and meet. The selected papers reflect both of these aspects in a wide range of initiatives, some of which are not yet fully developed in many countries. It is heartening, however, to see that initiatives are having an impact and that the ideas can be shared globally. In countries where gifted and talented education is just emerging, or in

nations where it is delivered in an inclusive manner, the awareness of the needs of gifted and talented children is still growing and being addressed.

Ultimately, it is the combined impact of local initiatives in schools and universities, national, and even international initiatives—those that can be taken and utilized in institutions and countries around the world—that will not only sustain programs, but will result in spreading the word through conferences, publications, networking, and e-communication.

The broad field of gifted education reflects the whole educational spectrum: curriculum, (including Internet-based), pure science research (including brain research and its implications for educational practices), action-based research (including taking stock of the state of education), community outreach and mentoring, and service-delivery. The individuals who are instrumental in creating an awareness of the needs of gifted learners and delivering the programs are just as distinctive: school-level educators, researchers, consultants, policy-makers, university educators, publishers, and psychologists.

This volume reflects this complex diversity. To develop a global awareness requires global sharing. It is important for the exchange of ideas and research to continue, and this WCGTC publication can serve as a valuable instrument in that delivery process.

The articles contained in these proceedings have been chosen to appeal to a broad audience of educators who deal with a multiplicity of learning situations and student populations; government policy makers who need to be informed about what is going on in gifted education in other parts of the world; community advocacy groups who work tirelessly to ensure that the rights of the gifted are recognized; researchers who explore new ways to address the challenges of meeting the needs of the gifted; and, finally, the members of the WCGTC which is ever seeking to fulfill its mandate to support gifted and talented children worldwide.

It has been both a pleasure and honor to work on this publication. It is our sincere belief that advocacy is at the heart of the future of gifted education.

Eleoussa Polyzoi and  
Cathrine Froese Klassen  
Editors  
March, 2009





# Prologue: It Takes a Global Village to Educate a Child<sup>1</sup>

Chris Yapp<sup>2</sup>

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## Abstract

Education has gained increased prominence on the political agendas of developed and developing countries around the world. While there is a strong consensus that education must change to meet the needs of an increasingly connected world, there is little consensus on how education must change. There is great uncertainty about what jobs children will have in their adult lives and, therefore, the preparation at school age is complex and open to major risks. The complexities of citizenship in a global world are difficult to pin down. Drawing on the changes of the last generation, the author identifies some possible routes for the next.

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## *Masters of Change...*

In 1968, I was 15 years old. That was the year that one of the most famous photos was taken. It was the year when we first saw earth photographed from Apollo. So, in my school days, I was part of the first generation to see our blue planet from space. The link between science, society, and progress was obvious. We can now look back and see this landmark event as a contributor to wider societal consciousness, notably, regarding our environment. For me, like many of my generation, it was a spur to the study of science at university.

Today, a 15-year-old can add a dimension to my youthful experience that we could not have imagined. Tools, like Google Earth, allow us not only to observe earth, but to actually interact with it and link Information Technology (IT) sources, such as photos or text, to a specific geographical location. I do not believe that we yet have a real sense of the long-term implications. This makes me think, What would we like them to be?"

Of course, in the words of William Gibson, "[t]he future is already here—it is just unevenly distributed" (Gibson, 1999). Only a few years ago we lived in a world where 60% of the people on the planet had neither made nor received a telephone call. The arrival of the mobile phone has made a dent in, but not eliminated, that inequality.

One feature of traversing our planet is that this inequality shows up in stark ways. It is possible to fly to many countries and find smart, high-tech airports next to shanty towns. We talk about a north-south divide at a global level, but evidence of private affluence and public squalor sitting side by side can be seen in both the developed and developing worlds.

My grandfather survived the First World War with serious health problems. In our conversations, when I was a young boy, his world seemed alien to me. I could not make sense of the world in which he had been born and raised. It remains a salutary lesson for me in thinking about my children's world and, hopefully, one day, my grandchildren's world.

If my grandfather could see my world now, for him, it would seem like paradise. Traveling around Europe without border controls for tourism—in a world where Germans and Japanese are friends and colleagues—would, I think, for him be scarcely credible. We know, however, the downsides of our current world. Many of the challenges that today's school-age children will face throughout their lives—notably the environment, science and technology, and the economy—do not have simple or inevitable solutions.

My own dream is that when, like my grandfather, I am long dead and buried, my children and grandchildren will be able to look at their lives and have the same sense of wonderment



and awe that I feel when I look back one and two generations in my own family story. I have the privilege of being the first generation in my family to go to university at a time in the United Kingdom when around 5% pursued higher education. We are approaching a world where, in the United Kingdom, 50% will share that experience.

To get anywhere near that dream, I think that only through education can we create the capability to shape and deliver a globally confident society and economy; however, what is clear to me in my work is that there is a level of uncertainty, risk, indeterminance, and sometimes fear, about the future, in children and adults alike, that I did not experience as I grew up. The major trends of globalization, new technologies, an ageing population, terrorism, and environmental issues require new thinking and new institutions if we are to be masters and not victims of change. We have to make the notion of education as a universal right a reality, not a privilege for a minority.

### *A Collective Intelligence...*

It is clear to me that the schools we have, the curriculum we teach, and the assessments we make of learning cannot deliver what is needed. Please, understand that I am not blaming teachers, parents, or the state. We are navigating through uncharted waters. Nor do I believe that we adults can know enough to deliver on the positive view of tomorrow. That is why I am so passionate about the education of gifted and talented children. It is they who will determine the outcomes, not we.

But, here's the problem! Do we define giftedness and look for it in our own image and look for what made for success, or can we identify the traits that will help resolve future problems? My own view is that when the context changes, what is called the paradigm shift, what makes an individual exceptional also changes. The emergence of a global information society has led us to discover that our perceived certainties are open to question. Would Mozart have been considered gifted if he had lived in the Bronze Age? What would Einstein have done if he had been born during the Renaissance?

This also reinforces the notion of the individual as gifted and talented. For me, many of the great challenges that we see for the twenty-

first century require collective rather than individual intelligence. Let me illustrate. The science and technology exist, or soon will, to modify rice, a staple food of the world. We could genetically modify rice to improve the vitamin richness and prevent loss of sight for many in the developed world. Obviously, there are significant scientific issues to be resolved, but there are also ethical, political, cultural, and commercial challenges. Just because we, in the developed world, are able to impose our solution on the developing world, do we have the right to do so? What modern telecommunications make possible for our youngsters today is the ability to communicate with their peers around the world in ways that were unthinkable for my generation. In the old world, we might have been able to spot someone gifted in science, in philosophy, in politics, and so on. The education system in which I grew up was defined by subject boundaries. The speed of change in our society and growth of knowledge means that most issues are interdisciplinary by nature. Being gifted in the science of climate change does not mean being gifted in the sociology and politics of climate change.

That is why I believe we need to fundamentally question our assumptions about what it means to be educated in the context of the twenty-first century. We also need to question the underpinning values and organizational governance of the institutions that will deliver on the promise of education.

Much of what I have described so far is the problem. My belief is that the world is changing and we need to think through those changes. Education needs to be different not simply better, though both would help.

### *What Success Might Look Like...*

So, what might the solution look like? I am reminded of Mark Twain's dictum that, "I never allowed my schooling to interfere with my education." Let me be explicit about the assumptions that I am making in offering a tentative view of what success might look like.

First, I believe that learning always has been and always will be a personal experience. If I give a lecture or teach a class of 30 children or adults, what they bring and what they take away with them will be different for each; however, in an attempt to scale and sustain a system of mass education, the organization of



education has largely been impersonal. That is why we have mass curricula and high-stakes testing in so many countries. It is the art and craft of the skilled teacher that puts the *personal* back into a system that is largely impersonal. I suspect that it is this tension that makes teaching such a high-stress profession. The truth is that we have always afforded some level of personalized learning for the elite. As an undergraduate at Oxford University, I had individual tutorials. The impediment to personalized learning has been economic scalability.

This is where the technology comes in. We have glimpses that what IT may be able to deliver is personalization of learning in some form at scale. That is the hope, but IT is, at best, a necessary but not sufficient condition. It is a combination of people, process, and technology that will determine if we can deliver on the potential for personalized learning in a sustainable way.

So, the goal to which we should aspire is to create systems of learning built around the learner for every citizen of the planet. If we are really serious about the millennium goals for development, we need to be committed to this

### *Life-Long Learners...*

Over a decade ago, Alec Reed, entrepreneur and founder of Reed Employment, offered me an analogy which I found quite compelling. Let us compare learning at school with learning to drive, a rite of passage of many teenage children. While learning to drive, they have L-plates on their cars which are discarded on passing the test. Alec Reed argued that the transformation of learning in this century was not about more youth with more qualifications upon leaving school, but rather, when children leave school, they should put on L-plates and say, "I am a learner." Sadly, for too many, they leave school and take off their L-plates saying, "I've passed" or "I've failed." The success of schooling is surely to be judged by whether we create a society that values learning in all its diverse forms. I argue that, in a world that is changing fast, schooling should create life-long learners more than it creates qualified people.

If you buy into this analogy, we are changing some pretty fundamental questions. Instead of trying to spot the x% who are most intelligent

or the y% who are gifted and talented, our goal becomes to find out, for all learners not *whether* they are intelligent or gifted but *how* they are gifted and talented. The challenge is to use these insights to create multidisciplinary teams to tackle creatively complex issues, such as environmental degradation and preservation of biodiversity.

I argue that the idea that a bright group of folks in Silicon Valley, Cambridge, or any other high-tech, high-skilled cluster, can solve the problems of India or China, for instance, and impose solutions is naïve. The well-known case study of the Grameen Bank and the system of micro credit in Bangladesh shows how a bottom-up approach, built around communities, can achieve more than top-down policy-driven initiatives, by focusing on the needs and aspirations of the communities they serve. I think the same is, or should be, true of schools.

I worry sometimes that we so easily lapse into believing that school can solve these challenges. I remember the first time I heard the phrase, "It takes a village to educate a child." It made me think about my own learning journey. Visits to museums, theatres, libraries, and other interesting places have been as important as school days in enriching my life. It is noticeable how French tourist attractions have a much stronger *pedagogique* feel to them, than visits to equivalent locations in the United Kingdom.

### *Understanding Both the Local and Global Dimensions of Learning...*

For the next generation, the recognition of global interdependence and the scale of the issues we face means that schooling should help learners understand both the local and global dimensions of learning. We have the technology. Increasingly, we have the will. That is why I argue that an education system fit-for-purpose in the twenty-first century should, at its heart, be grounded in the notion that, "It takes a global village to educate a child."

So, what does that mean in practice? I am reminded of Kipling's aphorism, "Who knows England who only England knows?" Looking back on my school days, learning French and Latin taught me more about English than English lessons (with apologies to my English



teachers). It is hard to get worked up about split infinitives or hanging participles in one's native language. For me, at least, it was only when confronted with learning another language that I appreciated the capacity for miscommunication in my own.

Language is so rich a vehicle for human cultures that reading a book or a poem in translation is not the same as reading in the language in which it was written. I illustrate this sometimes with an advertising campaign of some years ago in England: "Now is the discount of our winter tents." It is not difficult to translate that into French or Spanish, for instance; however, the play on words of Shakespeare's "Now is the winter of our discontent." is easily lost. Even trying to convey this in footnotes is hard. I confess great admiration to those brave souls who do translate the great texts to make them at least accessible to others outside their native roots.

Over the last few years, I have visited schools in the United Kingdom which have over 50 languages spoken in them. I have seen a sea change in attitudes in the last decade where this diversity is seen as a resource for enriching learning rather than a problem per se. This widening diversity brings with it different arts, food, ethical values, and attitudes to mathematics, science, and technology. All these opportunities, however, may seem daunting for the teaching profession.

### *Education has Changed More for the Teacher Than for the Learner...*

There is a story that I have heard retold in many countries around the world in the last 15 years. It goes like this:

*If a surgeon from 1900 turned up in a modern operating theatre, he or she wouldn't recognize it and would be incapable of working in it. Similarly, a train driver from 1900 wouldn't recognize or be able to function in a modern train. Now, if a teacher from 1900 turned up in a modern school and saw the blackboard and desks, he or she would think that nothing had changed.*

There is enough of a grain of truth in this anecdote for people to laugh. Compared to many other professions or crafts, teaching appears, at one level, to have changed little. It conveys a sense that teaching is the most conservative of professions. On the other hand, sit in a bar

with a teacher and it won't be long before tales of constant change and overload of initiatives emerge. How do we reconcile these views?

My observation is that the experience of education has changed more for the teacher in the last few decades than it has for the learner. Wider social changes, such as the breakdown in deference and the complex communities in many schools, mean that teaching a class of 30 today is a very different experience to teaching a class of thirty some years ago.

The globalization of the economy and the advances in science and technology, on one level, mean that this ought to be the best time in human history to be a teacher. Society and the economy cry out for more highly educated people like never before. At the same time, over the last twenty years, we have learned an increasing amount about the human brain and developed new, more sophisticated models of learning.

Another phrase I hear on the speaker circuit is, "The teacher of the future will be a guide on the side, not a sage on the stage." I dream of the day when that will be consigned to oblivion. Good teachers, including those who taught me, were a mixture of both. The balance may well change, but I find the suggestion of some sort of binary switch insulting.

### *Personalized Learning at Scale...*

I think we can learn a lesson from the United Kingdom's Open University. On its 25<sup>th</sup> anniversary, back in 1994, it had 150,000 students. That was the same number as the whole of United Kingdom's higher education in the inaugural year of the Open University. This phenomenal growth was made possible by the creation of academic teams who produced innovative curricula, content, and assessment. It enabled new quality standards and made higher education accessible to many who had never considered it before. I think that we need similar significant changes if we are to make personalized learning at scale a reality.

One of the lessons I have learned by working in scenario planning and futurology is that the best way to start is by rethinking the present. From a conference a few years ago, I remember a story of an education professor who set a task for two classes. It was the same task, but he asked one group to work at it and he



told the other to play. Which group do you think worked harder?

Similarly, we have to re-perceive the teacher. If we see, reward, and model teachers, not as learned people but as lifelong learners, then we must embrace a personalized learning agenda for them as a way of creating a culture and ethos of personalized learning for students. Rather than seeing teachers as fountains of wisdom transmitting learning, we see them as active learners and leaders of learning. For those who have made that journey, it is liberating and rewarding, but it takes time and courage.

Learning, at its heart, is a social and socializing experience. Teamwork in learning is not cheating for either pupils or teachers. My experience tells me that teaching today is quite a lonely profession. Once the door is closed, you are on your own. A move to more team-based teaching and the rethinking of the roles of teachers is a real challenge for policy makers and professionals alike.

I think that much of the stress that many teachers report comes not from a work overload but, actually, role overload. Teachers have to be subject-matter experts. They also have to be classroom managers, educational administrators, resource managers, counselors, and coaches.

I do not believe that the traditional model of teacher and classroom assistant is rich enough to describe the processes needed to build a world-class system of education. Many others are needed, such as librarians and curators, who play significant parts in establishing a learning society. Blurring the boundaries among all of those who have a role makes it possible to rethink education in far more radical ways.

In the way that medicine has rethought the role of general practitioners and a wide variety of specialists, I suspect that what will be needed is an educational model that looks like the medical model. On the other hand, I see the medical professionals needing to become more like teachers, but that is a separate topic.

In England, we have both a General Teaching Council and a British Medical Association. All the different disciplines in health have their own distinct bodies but the governance of all the medical professions falls under this umbrella body.

Imagine a General Learning Council that would cover everyone involved in educating young people

### *How do we Measure Success?*

This brings me to what may be one of the trickiest areas—assessment. By this I mean not only for the individuals, but also for the value for money.

When spending tax payers' money, all governments wish to see and show that they are investing wisely. While we all recognize that increased educational standards and skills are a core component of a country's economic performance, the link is indirect and by proxies. There is no simple equation that shows an increased investment of x% improves educational standards by y% which leads to z% enhanced economic performance. Linear extrapolation of what we used to measure doesn't make much sense in the long run. Using British measures, in 50 years' time a child would probably need 50 General Certificates of Education (GCSEs) with A - C grades, and approximately 20 Advanced Level Certificates with good grades to get into a quality university and have a globally competitive skill base. Even the thought of it makes me shiver.

So, what should we measure? Well, look at the problems of disaffection, disengagement, anti-social behavior, drug taking, self-harm, self-esteem issues, juvenile crime, teenage pregnancy, and so on.

What I find really fascinating about the world of economics is that many of the dictums of the 70s are being questioned with great depth by the leading lights. It has always been assumed that economic growth would lead to increased prosperity and contribute to more happiness. Notions of "Gross National Happiness" instead of Gross National Products (GNP) are seriously being talked about in academic and policy circles in major countries. It is clear that, for very poor countries, economic growth does lead, for a while, to greater contentment, but there are diminishing returns in the developed world.

Many commentators worry about young people these days being pressured by exam stresses and being forced to grow up too quickly. There is a romantic mourning for the loss of childhood innocence by many adults in the developed world.



For too many children in the developing world, such innocence is not an option. Rather than pressure youth to get one grade better here or there and leave them disillusioned with school and learning, which they then pass on to their own children, I think we could measure, in part, the return on investment in school-age learning against children's happiness, engagement with their peers, and active citizenship. The focus on self-esteem and love of learning would, I believe, be a really significant step for society as a whole, and our biggest return on investment.

So, what should we measure about the learner? There is a wonderful rule in systems' thinking—Ashby's law of requisite variety. Briefly, what this law argues is that if you want to control a complex system, you need as many measures as there are degrees of freedom in the system. Let me illustrate by example. You and I may wish to do a course in digital photography. We need to know the same things, in effect; however, mine is a hobby. You want to take the course as a source of income. I'm not that worried about a qualification; however, for you to get a job an employer might like to see some form of accreditation. Now, if my hobby becomes a potential source of work, I might then be interested in the accreditation. So, our different purposes have an impact on our perceived value of the learning. A course that requires everyone to write the same exam with the same measure can't cover this difference in purpose.

### *Learning as Life-Wide, Life-Deep, and Life-Long...*

So, my solution is essentially Cartesian. We need to think about learning as life-wide, life-deep, and life-long. By life-wide, I mean learning for sense of self, of family, and of community. By life-deep, I mean the ability to build bridges with other communities, faiths, tribes, and values. By life-long, I mean learning the skills and attitudes for economic life.

For a religious family, life-wide learning encompasses their faith. For a future priest or Imam, the learning is vocational. For interfaith dialogue, life-deep learning is needed. Similarly, in science, for those who wish to pursue a career in science and technology, the learning is life-long. For those who wish to make sense of a society with pervasive technolo-

gies, the learning is life-wide. For those who wish to use science to tackle issues, such as global health, there is a life-deep component.

I have in mind some sort of three-dimensional baccalaureate. If you know how to do it, please tell me or, more importantly, tell the world. I can illustrate how this might help with an example from my own industry, IT. A few years ago, we celebrated the 50<sup>th</sup> birthday of the Lyons Electronic Office (LEO), a landmark in the computing industry. At a lunch we reflected on who had run the IT industry over the past 50 years. After all, there were no computer science degrees issued in the early days. We had many mathematicians, physicists, and engineers in the industry, for sure; however, when we went through the list of directors and leaders of the major companies, we were struck by the number of people who had degrees in languages.

In retrospect, it seems obvious. In the early days of the industry computer languages, such as COBOL and FORTRAN, were key drivers. A good general education and an understanding of languages turned out to be helpful. Yet, none of those people would have said, "I'm going to learn Latin or French or German to become a leader of the computer industry." as the industry wasn't there to give direction when they made their academic choices.

I want to return to the life-long learning agenda and to finish one aspect of personalized learning, which I believe gets too little airing. Work, notably by the Organization for Economic Cooperation and Development (OECD), and other international bodies, shows a return on education that increases with the number of years of schooling. It is too easy to interpret this by policy action such as raising the school-leaving age, that is, mandating that every child be in school until age x.

My problem with that prescription is that it falls into a one-size-fits-all model of education that will, over time, increase the number of disaffected students. I also think that it works against the life-long learning agenda because it reinforces the notion of school leaving.

### *Our Challenge...*

I would like to illustrate the challenge with two scenarios from my own experience.



A single mother with three daughters was dying of cancer. The eldest girl, aged 14 years, was regularly truanting from school to be with her mother. At the same time, she learned skills that allowed her to keep her sisters together when her Mom died. It seems to me that her decision to stay away from school was entirely rational. She was showing many adult qualities that we would admire; however, from a school perspective, she was spoiling an exemplary attendance record.

For over three years, a 9-year-old boy with recurrent childhood leukemia was in and out of hospital. He lost contact with his peers and fell behind in school, despite some academic support. Although advances in medicine have afforded him the chance to live a full adult life, his future grades are likely to be affected by the loss of years at school, with life-long implications.

These are difficult cases; however, when I share them with teachers, they all have at least one story about a class they teach where family breakdown, unemployment, or health conditions have had an impact on children's learning.

Rather than a fixed school-leaving age, I believe that the long-term solution is to guarantee, for example, 12 years of schooling up to the age of 25 years. Where life challenges materially, psychologically, and physically affect young people, we should offer school breaks, allowing young people to return to education when they are able, rather than label them as underachievers or failures at age 16 or 18 years. Forcing some of these children to stay in school can damage cohort learning and increase teacher stress. It isn't clear to me

that this is a win-win solution. We might even consider *lowering* the mandatory school-leaving age in exchange for a more flexible learning commitment. Teenage years are never easy. Just imagine if you could take your driving test only at 18 years of age and then, if you failed, you were stigmatized or encountered great hurdles in taking the test later.

The truth about an uncertain world is that no one can know or be taught all they need to know by 16 or 18 years or, indeed, by any age. I am, at the time of this writing, nearly 55 years old. Every day I still find that there is more to learn in my work and in my life. I suspect that this will always be the case.

I am profoundly optimistic about the young generation. Sure, it has great challenges and problems. That is life. We, as adults, have a daunting responsibility as parents and teachers. We are in this together. My belief is that openness and dialogue will help us work towards common solutions that will be more flexible in the face of the unknown.

The best we can do is to give our children the tools to solve the challenges of the future. Personally, I don't believe one deserves to be a parent or teacher if one doesn't see a child as a gift. Some may perceive this in a religious or spiritual sense; it doesn't have to be.

Only through education, I believe, can we leave a legacy for future generations to match the sacrifices of previous generations. Our future is global. Our awareness of our interdependence makes it vital that we work out what it means to live in a global village and build learning systems that are fit for the challenge.

It takes a global village to educate a child.

## References

Gibson, W. (1999, Nov. 30). The science in science fiction. Interview, *Talk of the Nation Radio Broadcast*.

## Endnotes

<sup>1</sup>This paper is based on a keynote speech delivered at the World Council for Gifted and Talented Children Conference, Warwick, United Kingdom, in August, 2007.

<sup>2</sup>CORRESPONDENCE: Chris Yapp, Patron of the National Association for Able Children in Education (NACE); Executive Technical Strategy Consultant at Capgemini, United Kingdom; e-mail: [chris.yapp@capgemini.co.uk](mailto:chris.yapp@capgemini.co.uk).



## PART 1: CURRICULAR INITIATIVES



# The Amphitheater Model: An Approach to Talent Recognition and Development<sup>1</sup>

Ken W. McCluskey<sup>2</sup>  
Donald Treffinger  
Phil Baker

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## Abstract

The Amphitheater Model for Talent Development borrows from and is built upon many earlier frameworks, including Treffinger's Levels of Service (LoS) approach, Feldhusen's Talent Identification and Development in Education (TIDE) model, and McCluskey and Walker's tri-layered representation of effective enrichment programming. Comprised of five building blocks (valued outcomes and authentic assessment, alternative learning environments, metacognitive skills, diversity and individuality, and productive thinking), five strands (competence and challenge, communication skills, engagement and exploration, teamwork and leadership, and technology for learning and doing), and six indicators of excellence (individualized basics, effective acceleration, appropriate enrichment, independence and self-direction, personal growth and social development, and careers and a futuristic outlook), this multidimensional model addresses concerns about equity, programming for marginalized students, and the provision of comprehensive differentiated instruction.

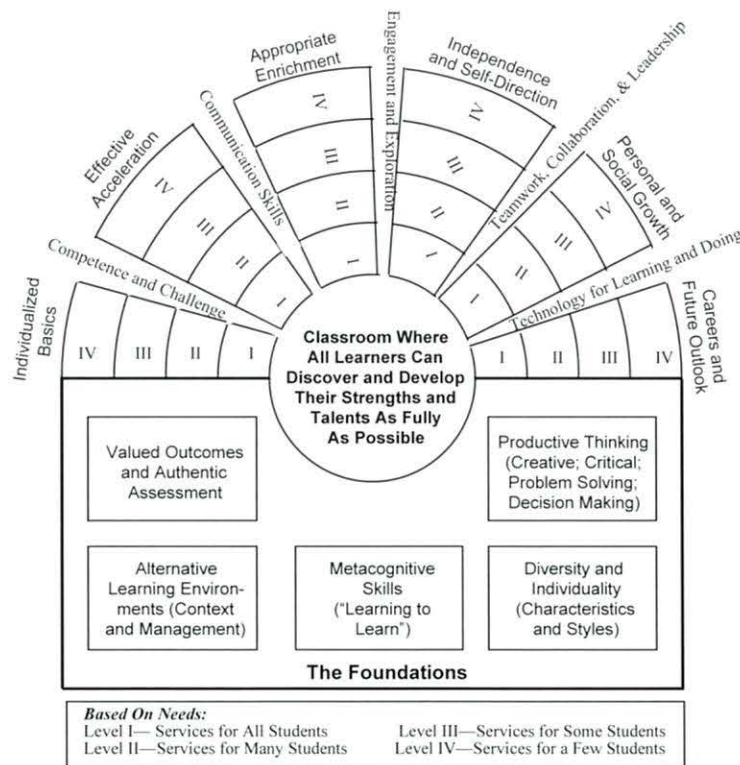
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"Gentrification" is one reason that educators, as well as most other individuals in most other professions, must quickly learn to deal effectively with change. The term itself reflects the fact that luxuries of the past—items and privileges available to only the landed gentry—have recently become part of the world taken for granted by the majority of us. It wasn't all that long ago that only the "upper classes" had running water, automobiles, and other rich comforts. In the 1940's, Gallup asked Americans if they knew what a television was; a decade or two later, society had been transformed. Certainly, most people of our acquaintance now have one (or two, or three, or more) TVs, plus refrigerators, stoves, and microwaves. As the automobile became more and more accessible, it also revolutionized American life (and teenage dating practices). During the past decade alone, look at the tre-

mendous impact that VCRs, CDs, video games, computers, and other electronic gadgetry have had on our younger generation. And now, virtual reality is upon us. To highlight the point, think back on life as it was when you were seven years of age. Then think what life is like for the seven-year-old of today. There's a vast difference; children of the 1990s are growing up in a very different world from that of their parents and grandparents.

Yet, many parents and educators still insist that the only way to solve the ills of society is to go "back to basics." Looking back in nostalgia to the good old days, they feel that what worked for them will automatically work for their children; however, the social context has changed. For good or ill, the age of the one-room schoolhouse is gone. Educators endeavoring to teach the new generation are





McCluskey, K. W., Treffinger, D. J., & Baker, P. A. (1995). Talent recognition and development: Challenges for schools of tomorrow. *Illinois Association for Gifted Children Journal Portfolio*.

Figure 1. The Amphitheatre Model

finding that the old ways do not always work. It seems that fewer and fewer students of today, bombarded from birth with stimulating, entertaining, and time-saving technology, are able to sit all day and listen attentively to old-fashioned lectures. What good is teaching the basics if no one is listening? Undoubtedly, there is a need to take a different tack and to think about moving forward to new basics.

Of course, any quest for change or educational reform must not discard important ingredients by throwing the baby out with the bath water. Many basic instructional techniques have stood the test of time precisely because they are useful; we should continue to do what works. On the other hand, to be optimally effective in this dynamic era, educators must adapt and grow. We can no longer simply do or repackage what we have always done. Further, since technology, materials, and strategies, once considered the sole province of enrichment, have gradually been incorporated into the total school program, gifted education, itself, must become part of the evolution. It can no longer be business as

usual. In the shifting, vital world of education today and, in preparation for changes in the emerging future, new models for talent recognition and development must be designed, implemented, and evaluated.

In an effort to contribute in a tangible way, we have constructed what we hope is a pragmatic, ecological model that takes into account the complexity, diversity, and strengths of our students, educators, communities, and schools. A talent development model, the multidimensional Amphitheater Model (McCluskey, Treffinger, & Baker, 1995; Treffinger, Sortore, & McCluskey, 1995), offered in Figure 1, is an attempt to consider and incorporate contemporary views of talent and its development, the interdependence among complex components, and the need for rich and varied programming options. Recognizing that, at present, there are surely more questions than answers in the field of gifted education, we are not so presumptuous as to view the framework as definitive in any sense. It is intended, rather, as a preliminary, organizational, cognitive map to help us, and others,



generate and explore testable hypotheses, identify new ways to respond effectively to current educational challenges, and to reconsider programming alternatives for talent development.

The Amphitheater Model grew out of, and is, in fact, a synthesis of the three-pronged programming model offered by McCluskey and Walker (1986), Feldhusen's TIDE (Talent Identification and Development in Education) approach (1995), and the Levels of Service and Indicators of Excellence components of an individualized approach to programming (Treffinger, 1986; Treffinger & Sortore, 1992). The circular epicenter of Figure 1 depicts what should be the major goal of educators everywhere: to create classrooms where all learners can discover and develop their strengths and talents as fully as possible.

To achieve this fundamental goal, it is essential to have a firm base upon which to build. The five building blocks or Foundations in Figure 1, described below, highlight specific areas of primary importance in education today.

**1. Valued outcomes and authentic assessment.** In too many school districts in our high-tech world, the basic educational objective has become to build the skills of as many students as possible to a certain "acceptable" level. This objective must change. Rather than trying to develop minimum competencies, should we not be striving to maximize talent development? Part of the challenge must be to identify worthwhile educational objectives for students, staff, and community and to assess outcomes in a realistic fashion. Given today's social context, learning must be authentic, meaningful, and genuine. Instead of merely emphasizing facts, memorization, and rote learning, educators must endeavor to provide students with the opportunity to apply their learning to fit the times. We must value not just the knowing, but the doing as well.

Taking this perspective has ramifications for the evaluation of learning outcomes. If the goal for students is to acquire, demonstrate, and apply knowledge, standardized testing, in and of itself, is an inadequate method for assessing growth, for tests do not necessarily measure skills, productivity, or potential (Feuerstein, 1979; Gardner, 1983; Marzano & Costa, 1988). Assessment must become more authentic and real and move from being

test-based to performance-based. When students are engaged through creative, stimulating, real-life situations and activities, assessment must emphasize longitudinal observations, the development of portfolios, and product outcomes (Slavin, 1994).

**2. Alternative learning environments.** Not all learning takes place in school, so we must be prepared, more and more, to seek and use varied contexts outside of the classroom (McCluskey & Walker, 1986). Restricting instruction to continuous, inflexible, whole-group routines is confining and frequently inhibiting to motivation and the development of talent. It is necessary to individualize: different children can be allowed to do different things at different times, at least for part of the day. Using learning centers, providing research opportunities, and encouraging some cooperative activities can turn the classroom into a "learning laboratory." Through the use of classroom displays, simulations, environmental projects, volunteers, mentors, and the like, human and material resources from the outside can, in effect, become part of the educational world taken for granted in every school. In fact, when designed appropriately, group and individual project work should extend and flourish outside the classroom and the school. It becomes a matter of managing instruction in flexible ways to meet the needs of all students.

**3. Metacognitive skills.** In this age of information explosion, students cannot rely solely on information imparted by the teacher; they must move from memorizing and regurgitating facts toward analyzing their own strengths and weaknesses, consciously monitoring their own thinking and behavior, and making decisions about their own learning. Metacognition, or "thinking about thinking" (Armbruster & Brown, 1984), allows students to reflect upon their thinking before, during, and after problem solving (Barrell, 1991).

Flavell (1987) proposed that teachers should help learners acquire three types of metacognitive understanding: "metacognitive self-knowledge" (a feeling for how they learn best); "task-metacognitive knowledge" (an awareness of the need to organize and prepare differently for different types of tests, tasks, or challenges); and "knowledge of learning strategies" (an understanding of techniques to improve organizational, study, and problem-



solving skills). Many metacognitive strategies can be taught even to young students. "Advance organizers," for example, can be used to help "prep" learners beforehand. When the lesson comes, they're ready. Other techniques, including the well-known SQ3R (Survey, Question, Read, Recite, Review) approach and variations thereof, help students learn to study more effectively (Robinson, 1972). Certainly, it is essential that young people today acquire metacognitive, "learning-to-learn" skills. If students know their strengths, they can work towards them; if they know their weaknesses, they can avoid or attempt to address them; and if they know their preferred learning style, they can structure situations and tasks to their advantage.

**4. Diversity and individuality.** Gardner (1983), Sternberg (1988), and others argue that there are many types of intelligences or talents. Even to the layperson, it is intuitively obvious that characteristics and learning styles differ from individual to individual. Since different students learn best in different ways at different times, in different settings, analyzing learning is not a simple matter, by any means. A number of instruments have been constructed in an attempt to describe personal styles. Perhaps the best known of these are the Learning Styles Inventory (Dunn, Dunn, & Price, 1978; Dunn, Dunn, & Treffinger, 1992), the Kirton Adaption-Innovation Inventory (Kirton, 1976), and the Myers-Briggs Type Indicator (Myers & McCaulley, 1985).

Since some children clearly learn differently than other children, diversity is an asset in the classroom. To put it another way, varying the class activities increases the chance that all children will have their needs met. When students become aware of their own idiosyncrasies, preferences, and styles, they can adjust, adapt, and learn more effectively. Several educators have, in fact, offered some intriguing and practical suggestions for using individual learning styles and visual, auditory, and kinesthetic activities to reach more and more students (Barbe & Petreshene, 1981; Consilia, 1978; Dunn & Dunn, 1978, 1992, 1993). Others, picking up on Gardner's lead, have designed a variety of curriculum packages in a specific attempt to teach to individual (verbal-linguistic, mathematical, kinesthetic, visual-spatial, musical, interpersonal, intrapersonal) and multiple intelligences (Campbell, Campbell, & Dickinson, 1996).

**5. Productive thinking.** If students are truly to learn to think critically and creatively, solve problems, and make their own decisions, teachers must shift from merely presenting traditional lessons to emphasizing problem solving in everyday situations. At a broader level, it might be argued that schools themselves must be redesigned and improved so that they can do a better job of developing the talents of all students (Renzulli, 1994). Making a conscious effort to address the four general domains outlined in Feldhusen's (1995) TIDE Model (academic-intellectual, artistic, vocational-technical, and interpersonal-social) is a good place to start.

Creative Problem Solving (Treffinger, Isaksen, & Dorval, 1994; Isaksen, Dorval, & Treffinger, 1994) is one mechanism that can facilitate the process of challenging students, focusing on problem solving, and teaching for talent development. With the Creative Learning Model, teachers use direct instruction to help students learn and use basic thinking tools. In addition, by employing a facilitative, guided approach, students also learn and practice Creative Problem Solving methods in safe, structured situations. Teachers can also serve as facilitators for students' efforts to deal systematically and effectively with real problems and challenges.

From these building blocks, five strands, presented in Figure 1, emerge. The strands, described below, are the connecting components between the foundations of education and the indicators of excellence or outcomes in the model and focus on the development of learning behaviors and skills.

**1. Competence and challenge.** The essence of programming for enrichment is to challenge students by going beyond basic memory tasks. Although the term "higher-order thinking skills" has perhaps been overused, it is an excellent way to describe how teachers can help students acquire a rich information base, set challenging expectations, apply the personal and group strategies required for competence, and assess outcomes and productivity. By aiming for the higher levels of Bloom's Taxonomy of Educational Objectives, teachers can encourage and guide students to analyze, synthesize, and integrate material and to seek original combinations by using information, drawing from it, and applying it to new situations (Bloom, Englehart, Furst, Hill, &



Krathwohl, 1956). The "expert" literature considers the differences in style and approach between expert and novice problem solvers (Good & Brophy, 1990). This research indicates that experts are inclined to take a broader, more generic view in perceptual organization (as opposed to restricting themselves to specific, narrow elements or issues), to rely on chunking strategies, and to group information by virtue of general principles (rather than sorting by category); however, it has also been found that methods, strategies, and tools for expert problem solving are decidedly teachable. Educators, then, can learn how and when to use specific methods and tools with specific students to maximize learning and higher-order thinking (Fogarty, Wang, & Creek, 1983; Leinhardt & Greeno, 1986; Peterson & Comeaux, 1987; Treffinger, Cross, Feldhusen, Isaksen, Remle, & Sortore, 1993).

**2. Communication skills.** Another goal for teachers is to help students express themselves, their ideas, their questions, and their concerns in many forms and through various media. Effective communicators listen, speak, read, write, and use several tools for personal expression. By exploring creative and critical thinking, pre-writing, and reading strategies (including questioning, webbing, clustering, anticipating, and brainstorming), students can take more control of their own learning. By integrating and connecting information among subject areas, teachers and students can foster intellectual growth in an enriching, challenging climate (Baker, McCluskey, Large, Gemmell, Sadowy, Wood, & Bevis, 1989; Brownlie, Close, & Wingren, 1988).

**3. Engagement and exploration.** If we, as educators, are to take advantage of the natural curiosity of our students, we must allow them a voice. They must have input and, to some degree, their work should be based on their own interests. Student interests can be assessed through interest inventories, brainstorming, or good old-fashioned conversation. By definition, if schoolwork and assignments are tied to their interests, students have a personal investment in the goals, processes, and outcomes. Not surprisingly, effective learning is more likely to take place if students are driven by internal factors, such as enjoyment or satisfaction (Dembo, 1991). Curiosity, risk-taking, and exploration are sources of intrinsic motivation, but all three require the

freedom to make mistakes. Therefore, teachers must be adaptable enough to create safe, supportive environments, where students can explore without fear and have opportunities for self-directed learning and discovery (McCluskey & Walker, 1986; Treffinger, 1975). Flexible teachers who encourage students to examine and evaluate issues with real-life outcomes and consequences can instill in them an intensity and lifelong love of learning.

**4. Teamwork, collaboration, and leadership.** While students must be able to work independently, there is also a need for teamwork. Learning and growth do not take place in isolation; in an enriched educational setting, students develop and share their personal strengths and learn to interact and collaborate effectively. The cooperative learning literature (e.g., Johnson, Johnson & Holubec, 1986) provides suggestions for helping students to learn to work in pairs, small teams, and large groups. In devising a model for management in the business world, Deming (1986) stressed the importance of collaboration, breaking down communication barriers, and involving all staff in product and organizational development and improvement. Some of these ideas can be useful in our schools as well. Also, since it is now recognized that effective leadership is, in large part, situational (and can involve different people with different styles in different times and settings), all students should be encouraged to develop their leadership skills.

**5. Using technology for learning and doing.** In this age of the computer, education is not complete unless students learn to understand and apply many kinds of technology. Using computers and interactive video as instructional tools is a valuable way of reaching and motivating students; however, the computer should also be employed as an expressive tool. We want students to be technologically literate—to become comfortable using modems, reading spread sheets, understanding data bases, and employing graphics, word processing, and desktop publishing programs to create polished, finished products. In other words, aside from direct teaching, we also must strive to help students learn to apply technology in their own work and projects.

The next component of our Amphitheater Model describes four necessary Levels of



Service for Effective Programming (Treffinger, 1986; Treffinger & Sortore, 1992). At Level I, the emphasis is on expanding learning opportunities for all students, in part, by integrating all levels of Bloom's *Taxonomy* and creative and critical thinking strategies into the regular instructional package. At Level II, there is a shift toward extending experiences for students beyond basic exploration. Although not every student will be engaged here, virtually any student might become involved in Level II activities: participation is usually voluntary and interest-based. At this level, students have a chance to participate in programs such as *Odyssey of the Mind*, *Future Problem Solving*, *Junior Great Books*, or invention conventions. A fundamental requirement of Levels I and II activities is that they be broad-based and highly inclusive.

Once educators reach Levels III and IV, there is greater emphasis on the individual needs and characteristics of students. Participation at these levels is based less on voluntary self-selection and more on diagnostic planning. At Level III, the focus is on extending work to provide an appropriate challenge for students who exhibit interest, "stick-to-itiveness," and ability. Level III programming might include follow-up seminars with guest speakers, or multi-session modules on specific themes. At Level IV, individually designed services are put in place to meet the idiosyncratic needs of talented students. Activities here are carefully developed and laid out only after careful consideration of relevant data and planning meetings with the students or parents (or both), staff, and mentors. Level IV services might include encouraging students to take higher-level high school or college courses, dual enrollment in programs, within-grade advancement, or subject or grade acceleration.

The final dimension illustrated in Figure 1 involves six Indicators of Excellence in programming (Treffinger, 1986; Treffinger & Sortore, 1992). Each of these indicators, as described below, is integral to meeting the diverse needs of learners.

**1. Individualized basics.** Instructional and curricular decisions are based on students' prior achievement and experience, personal characteristics, and learning styles.

**2. Effective acceleration.** In any subject area, there should be opportunities for flexible

grouping and continuous progress. That is, instead of being locked into a rigid pass-one-grade-get-to-go-to-another system, students should be able to move through curriculum at a pace commensurate with their ability and accomplishments. The popular let-children-be-children wisdom notwithstanding, longitudinal studies consistently show that allowing talented children into school early can be extremely beneficial for academic, intellectual, social, and emotional growth (cf. McCluskey, Baker, & Massey, 1996; McCluskey, Massey, & Baker, 1997).

**3. Appropriate enrichment.** In an enriched setting, students are able, independently or in small groups, to pursue their own interests, to learn and apply problem-solving strategies, to develop metacognitive skills, and to identify and delve into real-life issues.

**4. Independence and self-direction.** Students require enriching experiences to become independent learners who can set challenging, yet realistic goals, identify resources, plan for action, complete tasks, evaluate ideas and products, and share information with others.

**5. Personal growth and social development.** The learning environment and curriculum should be structured to foster high levels of self-esteem and confidence among students. As well, young people must learn to recognize and respect the strengths and needs of others.

**6. Careers and a Futuristic Orientation.** Career exploration is a critically important, yet often neglected, piece of the enrichment puzzle. In today's world, the job situation is shifting rapidly. Career opportunities are suddenly opening up in some areas and, just as quickly, shutting down in others. As a consequence, students must learn to adjust to the changing conditions and expectations, to explore various career options, to cope with the new realities, and to become malleable, life-long learners. They must also acquire a vision, for, as Socrates' noted, "If one does not know to which port one is sailing, no wind is favorable." Indeed, by giving students a sense of purpose and direction, it is possible to reclaim and refocus even at-risk individuals (McCluskey, Baker, O'Hagan, & Treffinger, 1995). One part of the process should be for educators to guide students in developing Individual Growth Plans, outlining learning



styles, past experience, school and outside interests, as well as personal goals and the practical steps necessary to achieve them (Feldhusen, 1995).

### *Time and Attitude*

It would be naive to suggest that implementing all, or even portions of such a model will be easy. Given the state of education today, it will, assuredly, be terribly difficult. A major downside of today's educational climate is the often ill-conceived slash-and-cut approach and, when times get tough, enrichment programs are often the first to go. The cuts affect not only the people who are downsized, but also the ones remaining who have to deal with an ever-increasing workload. Many teachers today find themselves caught in the rising-expectations, diminishing-resources dilemma.

To put it another way, many teachers simply do not have time enough to do the things they want and know how to do. Everyone needs time: it is tied to job satisfaction, efficiency, and even altruism. A social psychology experiment conducted at Princeton Theological Seminary underscores this point (Darley & Batson, 1973). As part of the study, a number of students were directed to walk from one building on campus to an adjacent recording studio to give an off-the-cuff, extemporaneous talk on the Good Samaritan parable (not a particularly onerous task for individuals taking religious studies). For those in the first treatment group, things went smoothly; the students knew they had plenty of time to make it to their presentation in a leisurely manner. En route, they encountered a man collapsed in a doorway, coughing and groaning. Of these unhurried students, almost two-thirds stopped and offered to help the "victim." Students in the second condition, however, were told that they were late, so they had to rush to the studio. The result was that they dashed off, in harassed fashion, in an attempt to reach their session on time. In this instance, very few people (only 10%) stopped to ask if they could help. Indeed, many of them walked around the victim; some even stepped over him! As others have noted (Myers, 1983), this is one of the most ironical moments ever captured in social psychological research. Imagine students of religion, mentally rehearsing their forthcoming speech on the Good Samaritan, ignoring a victim lying at their feet! Extrapolating, it is also easy to imagine overwhelmed,

beleaguered teachers being less sensitive than usual when faced with increased demands, large class sizes, and insufficient time to do the job at hand.

Be that as it may, there is *still* a great need for educators, whatever the pressures, to take a positive attitude and feature programming for enrichment and talent development. Although acquiring the necessary pedagogical tools is critically important, effective enrichment depends, in large part, on the personality and attitude of the teacher. Educators must be positive, enthusiastic, and committed to challenging and bringing out the talents of all their students.

A classic educational, social-psychological investigation, *Pygmalion in the Classroom*, points to the importance of attitude (Rosenthal & Jacobson, 1968). In this study, Rosenthal assessed a number of elementary school children and "identified" several so-called "late bloomers" who, although they had shown no special talents to that point, were supposedly about to blossom momentarily. In other words, teachers were informed that the testing had indicated that the hidden potential of a select number of these incipiently gifted students was about to burst forth and be fulfilled. But, as social psychologists are wont to do, Rosenthal had practiced a deception and misled the teachers. In reality, the students in question had shown nothing special during testing; they simply had been picked at random. Yet, when Rosenthal returned to the school at a later date, he found that the IQs of these randomly selected late bloomers had actually risen. Through self-fulfilling prophecy, the teachers found what they expected.

Now, it would not do to take the result purely at face value. Later research has suggested that the self-fulfilling prophecy effect may not be as powerful as Rosenthal first implied (Elashoff & Snow, 1971). To some extent, he may have been a victim of his own self-fulfilling expectations. Nonetheless, in virtually all fields of human endeavor, there is no denying that attitude matters very much. In the *Pygmalion* study, since teachers expected more of the late bloomers, they, unintentionally, gave them more attention (extra looks of encouragement, extra reinforcement, extra challenge, and extra time to respond). The implications for enrichment programming are obvious: educators must strive to identify the



strengths and talents in all their students and focus on many areas now considered extras. And we must continue to search for and respond to the talents of all students, even in difficult times.

### Summation

For gifted education to remain static in this rapidly evolving era would be a prescription for self-destruction. In the past, the field has traditionally relied on narrow, categorical identification and selective differentiation that failed to address and nurture specific talents and needs. That approach is now insufficient. To survive in a meaningful way, gifted education must broaden its scope and begin to in-

terface with the new social and technological context. If we begin to build a new paradigm which emphasizes recognizing and responding to many talents of many students, the "fit" with other aspects of education will become smooth and seamless. As shown by the six programming areas and Levels I - IV in the Amphitheatre Model, recognizing the talents of and providing appropriate instructional services for many students does not, in any way, mean that enrichment will be diluted or that the stars will be neglected. On the contrary, it summarizes how educators, today, can address the enrichment needs and development of talent in more and more of our students.

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### References

- Armbruster, B. B., & Brown, A. L. (1984). Learning from reading: The role of metacognition. In R. C. Anderson, J. Osborn, & R. J. Tierney (Eds.), *Learning to read in American schools* (pp. 273-281). Hillsdale, NJ: Erlbaum.
- Baker, P. A., McCluskey, K. W., Large, L., Gemmell, J., Sadowy, P., Wood, E., & Bevis, J. (1989). *Challenge: Sourcebook for gifted education*. Winnipeg, MB: Manitoba Education and Training.
- Barbe, W. B., & Petreshene, S. S. (1981). *Teaching reading skills: Visual, auditory, and kinesthetic activities*. Columbus, OH: Zaner-Bloser.
- Barrell, J. (1991). *Teaching for thoughtfulness*. New York: Longman.
- Bloom, B. S., Englehart, M. B., Furst, E. J., Hill, W. H., & Krathwohl, O. R. (1956). *Taxonomy of educational objectives: The classification of educational goals. Handbook I: Cognitive domain*. New York: Longman.
- Brownlie, F., Close, S., & Wingren, L. (1988). *Reaching for higher thought: Reading, writing, thinking strategies*. Edmonton, AB: Arnold.
- Campbell, L., Campbell, B., & Dickinson, D. (1996). *Teaching and learning through multiple intelligences*. Needham Heights, MA: Allyn & Bacon.
- Consilia, M. (1978). *The non-coping child: A handbook for the teacher of the failing child*. Novato, CA: Academic Therapy.
- Darley, J. M., & Batson, C. D. (1973). From Jerusalem to Jericho: A study of situational and dispositional variables in helping behavior. *Journal of Personality and Social Psychology*, 27, 100-108.
- Dembo, M. H. (1991). *Applying educational psychology in the regular classroom*. White Plains, NY: Longman.
- Deming, W. E. (1986). *Out of the crisis*. Cambridge, MA: Massachusetts Institute of Technology.
- Dunn, R., & Dunn, K. (1978). *Teaching students through their individual learning styles: A practical approach*. Reston, VA: Reston.
- Dunn, R., & Dunn, K. (1992). *Teaching elementary students through their individual learning styles*. Boston, MA: Allyn & Bacon.
- Dunn, R., & Dunn, K. (1993). *Teaching secondary students through their individual learning styles*. Boston, MA: Allyn & Bacon.
- Dunn, R., Dunn, K., & Price, G. (1978). *Learning Styles Inventory*. Lawrence, KS: Price Learning Systems.
- Dunn, R., Dunn, K., & Treffinger, D. J. (1992). *Bringing out the giftedness in your child*. New York: Wiley.
- Elashoff, J., & Snow, R. E. (1971). *Pygmalion reconsidered*. Worthington, OH: Jones.
- Feldhusen, J. F. (1995). *Talent identification and development in education (TIDE)* (2nd ed.). Sarasota, FL: Center for Creative Learning.
- Feuerstein, R. (1979). *The dynamic assessment of retarded performers: The Learning Potential Assessment Device, theory, instruments, and techniques*. Baltimore, MD: University Park Press.
- Flavell, J. H. (1987). Speculations about the nature and development of metacognition. In F. E. Weinert & R. H. Klawe (Eds.), *Metacognition, motivation and understanding* (pp. 21-30). Hillsdale, NJ: Erlbaum.
- Fogarty, J., Wang, M., & Creek, R. (1983). A descriptive study of experienced and novice teachers' interactive instructional thoughts and actions. *Journal of Educational Research*, 77, 23-32.
- Gardner, H. (1983). *Frames of mind: The theory of multiple intelligences*. New York: Basic Books.
- Good, T. L., & Brophy, J. E. (1990). *Educational psychology: A realistic approach*. White Plains, NY: Longman.
- Isaksen, S. G., Dorval, K. B., & Treffinger, D. J. (1994). *Creative approaches to problem solving*. Dubuque, IA: Kendall/Hunt.
- Johnson D. W., Johnson, R. T., & Holubec, E. J. (1986). *Circles of learning: Cooperation in the classroom*. Edina, MN: Interaction Book.
- Kirton, M. J. (1976). Adaptors and innovators: A description and measure. *Journal of Applied Psychology*, 61, 622-629.
- Leinhardt, G., & Greeno, J. (1986). The cognitive skill of teaching. *Journal of Educational Psychology*, 78, 75-95.
- Marzano, R. J., & Costa, A. L. (1988). Question: Do standardized tests measure general cognitive skills? Answer: No. *Educational Leadership*, 45 (8), 66-73.
- McCluskey, K. W., Baker, P. A., & Massey, K. J. (1996). A twenty-four year longitudinal look at early entrance to kindergarten. *Gifted and Talented International*,

- 11(2), 72-75.
- McCluskey, K. W., Baker, P. A., O'Hagan, S. C., & Treffinger, D. J. (Eds.). (1995). *Lost Prizes: Talent development and problem solving with at-risk students*. Sarasota, FL: Center for Creative Learning.
- McCluskey, K. W., Massey, K. J., & Baker, P. A. (1997). Early entrance to kindergarten: An alternative to consider. *Gifted and Talented International*, 12 (1), 27-30.
- McCluskey, K. W., Treffinger, D. J., & Baker, P. A. (1995). Talent recognition and development: Challenges for schools of tomorrow. *Illinois Association for Gifted Children Journal Portfolio*, Article 10, 1-5.
- McCluskey, K. W., & Walker, K. D. (1986). *The doubtful gift: Strategies for educating gifted children in the regular classroom*. Kingston, ON: Frye.
- Myers, D. G. (1983). *Social psychology*. New York: McGraw-Hill.
- Myers, I. B., & McCaulley, M. (1985). *Manual for the Myers-Briggs Type Indicator*. Palo Alto, CA: Consulting Psychologists Press.
- Peterson, P., & Comeaux, M. (1987). Teachers' schemata for classroom events: The mental scaffolding of teachers' thinking during classroom instruction. *Teaching and Teacher Education*, 3, 319-331.
- Renzulli, J. S. (1994). *Schools for talent development: A practical plan for total school improvement*. Mansfield Center, CT: Creative Learning Press.
- Robinson, F. (1972). *Effective study*. New York: Macmillan.
- Rosenthal, R., & Jacobson, L. (1968). *Pygmalion in the classroom*. New York: Holt, Rinehart and Winston.
- Slavin, R. E. (1994). *Educational psychology: Theory and practice* (4th ed.). Boston, MA: Allyn & Bacon.
- Sternberg, R. J. (1988). *The triarchic mind: A new theory of human intelligence*. New York: Penguin.
- Treffinger, D. J. (1975). Teaching for self-directed learning: A priority for the gifted and talented. *Gifted Child Quarterly*, 19, 46-59.
- Treffinger, D. J. (1986). *Blending gifted education with the total school program*. Buffalo, NY: DOK.
- Treffinger, D. J., Cross, Jr., J. A., Feldhusen, J. F., Isaksen, S. G., Remle, R. C., & Sortore, M. R. (1993). *Handbook of productive thinking: Vol. 1: Rationale, criteria, and reviews*. Sarasota, FL: Center for Creative Learning.
- Treffinger, D. J., Isaksen, S. G., & Dorval, K. B. (1994). *Creative problem solving: An introduction* (2nd ed.). Sarasota, FL: Center for Creative Learning.
- Treffinger, D. J., & Sortore, M. R. (1992). *Programming for giftedness vol. 1: A contemporary view*. Sarasota, FL: Center for Creative Learning.
- Treffinger, D. J., Sortore, M. R., & McCluskey, K. W. (1995). *Giftedness and talent development: Programming guidelines*. Selkirk, MB: Lord Selkirk School Division #11.

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## Endnotes

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<sup>2</sup>CORRESPONDENCE: Ken W. McCluskey, Dean, Faculty of Education, 515 Portage Ave., Winnipeg, MB, Canada, R3B 2E9; e-mail: k.mccluskey@uwinnipeg.ca.





# The Neurobiology of Giftedness

John G. Geake<sup>1</sup>

## Abstract

Data from over a decade of neuroimaging studies suggest that the neurobiology of giftedness is characterized by high-level prefrontal cortical functioning within a bilateral fronto-parietal network (Haier et al., 2004; O'Boyle et al., 2005; Geake, 2007a). This network enables effective inter-modular information processing which supports a suite of high-level neuro-cognitive abilities, including enhanced executive capability, and a more efficacious working memory (Geake, 2007b; 2006b; Geake & Hansen, 2005; 2006). These precociously developed neurobiological functions combine to support the emergence of intelligence (Geake & Dodson, 2005) as a central characteristic of general giftedness, along with rapid information processing, heightened cognitive control, and a desire for top-down perspectives.

Since "The Decade of the Brain" was declared by an American Act of Congress in 1990, a diverse body of literature has emerged that offers more brain-based explanations of the concept of giftedness. The following neural-level characteristics of giftedness are generally accepted (Geake, 2007a):

1. Gifted children are precocious in their intellectual development, evidenced by IQ scores several standard deviations above the normal chronological average (Gross, 2004).
2. Gifted children exhibit superior cognitive control characteristics, including focused attention (Geake, 1996), evaluative selection (Geake, 1997), and delayed closure (Vigneau, Caissie & Bors, 2006).
3. Gifted children demonstrate rapid information processing (O'Boyle, Benbow & Alexander, 1995; O'Boyle, 2000; Singh & O'Boyle, 2004), typically requiring much less repetition for learning, although sometimes, paradoxically, being slower at lower-level classroom answers, presumably due to interpreting the question at a higher level than was intended and, thus, processing too much information (Gross, 2004).
4. Gifted children seek top-down understanding (Clark, 1997). Satisfying their seemingly endless thirst for knowledge could become overwhelming were it not for a concomitant drive to conceptualize with big-picture per-

spectives and with abstract higher-order categorizations (Geake, Cameron, Clements & Phillipson, 1996). Such cognitive mapping is supported by comparatively larger working memory capacities (Geake, 1999; 2006b).

5. Gifted children are highly creative, making original inter-subject connections with relative ease (Kanevsky & Geake, 2005; Geake & Dodson, 2005), aided by predilections for abstract symbolic manipulation (Geake, 2006a) and for effortless comprehension of sub-text (Bacon, Geake, Lea-Wood, McAllister & Watt, 1991).

To account for such a suite of behaviors that characterize giftedness, one can presumably attribute these "... physiological differences that affect neural efficiency." (Geake, 1997, p. 28) Evidence for the neural bases of each of these five behaviors is provided below (Geake, 2007a).

### *1. Gifted children are precocious in their intellectual development.*

Above-age testing has been one successful approach to assess more accurately the academic and intellectual abilities of gifted children whose scores on age-normed standardized tests are at or near the ceiling (Gross, 2004). The assumption behind above-age testing is that gifted children are more



similar (at least cognitively) to older children than to their same-age peers. This assumption is not unfounded. In an electroencephalographic (EEG) study comparing the resting alpha power of 30 gifted adolescents from the Iowa Study of Mathematically Precocious Youth with 30 age-matched peers and 30 college students, Alexander, O'Boyle and Benbow (1996) found that, while there were differences in alpha band power over the temporal and parietal lobes, "...there were no differences in alpha power at the frontal and occipital lobe locations between gifted adolescents and college-age subjects, suggesting that the two groups have a similar level of brain maturation for these regions." (p. 30) In other words, the frontal lobes of the young gifted subjects seemed to be operating with the equivalent maturity of students some five years older, already in university. This interpretation raises a question: To what extent is such cognitive precocity the outcome of precocious neural development? Are the brains of gifted children structurally more like the brains of older children than those of same-age peers?

Evidence to address this question was provided by a six-year longitudinal magnetic resonance imaging (MRI) study of intellectual ability and cortical development in 300 children and adolescents (Shaw et al., 2006). MRI data consisted of structural images of brain tissue, both white and grey matter. These data showed that the trajectory of change in the thickness of the cerebral cortex (the outer layer of grey matter most implicated in intellectual functioning) rather than cortical thickness, per se, was most closely related to the children's levels of intelligence. In particular, the cortices of the high-IQ group were thinner when these children were young, but grew so rapidly that by the time the gifted children were adolescents, their cerebral cortices were significantly thicker than average, especially the prefrontal cortex. In sum, the neuroanatomical development of intelligence is dynamic.

The conclusion of Shaw et al. (2006), in turn, raises questions of causative contributions (beyond the remit of their study), such as genetic endowment, on the one hand, and socioeconomic and educational environments on the other. To this end, over a decade earlier, O'Boyle and Benbow (1990) speculated that one source of such precocious neural devel-

opment was differential prenatal exposure to testosterone, one of several neurotoxic hormones that mediate epigenetic brain organization.

## *2. Gifted children exhibit superior cognitive control characteristics.*

Whereas executive functioning (cognitive control) involves a suite of interacting aspects of working memory, including top-down attention, delayed closure, and task evaluation and updating (Baddeley & Sala, 1998), data from a range of neuroimaging studies of the neural correlates of various aspects of executive functioning have consistently converged on bilateral activations of the prefrontal cortex (PFC) (see, e.g., Koechlin et al., 1999; Christoff et al., 2001; Parsons & Osherson, 2001; Strange et al., 2001; Kroger et al., 2002). The two neurobiological questions that follow are whether differences in measures of intelligence correlate with differences in PFC activation, and whether differences in measures of intelligence correlate with differences in structural features of the PFC.

Evidence to address the first question comes from a positron emission tomography (PET) study, measuring neural glucose metabolism. This study by Duncan and colleagues contrasted neural activations in response to high g-loaded (i.e., difficult) IQ test items with those in response to low g-loaded (i.e., easier) IQ test items (Duncan et al., 2000). Thinking about difficult IQ test items, whether spatial or verbal, involved the bilateral PFC. Consistent results were found by Lee et al. (2006) in a functional magnetic resonance (fMRI) study which compared gifted and age-matched adolescents on high g- and low g-loaded IQ test items by measuring experimentally induced changes in neural vasculature—the BOLD (blood-oxygen-level-dependent) response. In the gifted group, high g-loaded tasks increased activity in bilateral PFC regions. In a series of fMRI studies of fluid analogizing (the ability to draw, with ease, comparisons between seemingly dissimilar elements), described more fully below, Geake and Hansen found positive linear correlations between BOLD changes while adolescents engaged in analogizing using measures of high verbal IQ (National Adult Reading Test, NART) in the left lateral PFC (Geake & Hansen, 2005) and using measures of high spatial IQ (Raven's



Advanced Progressive Matrices RAPM) in the right lateral PFC (Geake & Hansen, 2006).

Evidence with which to address the second question about whether differences in IQ correlate with differences in the neural structure of the PFC comes from a voxel-based morphometry (VBM) study of brain cell density which uses MRI data to measure quantitative individual differences in grey and white matter. Haier et al. (2004) found that most of the 6% of the brain's grey matter which correlated with IQ was found in the PFC.

In summary, gifted individuals have relatively enhanced structural and, hence, functional neurobiology in the PFC regions that are responsible for cognitive control, and working memory.

### *3. Gifted children demonstrate rapid information processing.*

The foregoing focus on the PFC, however, does not imply that the frontal cortex is the exclusive brain region involved in supporting giftedness. Rather, high intelligence is supported by a fronto-parietal network (Gray, Chabris & Braver, 2003; Gray & Thompson, 2004). The reason for that is that the cognitive control afforded by frontal functioning requires persistent activation of relevant inputs from other brain areas to maintain task commitment (Duncan, 2001).

That such neural support is more extensive and focused for gifted individuals is, presumably, a manifestation of greater working memory efficacy (Rypma et al., 1999). Evidence for the effective employment of a fronto-parietal network in gifted individuals is provided by two studies. Zhang et al. (2006), in an EEG study of the information processing involved during a visual search task by gifted and average school children in China, explained their results by suggesting that the gifted children had better spatially and temporally coordinated neural networks. Lee et al. (2006), in an fMRI study in Korea, found that gifted primary and secondary school children displayed stronger activations in their posterior parietal cortices, the regions involved in forming conceptual inter-relationships, especially of a quasi-spatial representation (Luria, 1973). Lee et al. concluded that "... superior may not be due to the recruitment of additional brain regions but [due] to the functional facilitation of the fronto-parietal network par-

ticularly driven by the posterior parietal activation." (p. 578)

An fMRI study by O'Boyle et al. (2005) of mathematically gifted male adolescents engaged in mental rotation also showed bilateral activation of the parietal lobes and frontal cortex. O'Boyle et al. suggested that "... the parietal lobes ... and] frontal cortex ... are critical parts of an all-purpose information processing network, one that is relied upon by individuals who are intellectually gifted, irrespective of the nature of their exceptional abilities." (p. 586)

Importantly, enhanced bilaterality seems to be a characteristic neurobiological feature of information processing by gifted individuals (Singh & O'Boyle, 2004), as a number of psychophysical experiments has shown (O'Boyle, Benbow & Alexander, 1995). More recently, it has been suggested that the cerebellum plays an important rehearsal role in information processing. Consequently, heightened cerebellar functioning is another neurobiological characteristic of giftedness (Vandervort & Liu, 2007).

The combined effect of these neurobiological features for processing information creates a temporary, dominant, active state of concern towards a particular problem, increasingly recruiting overlapping regions of the frontal cortex as problem engagement continues (Duncan, 2001). By this account, it is clear why enhanced working memory capacity, as supported by efficacious frontal functioning and structure, is a hallmark of intellectual giftedness. It enables gifted people to achieve superior measures in IQ tests, as well as high levels of creative intelligence through task adaptation and selectivity. This is described more fully below (Geake & Dodson, 2005).

### *4. Gifted children seek top-down understanding.*

In describing giftedness at a neurobiological level, it is also important to consider differences in how information is perceived and utilized by gifted individuals. To this end, musical prodigies provide researchers with an informative group of gifted and talented children to study. In an information-processing study of musical coherence in young "Mozarts," Geake (1996) found that cognitive control processing (the young musicians' ability to comprehend and execute the music making



with complete concentration) was most important for outstanding musical ability. He conjectured that "... or gifted young musicians, it is their superior use of executive or metacognitive strategies [mediated by the frontal cortex], such as inward-directed attention, that contributes most towards their remarkable abilities." (p. 41)

The point of measuring musical coherence as a critical aspect of musical information processing was that making sense of music requires a top-down perspective: what is being heard in the present instant must be compared with what was heard just prior and with what was heard before that, and so on over longer time periods, back to the beginning of the piece. Whereas compositional structure, such as hierarchical temporal organization of the music, can assist musical information processing (Geake & Gregson, 1999), it was individual differences in their predilection for making top-down musical sense through processing musical coherence, aided by their enhanced working memory capacities for processing such musical information (Geake, 1999), that enabled these modern-day Mozarts to achieve mature levels of performance of the standard repertoire and engage in hours of highly motivated and efficient practice (Geake, 1996).

The quest for top-down understanding is also evident among young mathematically gifted children. In an information processing study which operationalized Vygotsky's Zone of Proximal Development (ZPD) in elementary-school children undertaking mathematical pattern problems, Kanevsky and Geake (2005) found that the gifted children sought top-down, meta-level hints and suggestions from their teacher rather than item-specific suggestions which were preferred by their peers. Similar to the musical prodigies studied by Geake, the mathematically gifted children also had higher measures of cognitive control, as described by Vygotsky's colleague Luria (1973).

##### *5. Gifted children are highly creative.*

The neurobiological characteristics of giftedness which support high levels of executive functioning and working memory—evidenced by efficacious PFC functioning and enhanced bilaterality of an extended cortical network—afford benefits to gifted individuals through "...

... finely tuned capacity for activating (or inhibiting) the very brain regions known to play (or not play) specialized roles in the performance of a given task ... That is, precocious individuals are especially facile at knowing [sic] what steps to take in solving a given intellectual problem." (Baddeley & Sala, 1998, p. 438) In other words, efficacious executive cognitive control involves attentional focus (or selective inhibition), albeit mostly unconsciously. These neurobiological and related cognitive characteristics have been combined in a neuropsychological model of high creative intelligence (Geake & Dodson, 2005). This model of creative intelligence features fluid analogizing, analogies with several plausible, but not necessarily correct, solutions as the vehicle by which dynamic information processing occurs in the brain (Hofstadter, 1995; 2001).

Fluid analogizing enables the generation of possible relationships between new information and selected items from one's long-term memory store. Consequently, it has been argued (in much greater detail than is possible here) that a keen facility for fluid analogizing is a cognitive hallmark of giftedness (Geake, 2007b). Geake and Dodson's model indicates how creative solutions or ideas are selected from a variety of possible options using both personal and social criteria, which, in turn, provide for further creative thinking. The model draws on an earlier neural Darwinian description of giftedness (Geake, 1997) in which gifted individuals in search of a creative solution to a problem generate greater possibilities, employ more innovative selection criteria for solutions, and store the possible outcomes more efficiently in long-term memory. Moreover, Geake and Dodson (2005) suggest, gifted individuals delay closure on creative-thinking tasks to accommodate the more extensive information processing that they typically employ. In this way, they prevent discarding outlier thoughts too early. There is both behavioral (Carson, Peterson & Higgins, 2003) and psychophysical (Vigneau, Caissie & Bors, 2006) evidence for this suggestion.

As in the case of information processing, there is also neuroimaging evidence for the primary role of fluid analogizing in creative cognition. Geake and Hansen (2005, 2006, in progress) used fMRI to study the neural activity of above-average IQ subjects to assess the fluid analogy of strings of symbols (Hofstadter,



1995). Consistent with previous neuroimaging studies of the neural correlates of higher-level reasoning (Prabhakaran et al., 1997; Wharton et al., 2000; Luo et al., 2003), activations were found in a bilateral fronto-parietal network. As noted above, Geake and Hansen (2005), using the National Adult Reading Test, also found two areas of the left PFC where neural activity during fluid analogizing correlated with verbal IQ as determined by an individual's knowledge of irregular words. In other words, IQ as determined by a measure of crystallized intelligence (accumulated knowledge), predicted neural activation in those regions where working memory was engaged in a fluid or creative analogy task. A wider knowledge base, it seems, can support a greater facility for fluid thinking, at least in high-IQ subjects.

More recently, Geake and Hansen (2006) demonstrated that fluid analogical thinking across different fluid analogy types utilizes the same fronto-parietal network, which is further evidence for fluid analogizing being a core cognitive process. Using the Ravens Advanced Progressive Matrices, Geake and Hansen (in progress) found an area of the right frontal cortex where neural activity during fluid analogizing across different types correlated with IQ as determined by high-level spatial reasoning. This pair of correlates between verbal and spatial measures of IQ and lateralized PFC suggests that a gifted person's success at specific intellectually demanding tasks is significantly determined by how well his or her brain enables fluid analogizing as a fundamental cognitive process.

Certainly, a proficiency at fluid analogical reasoning and its application to creative thinking, analyzing sub-text, decoding symbolic relationships, and so on, could explain giftedness in a number of academic areas, including philosophy (Bacon et al., 1991), mathematics (Geake, 2006a), science (Geake et al., 1996), and music (Andreasen & Geake, 1998; Geake, 2007b). For example, the cognitive processes required of musically gifted children

involved in highly creative and effective compositional improvisation, including planned musical analyses, compositional variation, delayed inhibition before selection, and performance critique (Andreasen & Geake, 1998), are similar to those required of mathematically gifted students in arriving at optimally parsimonious or aesthetically elegant solutions (Geake, 2006a). In both cases, proficiency at fluid analogizing can explain how these processes are seamlessly and unconsciously performed in the brain.

### Conclusions

Although neuroimaging studies of brain structure and function have been conducted for well over a decade, the complexity of the human brain suggests that cognitive neuroscience, as a research discipline, is still in its infancy. Within this nascent field, studies of group differences await further publication of robust and replicated data regarding the brain functioning of the general population. Nevertheless, findings from those few studies that have compared gifted with non-gifted subjects, together with correlational studies involving conventional measures of intelligence, are consistent. The neurobiology of giftedness is characterized by high-level prefrontal cortical functioning within a bilateral fronto-parietal network that, among other things, supports enhanced executive capability, including a more efficacious working memory in gifted people. By conceptualizing the necessary cognitive processes to enable effective information processing within such an extended cortical network as fluid analogizing, common characteristics of giftedness across various academic and creative endeavors can be accounted for, including precocious talent, rapid information processing, heightened cognitive control, and a desire for top-down perspectives. Hopefully, as the field of cognitive neuroscience matures, neurobiological research will continue to explore the many other cognitive and behavioral characteristics of giftedness.



## References

- Alexander, J. E., O'Boyle, M. W. & Benbow, C. P. (1996). Developmentally advanced EEG alpha power in gifted male and female adolescents. *International Journal of Psychophysiology*, 23, 25-31.
- Andreasen, F. & Geake, J. G. (1998). A differentiated Year 7 music programme for musically gifted and talented students. *Gifted*, 103, 28-30.
- Baddeley, A. & Sala, S. D. (1998). Working memory and executive control. In A. C. Roberts, T. W. Robbins & L. Weiskrantz (Eds.). *The prefrontal cortex: Executive and cognitive functions*. Oxford University Press, Oxford, pp. 9-21.
- Bacon, M., Geake, J. G., Lea-Wood, S., McAllister, H. & Watt, N. (1991). Sum Insight: Understanding Our World Through Logic, Mathematics and Philosophy. In M. Goodall & B. Culhane (Eds.). *Teaching strategies for a clever country*. The Australian Association for the Education of the Gifted and Talented, Melbourne, pp. 114-122.
- Carson, S. H., Peterson, J. B. & Higgins, D. M. (2003). Decreased latent inhibition is associated with high-functioning individuals. *Journal of Personality and Social Psychology*, 85(3), 499-506.
- Christoff, K., Prabhakaran, V., Dorfman, J., Zhao, Z., Kroger, J. K., Holyoak, K. J. & Gabrieli, J. D. (2001). Rostrolateral prefrontal cortex involvement in relational integration during reasoning. *NeuroImage*, 14, 1136-1149.
- Clark, B. (1997). *Growing up gifted* (5<sup>th</sup> Edn.). Upper Saddle River, NJ: Prentice Hall.
- Duncan, J. (2001). An adaptive coding model of neural function in prefrontal cortex. *Nature Reviews Neuroscience*, 2, 820-829.
- Duncan, J., Seitz, R. J., Kolodny, J., Bor, D., Herzog, H., Ahmed, A., Newell, F. N. & Emslie, H. (2000). A neural basis for general intelligence. *Science*, 289, 457-460.
- Geake, J. G. (1996). Why Mozart? An information processing account of musical abilities. *Research Studies in Music Education Journal*, 7, 28-45.
- Geake, J. G. (1997). Thinking as evolution in the brain: Implications for giftedness. *Australasian Journal of Gifted Education*, 6(1), 27-33.
- Geake, J. G. (1999). An information processing account of audial abilities. *Research Studies in Music Education*, 12, 10-23.
- Geake, J. G. (2006a). Mathematical brains. *Gifted and Talented*, 10(1), 2-7.
- Geake, J. (2006b). The neurological basis of intelligence: A contrast with 'brain-based' education. *Education-Line*, (<http://www.leeds.ac.uk/educol/documents/156074.htm>).
- Geake, J. G. (2007a). Neuropsychological characteristics of academic and creative giftedness. In L. V. Shavinina (Ed.) *International handbook of giftedness*, Springer Science (in press).
- Geake, J. G. (2007b). High abilities at fluid analogising: A cognitive neuroscience construct of giftedness. *Roeper Review* (in press).
- Geake, J. G. (in progress). Learning styles, brain laterality, savants and giftedness. In B. Hymer & T. Balchin (Eds.). *Beyond gifted & talented: Towards a conceptualisation fit for the 21<sup>st</sup> century*.
- Geake, J. G., Cameron, C., Clements, D., & Phillipson, S. (1996). Science for Gifted Students: Learning from the Lorax. In M. McCann & F. Southern (Eds.). *Fusing talent: Giftedness in Australian classrooms*, The Australian Association for the Education of the Gifted and Talented, Melbourne, pp. 41-66.
- Geake, J. G. & Gregson, R. A. M. (1999). Modeling the internal generation of rhythm as an extension of nonlinear psychophysics. *Musicae Scientiae*, 3(2), 217-236.
- Geake, J. G. & Dodson, C. S. (2005). A neuro-psychological model of the creative intelligence of gifted children. *Gifted & Talented International*, 20(1), 6-14.
- Geake, J. G. & Hansen, P. (2005). Neural correlates of intelligence as revealed by fMRI of fluid analogies. *NeuroImage*, 26(2), 555-564.
- Geake, J. G. & Hansen, P. C. (2006). *Structural and functional neural correlates of high creative intelligence as determined by abilities at fluid analogising*. Society for Neuroscience Annual Meeting, Atlanta, Georgia, 17 October.
- Geake, J. G. & Hansen, P. (in progress). Neural correlates of creative intelligence as determined by abilities at fluid analogising: An fMRI study.
- Gray, J. R., Chabris, C. F. & Braver, T. S. (2003). Neural mechanisms of general fluid intelligence. *Nature Neuroscience*, 6(3), 316-322.
- Gray, J. R. & Thompson, P. M. (2004). Neurobiology of intelligence: science and ethics. *Nature Reviews Neuroscience*, 5(June), 471-482.
- Gross, M. U. M. (2004). *Exceptionally gifted children* (2<sup>nd</sup> ed.). Routledge Falmer, London.
- Haier, R. J., Jung, R. E., Yeo, R. A., Head, K. & Alkire, M. T. (2004). Structural brain variation and general intelligence. *NeuroImage*, 23(1), 425-433.
- Hofstadter, D. R. (1995). *Fluid concepts and creative analogies*. Basic Books, New York.
- Hofstadter, D. (2001). Analogy as the core of cognition. In D. Gentner, K. J. Holyoak, & B. N. Kokinov (Eds.). *The analogical mind: Perspectives from cognitive science*, MIT Press, Cambridge, MA, pp. 499-538.
- Kanevsky, L. S. & Geake, J. G. (2005). Validating a multifactor model of learning potential with gifted students and their peers. *Journal for the Education of the Gifted*, 28(2), 192-217.
- Koechlin, E., Basso, G., Pietrini, P., Panzer, S. & Grafman, J. (1999). The role of the anterior prefrontal cortex in human cognition. *Nature*, 399, 148-151.
- Kroger, J. K., Sabb, F. W., Fales, C. L., Bookheimer, S. Y., Cohen, M. S. & Holyoak, K. J. (2002). Recruitment of anterior dorsolateral prefrontal cortex in human reasoning: a parametric study of relational complexity. *Cerebral Cortex*, 12, 477-485.
- Lee, K. H., Choi, Y. Y., Gray, J. R., Cho, S. H., Chae, J.-H., Lee, S., & Kim, K. (2006). Neural correlates of superior intelligence: Stronger recruitment of posterior parietal cortex. *NeuroImage* 29(2), 578-86.
- Luo, Q., Perry, C., Peng, D., Jin, Z., Xu, D., Ding, G. and Xu, S. (2003). The neural substrate of analogical reasoning: an fMRI study. *Brain Research: Cognitive Brain Research*, 17, 527-534.
- Luria, A. R. (1973). *The working brain*. Basic Books, New York.



- O'Boyle, M. W. (2000). Neuroscientific research findings and their potential application to gifted educational practice. *Australasian Journal of Gifted Education*, 9(1), 6-10.
- O'Boyle, M. W. & Benbow, C. P. (1990). Enhanced right hemisphere involvement during cognitive processing may relate to intellectual precocity. *Neuropsychologia*, 28(2), 211-6.
- O'Boyle, M. W., Benbow, C. P. & Alexander, J. E. (1995). Sex differences, hemispheric laterality, and associated brain activity in the intellectually gifted. *Developmental Neuropsychology*, 11(4), 415-443.
- O'Boyle, M. W., Cunningham, R., Silk, T., Vaughan, D., Jackson, G., Syngeniotis, A., & Egan, G. (2005). Mathematically gifted male adolescents activate a unique brain network during mental rotation. *Cognitive Brain Research*, 25, 583-587.
- Parsons, L. M. & Osherson, D. (2001). New Evidence for Distinct Right and Left Brain Systems for Deductive versus Probabilistic Reasoning. *Cerebral Cortex*, 11, 954-965.
- Prabhakaran, V., Smith, J. A., Desmond, J. E., Glover, G. H. & Gabrieli, J. D. (1997). Neural substrates of fluid reasoning: an fMRI study of neocortical activation during performance of the Raven's Progressive Matrices Test. *Cognitive Psychology*, 33, 43-63.
- Rypma, B., Prabhakaran, V., Desmond, J. E., Glover, G. H. & Gabrieli, J. D. (1999). Load-dependent roles of frontal brain regions in the maintenance of working memory. *NeuroImage*, 9, 216-226.
- Shaw, P., Greenstein, D., Lerch, J., Clasen, L., Lenroot, R., Gogtay, N., Evans, A., Rapoport, J., & Giedd, J. (2006). Intellectual ability and cortical development in children and adolescents. *Nature*. 440(7084), 676-679.
- Singh, H. & O'Boyle, M. W. (2004). Interhemispheric interaction during global-local processing in mathematically gifted adolescents, average-ability youth, and college students. *Neuropsychology*, 18(2), 671-677.
- Strange, B. A., Henson, R. N., Friston, K. J. & Dolan, R. J. (2001). Anterior prefrontal cortex mediates rule learning in humans. *Cerebral Cortex*, 11, 1040-1046.
- Vandervert, L. R. & Liu, H. (2007) How Working Memory and the Cognitive Cerebellum Collaboratively Produce the Child Prodigy. In L. Shavinina (Ed) *International handbook of giftedness*, Springer Science, (in press).
- Vigneau, F., Caissie, A. F. & Bors, D. A. (2006). Eye-movement analysis demonstrates strategic influences on intelligence. *Intelligence*, 34, 261-272.
- Wharton, C. M., Grafman, J., Flitman, S. S., Hansen, E. K., Brauner, J., Marks, A. & Honda, M. (2000). Toward neuroanatomical models of analogy: a positron emission tomography study of analogical mapping. *Cognitive Psychology*, 40, 173-197.
- Zhang, Q., Shi, J., Luo, Y., Zhao, D. & Yang, J. (2006). Intelligence and information processing during a visual search task in children: an event-related potential study. *Neuroreport*, 17(7), 747-752.

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## Endnotes

<sup>1</sup>CORRESPONDENCE: John G. Geake, School of Education, University of New England, Armidale, Australia, 2351; e-mail: jgeake@une.edu.au



### 3.

## Creating a Climate for all Talents to Flourish

Belle Wallace<sup>1</sup>

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### Abstract

This paper reports on an in-depth case study of 12, inner-city schools in London, England. The purpose of the study was to examine the various strategies used by the target schools to raise the achievement of all their students, including the gifted and talented. Extensive interview data from relevant school stakeholders as well as numerous school documents were gathered. Common themes that emerged, grounded in the unique ethos and philosophy of the schools, include: all students' strengths were celebrated, school organization was flexible and responsive to the needs of the students, record-keeping and monitoring of pupil progress were thorough, pupil voice was highly valued, leadership was visionary and decision making was shared, and pupils had ownership of their learning which was personalized. The targeted schools were successful in creating a climate for all students' talents to flourish.

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*Carefully watch your thoughts, for they become your words. Manage and watch your words, for they will become your actions. Consider and judge your actions, for they have become your habits. Acknowledge and watch your habits, for they shall become your values. Understand and embrace your values, for they become your destiny.*

- Mahatma Gandhi

Throughout the 2006 - 07 academic year, I was privileged to work with a highly experienced team of 5 researchers who carried out an in-depth case study of 12 schools in London, England, (7 primary schools and 5 secondary schools). The schools were selected on the basis of their location in areas of multiple disadvantage; yet, they all succeeded in raising the attainment levels of all pupils, including the gifted and talented. The purpose of this case study was to examine the strategies that the schools used to raise student achievement. The schools were mainly inner urban-city schools, a significant number of them with surmounting challenges:

- diverse, and often debilitating, socio-economic disadvantage with high parent or caregiver unemployment and, conse-

quently, high numbers of students eligible for free school meals;

- special educational needs, such as speech and communication difficulties and formally registered emotional, mental, social, and physical needs; and
- multilingual, multi-ethnic, multi-religious school communities with as many as 70 - 80 languages spoken in the school community.

The five researchers conducted interviews with members of the Senior Management Team in each school and also with students, teachers, parents, and school governors. The schools provided access to information from their official school websites, school policy documents, sample curriculum planning and assessment strategies, pupils' assignments, and statutory school inspections conducted by The Office for School Standards in Education (OfSTED).

An analysis of all the interviews from participating schools generated common characteristics confirming a clear set of inter-related qualities underlying school development and practice serving to raise the achievement of all pupils within the schools. It is problematic,



therefore, to separate the individual strands discretely, since the whole-school development plan formed a close network of important threads that were woven into a tapestry of best practice. Hence, in the common themes identified below, there is some inevitable repetition, as aspects of a climate for all talents to flourish emerges and coalesces into a complete picture.

## Key Findings

**1. School Ethos and Philosophy: Shared Leadership and Responsibility.** All participating schools actively promoted equal opportunity, racial equality, multilingualism, and social justice. The daily evidence of this was readily perceived and celebrated by teachers, pupils, parents, non-teaching staff, and school governors. The leadership of the school's Senior Management Team provided both extended vision and immediate hands-on school action and support that was real and practical; however, the leadership was not only "from the top." The voices of the whole school community were heard and decisions and responsibilities were debated, owned, and shared within the immediate school community, as well as beyond it. The school development policy was open to debate, amendment, and even reconstruction. The members of the school community understood and accepted their roles. Teachers were viewed and respected as caring professionals and credited with a clear understanding of teaching and learning. Continuing professional development was carefully targeted by the teachers in order to bring about self-improvement. The pupils' voice was strong and had considerable influence on both school decisions and personal development. Pupils perceived that their teachers believed in their multiple potentials and had high expectations of them all. Parents, caregivers, and other community members were welcomed into the school and felt that they were listened to and valued. The major thread running through the school ethos was the value of the whole community and the stakeholder involvement, shared decision-making, easy access to school staff, and a caring environment demonstrated by at least one welcoming person greeting individuals when they arrived in the school.

**2. Open-Door Policy for Enrichment Opportunities.** An important theme that emerged from all the case-study schools is

that meeting the needs of more able pupils was perceived as central to whole school development, and not as an add-on to "normal" school provision. In the participating schools, lesson planning began with possible extension activities, with primary subject heads and secondary departmental heads taking leadership roles and supporting all staff in their planning, thereby ensuring a rich, initial supply of extension materials. The terms "gifted" and "talented" were perceived to have meaning across and beyond the curriculum. The important message was that a school had to create opportunities for all learners to discover their potential gifts and talents across the full range of human capacities: emotional, social, spiritual, visual or spatial, mechanical or technical, auditory or musical, physical or movement, language (oral and written), mathematical, and scientific. Good learning and teaching strategies for gifted and talented pupils reflect good practice for all pupils and commitment to student-centered learning that is built on an inquiry-based curriculum. Key building blocks of "learning-to-learn" include problem solving and thinking skills, questioning, recording and research capabilities, and the important capacity for self-assessment and self-monitoring.

Another critical element that emerged from the interviews was that schools had an "open-door" policy for all enrichment and extension opportunities. Teachers directly guided some pupils to try out activities they thought would enrich and extend their learning. Any pupil could also self-nominate for any activity. In addition, a high priority was placed on students managing their own and each other's behavior, and on their becoming independent and self-disciplined learners within a framework of mutual respect and tolerance.

**3. A Wide Range of Procedures for Identifying "Gifted" and "Talented" Pupils.** The Department for Education and Skills (DfES) requires that all schools identify five to ten percent of their pupils as gifted in Language, Mathematics, and Science, or talented across the full range of the creative and performing arts. The apparent dichotomy between gifts and talents is problematic and contentious; but, while complying with the government directive, the required Gifted and Talented Registers in the schools in this study were kept open and flexible to accommodate pupils who



who may discover a latent gift or talent through experiencing new and enhanced opportunities.

A wide range of quantitative and qualitative procedures was used for identifying pupils. These were regularly revised throughout the pupils' time at the school, with constant updating and sharing of information across all subjects, and with an emphasis on assessing the whole profile of the learner across cognitive, affective, and physical domains. All procedures for identification were made transparent and understandable to pupils, parents or caregivers, and governors. Diversity and difference were celebrated, and it was accepted that personal gifts vary across the full range of human capacities, from social and emotional, to mathematical and scientific.

The qualitative assessment of the progress of individual learning through classroom observation and dialogue with the pupils was given a major emphasis in the targeted schools. Teachers believed that, in order for pupils to reveal gifted behaviors, opportunities needed to be created for these behaviors to manifest. This belief was linked closely with the school ethos that confident learners are quite capable of assessing for themselves whether their learning experiences are appropriately challenging, with the necessary corollary that pupils need to be given opportunities to reflect on the quality of their learning experiences and to verbalize their assessments. Pupils had a strong voice in the participating schools, and they were involved in decision-making and, consequently, had ownership of their learning.

A wide range of quantitative measures to assess student skills were also used across the case-study schools, with the understanding that these measures were only snapshots of a pupil's development across a range of specific skills at a certain point in time. Usually, these tests measured formal school-based learning and consequent examination success; however, the case-study schools acknowledged that such tests could be used diagnostically as well to assess either advanced learning of particular skills or to indicate when the learner had not yet acquired the necessary competence across a range of skills.

In the selected schools, detailed identification and nomination procedures for gifted education, both quantitative and qualitative, had a

profound impact on the teachers' thinking about students' general learning needs. The process encouraged teachers to think about individuals rather than groups, and to recognize that higher achieving pupils are not all alike. In the participating schools, identification of the gifted and talented was perceived as a means to an end, and the process of improving the education of the exceptionally able was seen to benefit the whole school community by raising standards of provision and consequent achievements of all students. In addition, the use of qualitative and quantitative data to examine cultural and ethnic bias in the identification procedures was important in raising other questions. Discussions became much wider than those focused on a nomination procedure for the gifted and talented register. Discussions fuelled questions about provision for other students who might be at a disadvantage.

A strong emphasis was given not only to the collection, updating, and communication of all students' profiles and progress, but to the transfer of this information at key stages within each phase, as well as in subsequent phases of education (early years, primary, secondary, and tertiary). Designated staff, appropriately trained, assumed specific responsibilities for data acquisition, maintenance, security, and information dissemination. Extensive school Information Technology (IT) facilities supported this communication network, and all teachers were expected to consult and update the intranet information.

Pupil progress in the targeted schools was monitored from the baseline point of entry, through close communication with parents and caregivers. Primary schools ran parent classes on how to prepare children for school, and parents were welcomed into the school community to participate in activities. Parents and caregivers were also encouraged to request special classes, such as helping children to develop reading skills, mathematical understanding through play activities, or the importance of healthy eating and exercise. In some of the schools where parents and caregivers were reluctant to attend, much time and effort were put into forging school-parent links through personal contact and spending time talking to parents and caregivers who accompanied their children to and from school.



There was excellent cooperation and communication among the schools at every stage of the students' transition through the system. This was accomplished through sharing detailed reports of pupils' achievements regarding in- and out-of-school activities, samples of pupils' work, and quantitative and qualitative comments on pupils' strengths and areas needing support. In all the case-study schools, specific times were made available for these reports to be read and discussed by all staff so that repetition of skills and mastery of knowledge were not repeated. Thus, staff were made aware not only of those pupils who needed extra support, but of the gifted and talented pupils before they arrived at the start of the academic year. This enabled teachers to do forward planning to address individual needs and build upon the information that pupils had acquired prior to arrival. Student transition profiles were used to inform group and individual lesson planning and schemes of work. The avoidance of unnecessary repetition of skills and knowledge already mastered constituted a major challenge to all teachers, especially since large sections of the national curriculum framework were repeated in each phase. The target schools aimed to cut out unnecessary repetition of skills and knowledge already mastered.

At the major transition point between primary and secondary education, the case-study schools were particularly well organized. There were curriculum evenings to ensure that parents and caregivers were well informed about how to prepare their children for secondary school. Arrangements were made to ensure that pupils, parent, and caregivers made visits to the schools of their choice. Once the children had been allocated a place, primary school personnel arranged to meet with the secondary school Special Needs Coordinator to provide detailed information about those pupils with potential special educational needs. Primary pupils compiled their own portfolios of their best work and also of the work that needed further support. They also completed forms detailing their special interests and achievements. Parents and caregivers also contributed to this sharing of advanced information for pupils in Year 6 (end of primary) and after arrival in Year 7 (beginning of secondary school). Where the transition information available to the secondary school was relatively limited due to a large number of

feeder primary schools, the secondary school developed detailed systems for collecting, collating, and analyzing data on student progress.

There were also very active partnerships between primary and secondary schools, as well as with local universities, that were ongoing throughout the year. Within all schools, there were "buddy" partnerships between older and younger pupils; mentoring and interest partnerships also developed between pupils and members of the community and universities. Secondary students served as mentors for primary pupils and led activities that ranged from jazz and origami, to modern dance and sports coaching. Some senior secondary students engaged in work placements in their feeder primary schools. In addition, a wide range of appropriate workshops were shared among secondary and primary schools, when the workshop content was appropriate, for example, discussions of identification and assessment procedures, record-keeping and monitoring, and procedures for mentoring.

**4. Differentiation across the Curriculum.** A vital aspect of providing differentiated learning experiences in the participating schools was giving students a voice in articulating what they already knew, in deciding what they needed to learn, and in determining how they were going to approach their learning. Students were also empowered to make decisions regarding the depth and breadth of study they would find challenging. This constituted the greatest challenge for teachers and required that they not only have extended knowledge of pupils' backgrounds and current levels of progress, but also the willingness to enter into a dialogue with *all* pupils to audit what is already known and to negotiate the next stages. However, the role of the teacher, by necessity, had to change to that of mentor with life experience but not necessarily with expert knowledge within a subject or topic area.

In all the case-study schools, in addition to a fundamentally child-centered approach, common in schools across the United Kingdom, the major aim at the primary level was to develop young pupils' independence, confidence, and self-esteem, as well as a full range of skills that lay the foundation for further learning and development. Additional emphases in the middle and secondary levels



were given to the development of a differentiated curriculum based on individual needs and rates of progress, achieved through listening to pupils' voices and negotiating learning goals. This ethos was perceived as the key to developing a climate in which all pupils could flourish.

In the target schools, staff personalized the academic and practical tasks they set by negotiating with the pupils the key questions within a topic. The questions were generally open-ended, with teachers varying the degree of support they provided, the expectations they had of students, the time they allowed for work production, the degree to which they offered help, the kind of homework assigned, and the use of critical feedback and praise they gave. It was certainly not the case that all students in a given cohort were treated the same. Staff accepted that they were held accountable for how much they could demonstrate personalized learning in their classrooms.

The driving force throughout the lessons lay in developing students' questioning, thinking, problem-solving, and learning-to-learn skills. The acquisition of research, recording, and communication competencies was highly valued as constituting a range of skills necessary for independent, self-directed learning. In participating schools, pupils who were more able were encouraged to work in greater depth and breadth on questions of their own choosing in order to extend the basic work they had already covered. The content was viewed more as a vehicle for thinking, rather than just an end in itself. Learning was based on constructing new knowledge rather than reproducing knowledge from memory. New skills, both generic and subject based, were developed as the need arose, and the pupils were aware of why the skills were important and how they would be used in subject areas and across the curriculum. Pupils participated fully in class councils, year councils, and school councils and were encouraged to talk openly about their learning and sense of challenge and level of achievement.

In the case-study schools, the Senior Management Team, Heads of Year Councils, and Heads of Departments supported the development and monitoring of nationally set Schemes of Work. All planning was expected to include a wide range of possible activities

with appropriately differentiated options and extension materials, although pupils were expected to locate their own resource materials in pursuing their research. The Senior Management Team expected all staff to see this quality of preparation as the entitlement of all pupils within an ethos of equality of opportunity. They looked for differential rates of progression for those pupils who were able learn faster with deeper understanding and for supportive scaffolding for those pupils who needed it.

All the schools in the study had well-developed strategies for in-service staff development, reflection, and review. The updating of the Schemes of Work and other school programs arose naturally from the pupil review sessions where not only pupil needs, but also staff and school needs, were identified. At these meetings, agendas were raised and targets set and built into the school development plan. All lessons were backed up by an extensive range of learning opportunities offered through clubs and specialist mentoring and master classes, at lunchtime or after school. Importantly, all enrichment and extension challenges were open to all pupils and viewed as another avenue for them to discover their interests and strengths and for staff to observe them.

All case-study schools used flexible systems of grouping pupils, utilizing a range of strategies, including acceleration, mixed-ability groupings, accommodation, and extension and enrichment activities. These strategies lay comfortably within a school ethos where all pupils were valued and celebrated for a wide range of gifts and talents. Within the classrooms, there was systematic use of different approaches, such as the Cognitive Acceleration in Mathematics in Education (CAME) project, the Cognitive Acceleration through Science (CASE) project, the Thinking Actively in a Social Context (TASC) framework, and the Philosophy for Children program. Each of these projects was used as a whole-class initiative and provided learners with a structure that guided them through a personal learning experience.

### *5. Monitoring Potential Underachievement*

A commonality that emerged from all twelve case studies is the regular review of all learners' progress. Since detailed and careful re-



cords were compiled from the beginning of a child's life in school and constantly updated and referenced, the regularity of review brought all learners' needs into the forefront of teachers' awareness. Thus, any signs of underachievement or lack of progress were identified before the situation escalated into a chronic (and often permanent) syndrome. Parents and caregivers were kept informed, and the learners were encouraged to express their views and feelings about the suitability of their learning programs and the extent to which their activities were engaging and satisfying.

Out of this monitoring, another commonality emerged. Pupils realized that they had a voice; they knew whether their learning was worthwhile and whether their views were taken seriously. In all the participating schools, learning targets were negotiated and agreed upon between pupil and teacher, and counseling opportunities were available if these targets needed, for any reason, to be re-negotiated. When renegotiating happened, a number of possible interventions were explored: a new approach to learning was tried, a mentoring experience was initiated, regular counseling sessions were agreed upon, or new targets were worked out. When causes of underachievement fell outside the school, then parents and caregivers were brought in, or additional psychological advice was sought.

There is no doubt that students were active participants in all these interventions, and they realized that they were accountable for their own decisions. They had ownership of their learning, and they readily accepted the responsibility for carrying their decisions to fulfillment. Pupils engaged in constructive, educational dialogue about their motivation, anxieties, work-leisure balance, personal work portfolios, extracurricular activities, and homework management. Consequently, pupil reviews led to teachers reflecting on their own practice and deciding whether they needed professional help and advice in reviewing any aspect of their school development.

Strongly linked with monitoring pupil achievement was the teacher's commitment to formative assessment. In the participating schools, pupils' records of previous achievement levels were openly discussed, so pupils were allowed to negotiate choices about the topics for study within an area of the curriculum, or

outside the curriculum if the learner had already covered the conventional parameters. There was flexibility and acceptance for pupils to explore areas beyond the teacher's expertise. This required great confidence on the part of the teacher and acceptance of his or her role as co-learner or, sometimes, junior learner. Pupils were taught the skills of how to organize their work and how to carry out aspects of self-assessment and procedures for peer-assessment.

The intent was for this kind of assessment to give carefully orchestrated "feed-forward" information by way of further questions to be considered or skills to be brought into play, leading to progress. With potentially highly able pupils, these are higher-order and deeply probing questions that need further thought and research. Essentially, a pupil has the chance to continue with a topic until he or she feels ready for the summative assessment of that particular assignment.

### *Conclusion*

The 12 case-study schools were selected because they had a range of challenges in common with most other schools throughout England. The inspections of one primary and one secondary school, in particular, revealed that they were failing to challenge their most able pupils who were coasting and making little value-added progress. Consequently, these schools, receptive to the criticism, reviewed their whole teaching and learning practice. Other schools in the study had catchment areas that were among the most deprived and disadvantaged in England; still others were dealing with communities that were extremely diverse ethnically, linguistically, and culturally. Nevertheless, all the schools in the case study demonstrated that their pupils achieved at high levels.

There were a number of strong messages that pervaded all the case-study reports: (a) all pupils were celebrated because of their diverse strengths and interests; (b) the pupil voice was strong and valued, as well as the voice of parents, caregivers, and governors; (c) leadership was visionary, yet practical, and decision-making and responsibilities were shared; (d) the pupils had ownership of their learning, which was personalized so that the learners could make choices; (e) the school organization was flexible and responsive,

and procedures and practice were revised and adapted; and (f) record-keeping and monitoring of pupil progress was thorough and used productively. In summary, the case-

study schools were places of living learning where human values had been incorporated into every aspect of the learning process.

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### Author's notes

This paper is a summary of case-study research carried out in 12 schools in England in 2006. I am deeply indebted to the London Gifted and Talented Development Unit and the National Association for Able Children in Education (NACE) for making it possible for me to collect the evidence that provides the foundation for this paper.

The findings reported and analyzed are taken directly from the rich, in-depth case studies compiled by the team of researchers to whom I express my sincere thanks. They are: Sally Fitton, Secondary School Improvement Adviser for the Derbyshire local authority; Sue Leyden, independent educational consultant and chartered educational psychologist; Diane Montgomery, Emeritus Professor of Education, Middlesex University, London; Michael Pomerantz, Associate Tutor to the D.Ed. Psy. and the Ed.D. Programs at the University of Shef-

field; and Carrie Winstanley, Senior lecturer, Roehampton Institute of Education. In addition, thanks go to the participating schools that shared their experience and expertise so readily. They are Burlington Junior School, New Malden, Surrey; Farnborough Primary School, London Borough of Bromley; Grafton Primary School, London Borough of Holloway; Hermitage Primary School, West Berkshire; Lowes Wong Primary School, Notts; Ollerton Primary School, Notts; Portswood Primary School, Southampton, Hants; Homewood Community College, Kent; Lampton School, London Borough of Hounslow; St. Marylebone School, London Borough of Westminster; Newsteadwood School for Girls, London borough of Bromley; and Seven Kings High School, London Borough of Ilford). Archives from these schools constitute my reference base for this paper.

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### Endnotes

<sup>1</sup>CORRESPONDENCE: Belle Wallace, Director of Thinking Actively in a Social Context (TASC), and editor of Gifted Education International; Meadowlands, Main Street, Thorpe, United Kingdom, NG23 5PX; e-mail: belle.wallace@btinternet.com





## Inspiring the Talented: A University and Secondary- School Collaboration

John Holland<sup>1</sup>  
Heather Meikle  
Kay Ellison  
Abigail Allan

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### Abstract

In an effort to foster future leaders, female gifted and talented high-school students who were interested in science were teamed up with third- and fourth-year science students at Massey University, New Zealand. The younger students visited the university campus once a week, attended lectures, and worked on various projects and experiments with their university mentors. Expected program outcomes for the high-school students included greater appreciation for the breadth that science encompasses, increased independent thinking, improved social skills, enhanced confidence as learners, and clearer career goals. Analyses of survey results confirmed that the program was successful.

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The Talented and Gifted Students Programme (TAGS) is a joint initiative of Palmerston North between Palmerston North Girls' High School (PNGHS) and Massey University's College of Sciences in New Zealand. This program is the first of its kind in the country, funded by the Ministry of Education for three academic years, 2003 to 2006.

Each year of the project's tenure, twelve gifted PNGHS students with a strong interest in science were selected and partnered with third- and fourth-year students studying at Massey University's College of Science. During the University's first semester, each PNGHS student met weekly with her mentor and attended a university lecture. During the University's second semester, the PNGHS girls worked with their mentor on a literature review report, using the University's library resources. The literature review was presented, by means of PowerPoint, to staff, parents, and school-board members. The PNGHS students used the University bus service to travel to the campus, with transport costs paid by the TAGS Programme.

The mentors were selected from a range of disciplines within the College of Sciences, based on their commitment and willingness to help others. There was a financial incentive for participating mentors, who received a rebate on their university fees. Mentors also had an opportunity to develop their interpersonal and academic training skills, making them more valuable to potential employers.

The target group for the TAGS Programme consisted of gifted secondary-school students between the ages of 14 and 17 years (Years 10 to 13). The expected outcomes included: (a) a broader perception of what science encompasses, (b) greater independent thinking and social skills, (c) enhanced confidence, and (d) pursuit of tertiary-level studies, informed by their experiences in the science program.

Performance indicators confirmed that the program achieved its first three outcomes well. The fourth outcome was more difficult to measure since many of the girls had yet to finish high school and had no determined career goals; however, those who started tertiary education reported that involvement in the



TAGS Programme helped them refine their interests for further study in science.

### *The TAGS Programme*

**Rationale.** Research shows that gifted students, generally, learn more quickly than others, are capable of assimilating material at a higher level than their peers (Shields, 2002; Zeidner & Schleyer 1999), and have a natural curiosity about the world around them (Giles & Eyler, 1999). Intellectual challenge is the tension created between students' abilities and teachers' expectations. Optimal learning occurs where there is significant but not overwhelming challenge (Higgins & Boone, 2003). The TAGS Programme offered a constructive learning environment to stimulate and engage talented and gifted high-school students through regular exposure to university-level instruction (Lewis, 1996).

**Selection of mentors and mentees.** In 2003, newsletters were sent home with all students attending the Extension Programme at PNGHS in the first week of Term 1. The newsletter outlined the principles of the TAGS Programme<sup>2</sup> and invited parents and students to attend an informal evening presentation at the school. Students who were interested in participating in the program were invited to apply. Applicants were asked questions about their interests and aspirations in science. Based on the results, twelve mentees were selected for the project.

Suitable university mentors were found for each high-school student by asking staff members from different disciplines in the College of Sciences to recommend high-caliber, dedicated, third- and fourth-year students. At the end of each year, mentors were asked if they would participate in the program the following year. Potential mentors were informed, by e-mail, about the principles and benefits of the program, its time frame, and the two-hour per week commitment. In the e-mail, potential mentors were asked to indicate whether they would like to be a mentor and, if so,

- whether they would be away for more than a week over the period that the program would be running, designating approximate dates in such instances;
- in what areas of science they were involved and their institute or department

(e.g., Institute of Natural Resources, Ecology), as subject interests were matched between mentors and mentees where possible, and

- what their contact details were (e-mail and telephone number).

Once both mentors and mentees were selected, the mentees were matched with mentors based on the interest areas identified by mentees (e.g., natural resources, ecology, zoology) in their application forms.

**Requirements of participants.** Mentees were encouraged to attend lectures in a broad range of science subjects in the first phase of the program. This was formalized as a project (see Appendix I) in which the mentees were asked to rate, on a 1 to 10 Likert scale, lectures based on how interesting they found them. Their second task (see Appendix II) was to conduct a literature review based on an area, using at least four scholarly journal articles. This literature review was formally presented to staff, parents, and mentors, using PowerPoint, in an evening session at the University.

During this process, mentors supported their mentees by planning lecture timetables and working on literature reviews and presentations, familiarizing mentees with the electronic library resource system, drafting the literature review, and guiding them in the use of PowerPoint for their final presentation.

Both mentees and mentors completed a post-program survey (see Appendix III) evaluating their experience in the TAGS Programme. These surveys tracked the effectiveness of the program and, over the three-year period, provided valuable feedback on how it could be modified and improved.

**Performance indicators.** The first three outcomes (a broader perception of science, greater independent thinking and social skills, and enhanced academic confidence) were addressed through the post-program surveys completed after each of the three years of the program (see Appendix III). The teachers informally monitored the success of the fourth outcome (pursuit of career goals in university or college) by noting the field of study that TAGS participants selected after leaving high school (Hoekman, McCormick & Gross, 1999).

*Program improvement interventions.* Staff involved in the TAGS Programme continually made improvements to the program as issues arose, based on observations and feedback

solicited from mentors, mentees, and staff. Interventions were made in order to address any emergent problems as soon as possible (see Table 1).

Table1: Improvements Interventions

Problem	Reason	Modification/Action	Degree of Success
In 2004, some mentees chose to attend lectures within a <i>small range</i> of science disciplines.	Students easily gravitated towards subject areas they found interesting and chose to repeatedly attend these classes, thereby avoiding other subject areas.	In 2004, a lecture attendance record (Appendix 1) was distributed to students, requiring that they fill in a table identifying the lectures they attended. Each mentee was to attend lectures from as many science subject areas as possible.	✓ very successful  The mentees experienced a wide range of subject areas. A number of mentors who were part of the program over multiple years praised this modification that was made to the program.
In 2003, students were required to travel to Massey University in pairs, which often made it hard for high-school girls to coordinate lecture attendance.	It was thought that the girls would be more comfortable attending lectures with a friend.	This principle was not discouraged, but no longer compulsory. Sign-in and sign-out procedures were well established by the second year of the program in 2004.	✓ very successful  Some mentees chose to come to the University in pairs. Others were happy to attend lectures alone.
Some university mentors were absent during times when mentees needed their practical and technological assistance.	It was thought that, when the university students needed to spend time away from the campus to conduct fieldwork or attend a conference, another mentor could be assigned to the mentee.	During the next mentor selection process, mentors were requested to identify the times that they would be off campus. If these dates coincided with key times, such as the literature review and presentation preparation dates, these graduate students were not chosen as mentors.	✓ successful  It was considerably more pleasant for mentees to have the support of one mentor for the entire program.
The timing of the program was too demanding on some mentees.	In 2003, the program ran during semester 2, and the literature review and presentation tasks were due close to high-school exam time for the mentees.  In 2004, the program ran over four terms, which was a long and demanding period for both mentees and mentors.	In 2005, the mentees were encouraged to attend lectures during semester 1 only. The focus for the first part of semester 2 was the program's literature review and presentation, which was completed in August. This enabled the students to finish these tasks with less school stress and conflict with external exam preparation.	✓ very successful  Teachers and mentors made positive comments about the change in timing of the program in 2005.
One mentor was unsupportive.	One mentor was not sensitive to the needs of his charge and was not prepared to invest his time in support of his mentee.	The mentee spoke with teachers at her high school who, in turn, contacted the program administrator with their concerns. The program administrator met with the problematic mentor to review his responsibilities and address his behaviour. The mentor decided he was unsuited to the program, and a new mentor was found.	✓ very successful  The problem identification process worked well. The new mentor was supportive, and both the new mentor and mentee found the TAGS Programme to be a fulfilling and enjoyable experience.



Problem	Reason	Modification/Action	Degree of Success
One mentee wished to leave the program.	One mentee was over-committed and found the program too challenging. She failed to contact or respond to the mentor for a long time.	The mentor contacted the program administrator and teachers, who, in turn, talked to the mentee and addressed whether it was in the program's and mentee's best interests for him to leave the program.	✓ successful  The best outcome for the mentee was put into action.
It was often left to the mentors to initiate interactions.	The most frequent concern expressed by the mentors was that their mentee failed to initiate contact with them and plan ahead. Good planning and a sense of responsibility for learning are important skills for mentees to develop.	In 2003, the only contact details that were exchanged between mentees and mentors were e-mail addresses. Mentors typically had daily e-mail access, but mentees used e-mail less frequently. Later in 2003, telephone numbers were exchanged.  In 2004, even with the exchange of e-mail and telephone information, some mentees were negligent in initiating and maintaining contact with their mentors.  In 2005, mentors were instructed to contact the relevant high-school teacher immediately when they encountered problems maintaining contact with their mentees. These teachers then spoke to the mentees about the expectations of the program and the importance of contacting their mentor regularly.	✓ successful  Contact between mentors and mentees became more efficient, and problems were more easily resolved because responses to emergent issues were more prompt.

## Results

The success of the program was demonstrated through specific feedback provided by both mentees and mentors over the three-year tenure of the program.

**Feedback from mentors.** Mentors reported that, after participating in the program, their mentees became more enthusiastic, independent, and confident; that they benefited from the experience; and that their perception of science had broadened (see Figure 1). Survey results over the three-year period show that mentors' perceptions of the value of the program for gifted participants were generally positive (that is, scored as either agree = 2 or strongly agree = 1 on the Likert scale), and that the response variance over the three years is small and primarily attributable to de-

sign improvements. There was general improvement from Years 1 to 3, with an anomaly in Year 2. This was likely due to the program having been extended from one to two semesters, thereby inadvertently increasing the demands placed on the mentors and mentees. Two other inconsistencies in Year 3 relate to problems of mentee planning and communication with mentors—a problem that was still not completely resolved at the end of the three-year pilot.

What follows are selected comments from mentors:

*"She [my mentee] is awesome to work with, and she has been enthusiastic throughout both semesters."*

*"I really enjoyed working with her."*

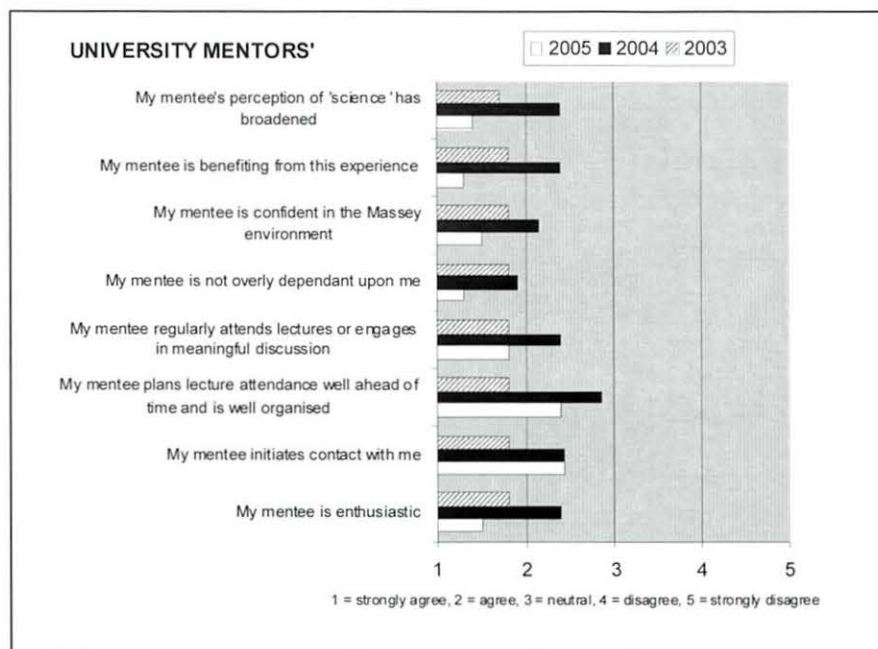


Figure 1. University Mentors' Perceptions of the TAGS Programme

*"She was enthusiastic, easy to work with, organized and a pleasure to help. She quite obviously enjoyed coming into Massey, experiencing university life, and learning new science, and [she] seemed to quite easily manage the work expected of her."*

*"I was very impressed with her work ethic towards the end of the program. She had a real turn-around and did an amazing amount of work in a short amount of time. It really showed her dedication to the program."*

*"I think she is a very intelligent girl, but (like*

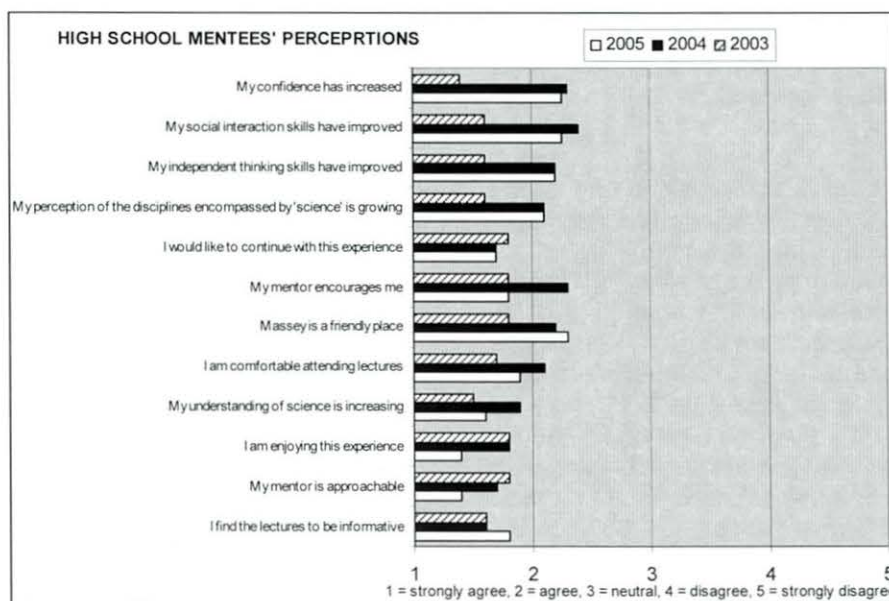
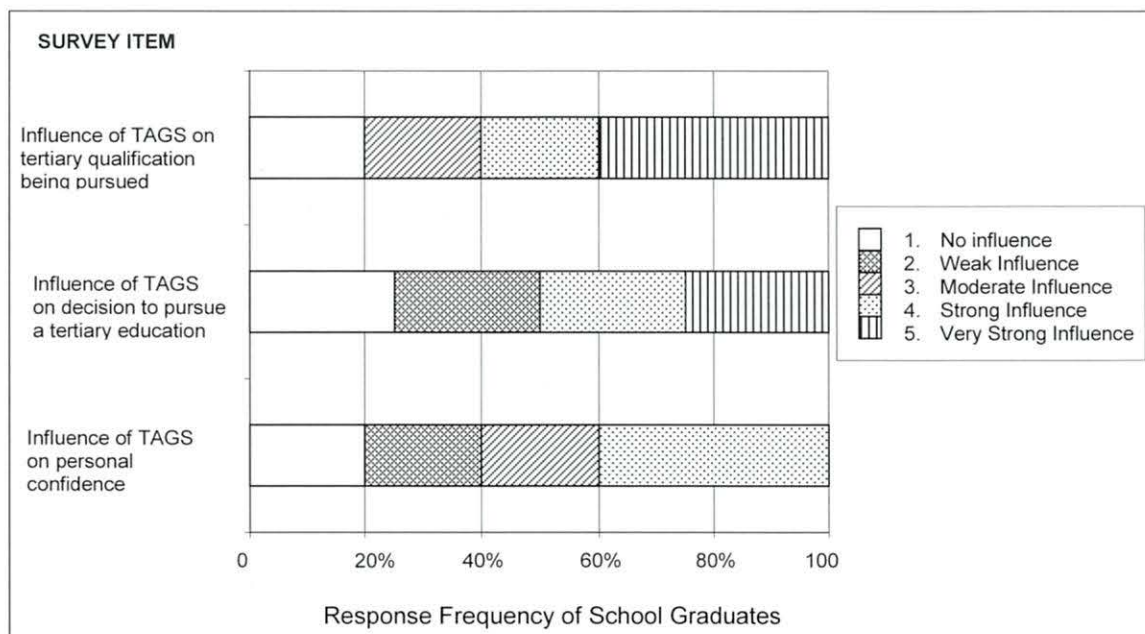


Figure 2. High School Mentees' Perceptions of the TAGS Programme





Note: n = 15. Not all five options (1. no influence to 5. very strong influence) are represented in responses to the survey items.

Figure 3. School Graduates' Perception of the Educational Value of the Programme

*most students, myself included) she could be a little more organized. She is very pleasant and interesting to talk to, and I very much enjoyed her company. I think she is hard working, and will be very successful at whatever she chooses to pursue."*

**Feedback from Mentees.** Figure 2 shows, from the surveys of each of the three years, that the mentees' perceptions of the program were generally positive. While there was some variation in the results between years, all the scores fell at the positive end of the rating scale. Overall, mentees reported highest satisfaction (marked by strongly agree = 1 or agree = 2) in the areas of enjoyment of the program, increased understanding of the breadth of science, supportive interactions with the mentors, and informative lectures. The relatively lower scores in 2004 may be attributable to the program running for the full year, as opposed to a single semester or a half-year; however, it is noteworthy that not all areas showed improvement in 2005, at the conclusion of the pilot project. While differences across years may not be statistically significant, one can only speculate that the downward trend in selected areas may be due

to factors such as the differential selection of students, changing factors in the environment that were not identified, or opportunities unique to university science classes that may have varied from year to year.

The program also had other secondary benefits for mentees, including access to the Massey University library for other high school projects.

A fourth outcome, not addressed in the formal survey, related to the pursuit of students' post-secondary career goals. Many students selected science. Some are now studying engineering, medicine, ecology, mathematics, and other degrees in various New Zealand universities. Some presented papers at international conferences during their undergraduate studies, and others continue to encourage younger scholars from their *alma mater* to participate in the TAGS Programme.

Students who had completed the program as early as 2003 were surveyed to gauge the impact of the TAGS Programme on their subsequent academic and personal development. The results of the three-item survey show that the program had a positive influence on both areas of development, with the strongest in-

fluence in the selection of science in their pursuit of university studies (Figure 3).

### Conclusions

In an effort to foster future leaders, female gifted and talented high-school students who were interested in science, were teamed up with third- or fourth-year science students at Massey University in New Zealand. The younger students visited the university campus once a week, attended lectures, conducted experiments in laboratories, and worked on various projects with their university mentors. Program outcomes for the high-school mentees included greater appreciation

of the breadth that science encompasses, increased independent thinking, improved social skills, enhanced confidence, and clearer goals following high-school graduation. The university student mentors reported that the project experience was rewarding, made a positive contribution to their university community, and improved their individual mentoring skills. Although tentative in nature, the results of this university and secondary-school collaboration are encouraging. We hope, too, that this will serve as a guide for those who wish to pursue similar joint initiatives.

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### References

- Giles, D. E., Jr., & Eyler, J. (1998). A service learning research agenda for the next five years. *New Directions for Teaching and Learning*, 73, 65-72.
- Higgins, K., & Boone, R. (2003). Beyond the boundaries of school: Transition consideration in gifted education. *Intervention in School and Clinic*, 38, 138-144.
- Hoekman, K., McCormick, J., & Gross, M. U. M. (1999). The optional context for gifted students: A preliminary exploration of motivational and affective considerations. *Gifted Child Quarterly*, 43, 170-193.
- Lewis, B. A. (1996). Serving others hooks gifted students on learning. *Educational Leadership*, 53, 70-74.
- Shields, C. M. (2002). A comparison study of student attitudes and perceptions in homogeneous and heterogeneous classrooms. *Roeper Review*, 24, 115-120.
- Zeidner, M., & Schleyer, E. J. (1999). The effects of educational context on individual difference variables, self-perceptions of giftedness, and school attitudes of gifted adolescents. *Journal of Youth and Adolescence*, 28, 687-705.
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<sup>1</sup>CORRESPONDENCE: John D. Holland, Associate Professor, Institute of Natural Resources, Massey University, Palmerston North, New Zealand, e-mail: [J.D.Holland@massey.ac.nz](mailto:J.D.Holland@massey.ac.nz).

<sup>2</sup>The TAGS programme is referred to as "Science Mentorship" at PNGHS, but known as "TAGS" at Massey University.



## APPENDIX I

### SEMESTER ONE TASK

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#### Talented & Gifted Students Programme 2004

##### Semester 1 Task

Your mission is to attend lectures from as many different Science subject areas (e.g. Biochemistry, Earth Science, Horticultural Science, Physics, Zoology etc.) as possible, during Semester 1.

Instructions:

Fill out the "Lecture Attendance" table located on the following pages, by writing down every lecture you've attended during Semester 1 (i.e., between February 23 and June 2m 2004).

Your mentor can help you determine into which science subject area in which each lecture fits. But give it a go yourself first. It may help if you look up the red Semester 1 Timetable Book. (Dr. Meikle and Mrs. Ellison should have copies of these at your school.)

An example is set out for you at the end of the table, under "Zoology". For those of you who attended this "Biology of Animals" lecture in February, please, remember to fill out the last column yourself (How interesting was the lecture?).

To find out how interesting you thought each lecture was, we would like you to rate each lecture on a scale of one to ten. Did it bore you to sleep or was it totally awesome?

Paste the table into your purple logbook, so that you can add to it each week.

Give a copy of your completed table to your mentor and either Mrs. Ellison or Dr. Meikle by Friday, June 11, 2004.

Have fun!

**Lecture Attendance (Semester 1, 2004)****Name:**

Science subject area (paper prefix number/s)	Paper No.	Name of Paper	Lecture Topic	Date Attended	How interesting was this lecture?
					1 2 3 4 5 6 7 8 9 10 Boring OK Awesome! (Choose one number)
Agricultural Science (111, 119)					
Animal Science (117)					
Biochemistry (122)					
Chemistry (123)					
Computer Science (159)					
Decision Science (204)					
Earth Science (233)					
Ecology (196, 232)					
Electronics (216)					
Engineering (138, 228, 215)					
Environmental Science (121)					
Genetics (203)					
Geography (145)					
Horticultural Science (171)					
Health & Human Development (208, 209, 214, 250)					
Human Nutrition (151)					
Information Systems (157)					
Mathematics (160)					
Medical Laboratory Science (202)					
Microbiology (162)					
Museum Studies (167)					
Natural Resource Management (188)					
Physics (124)					
Physiology and Anatomy (194)					
Plant Biology & Biotechnology (120)					
Psychology (175)					
Soil Science (189)					
Sport Science (234)					
Statistics (161)					
Technology (140, 141, 142, 143, 183, 210, 211)					
Veterinary Science (116, 118, 193, 195, 227)					
Zoology (199)	199.101	Biology of Animals	Classification of the Animal Kingdom	27 Feb	



## APPENDIX II

### SEMESTER TWO TASKS

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Talented and Gifted Students Programme  
Massey University  
and  
Palmerston North Girls High School  
Project

#### 1. Project

##### Choosing a topic:

Work with your mentor to identify a topic associated with something you have learned about in a lecture that you have attended.

##### Tasks:

With the assistance of your mentor:

Find and read at least four reference articles (including at least one article from a refereed journal) that interest you and relate to your topic. Synthesize them into a literature review. Length: 2500 words (give or take 10%).

Write a 300-word abstract of your literature review.

Present your findings (using a medium such as OHTs or Powerpoint) in a 5-minute seminar to an audience comprised of Massey academics, teachers, Board members, parents and friends.

Presentations will be held at Massey University:

Date: Friday, October 15

Time: 6 p.m.

Venue: SSLB 3 (parking will be available beside the library)

*Attendance at the presentations is compulsory.*

A copy of both your literature review and abstract must be submitted at the presentation evening, on October 15.

##### Notes:

You should consider organizing a practice presentation session with your mentor prior to October 15.

You will have exactly five minutes to present your topic – no more!

## APPENDIX III

**PERFORMANCE INDICATORS: TAGS PROGRAMME FEEDBACK TEMPLATES****First Report: Mentees**

Mentee Name \_\_\_\_\_ Mentor Name \_\_\_\_\_ Date \_\_\_\_\_

**MENTEE.** With respect to your mentor and Massey University, to what extent do you agree with the following statements? (Circle the appropriate number.)

	1	2	3	4	5	
	Strongly agree		Neither agree nor disagree		Strongly disagree	
1. I find the lectures to be informative.	1	2	3	4	5	na
2. My mentor is approachable.	1	2	3	4	5	na
3. I am enjoying this experience.	1	2	3	4	5	na
4. My understanding of science is increasing.	1	2	3	4	5	na
5. I am comfortable attending lectures.	1	2	3	4	5	na
6. Massey University is a friendly place.	1	2	3	4	5	na
7. My mentor encourages me .	1	2	3	4	5	na
8. I would like to continue with this experience.	1	2	3	4	5	na
9. My perception of the disciplines encompassed by science is growing .	1	2	3	4	5	na
10. My independent thinking skills have improved.	1	2	3	4	5	na
11. My social interaction skills have improved.	1	2	3	4	5	na
12. My confidence has increased.	1	2	3	4	5	na

Is there anything on which you would like to comment?

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**APPENDIX III (continued)****First Report: Mentors**

Mentor: \_\_\_\_\_ Mentee: \_\_\_\_\_ Date: \_\_\_\_\_

**MENTORS:** With respect to your mentee, to what extent do you agree with the following statements? (Circle appropriate number.)

	<b>1</b> Strongly agree	<b>2</b>	<b>3</b> Neither agree nor disagree	<b>4</b>	<b>5</b> Strongly disagree	
1. My mentee is enthusiastic.	1	2	3	4	5	na
2. My mentee initiates contact with me.	1	2	3	4	5	na
3. My mentee plans lecture attendance well ahead of time and is well organized.	1	2	3	4	5	na
4. My mentee regularly attends lectures.	1	2	3	4	5	na
5. My mentee is not overly dependent on me.	1	2	3	4	5	na
6. My mentee is confident in the Massey University environment.	1	2	3	4	5	na
7. My mentee is benefiting from this experience.	1	2	3	4	5	na
8. My mentee's perception of science has broadened.	1	2	3	4	5	na

Is there anything else about your mentee's progress and the program in general on which you would like to comment?

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# Giftedness, Creativity and Learning Style

Donald J. Treffinger<sup>1</sup>  
Edwin C. Selby

## Abstract

What are the relationships among giftedness, creativity, and style? The task of responding to this question is formidable, given the challenge of defining each of these major constructs. In this article, we summarize the key findings of more than 25 studies and published reviews and examine ways in which the conceptual and operational complexity of the constructs have complicated or illuminated our understanding of the problem. We describe implications and challenges for theory, practice, and future research.

To understand the relationships among giftedness and talent development, creativity, and style, we must first consider the definitions of each of those complex constructs.

**Giftedness.** The terms gifted, giftedness, or gifted student have been defined in many and varied ways, and there has been little theoretical or operational consensus in the literature spanning more than five decades of inquiry. Many traditional definitions of the terms have focused on gifted in relation to intelligence and, often, more specifically, to IQ scores. Many approaches to defining intelligence now emphasize the multi-faceted, complex nature of human abilities or talents (e.g., Gardner, 1983; Sternberg, 1990; Taylor, 1986). In reviewing research on giftedness and learning style, we found that many studies used a narrow, traditional IQ-score-driven definition (sometimes using individual IQ, other times group IQ scores). Other studies reported using a definition of giftedness based primarily on standardized achievement test scores and, yet, others relied entirely on a school district's characterization of students as "gifted," often without any actual documentation of what indicators or criteria had actually been used by the schools. Clearly, the absence of conceptual or operational clarity about the term creates considerable difficulty in comparing or interpreting the results of correlations with learning style data.

**Creativity.** The construct of creativity has also received increased attention as an essential component of high-level performance and productivity. Today, some view creativity as an essential dimension of giftedness (e.g., Dunn, Dunn, & Treffinger, 1992; Renzulli, 1978). As with giftedness, creativity is a complex and multi-dimensional construct (e.g., Rhodes, 1961; Treffinger, Young, Selby, & Shepardson, 2002). Treffinger et al. (2002) reviewed over 100 sources that describe creativity characteristics. After identifying and synthesizing characteristics and indicators for which there was broad agreement in the literature, we divided them into four sets: generating ideas, digging deeper into ideas, openness and courage to explore ideas, and listening to one's *inner voice*.

Characteristics in the *Generating Ideas* set described individuals who are open to and exhibit strengths in fluency, flexibility, originality, elaboration, and metaphorical thinking. *Digging Deeper into Ideas* involved analyzing, synthesizing, reorganizing or redefining, evaluating, seeing relationships, having a desire to resolve ambiguity or to bring order to disorder, and preferring or understanding complexity. The characteristics associated with *Openness and Courage to Explore Ideas* included problem sensitivity, aesthetic sensitivity and interests, curiosity, sense of humor, playfulness, the capacity for fantasy or imagi-



nation, risk-taking, tolerance for ambiguity, tenacity, openness and/or sensitivity to feelings and emotions, adaptability, intuition, a willingness to grow and change, resistance to accepting authoritarian assertions without examination, and the ability to integrate dichotomies. Last, *Listening to One's "Inner Voice"* involved an awareness of one's own creativeness, persistence, a need for autonomy, self-direction, self-discipline, tendency to be task-oriented, independence of thought, non-conformity, a need time for reflection and introspection, intense concentration and absorption in the work, energy, a willingness to work hard, and an appreciation and capacity for thinking and work.

Traditionally, many researchers focused on creativity as personality and studied the traits or characteristics of highly creative people (e.g., MacKinnon, 1978), emphasizing their *level* of creativity (e.g., "How creative are you?"); however, through the past three decades, theory and research have increasingly turned to the question of one's personal creative style (focusing on the question, "How are you creative?").

**Style.** Theory and research also offer multiple conceptions of style. To illustrate ways in which concepts and models of style vary, consider two examples: the Dunn and Dunn learning style model (Dunn & Dunn, 1992, 1993) and recent work on problem-solving style (Selby, Treffinger, Isaksen, & Lauer, 2004; Treffinger, Selby, Isaksen, & Crumel, 2007).

The Dunns (1992, 1993) define learning style as the way in which each learner begins to concentrate on, process, absorb, and retain new and difficult information. They propose that the interaction of these elements occurs differently in each individual. Their model of style includes physiological (auditory, visual, tactile, and kinesthetic perceptual preferences; food or liquid intake, and mobility needs), sociological (learning alone, with a partner, as part of a small group or team, with peers, with an authoritative or collegial adult, or in a combination of ways), emotional (motivation, persistence, responsibility, conformity, and need for internal or external structure), and environmental (sound, light, temperature, and seating design) elements. They also consider indicators of global or analytic cogni-

tive/psychological processing inclinations and impulsive versus reflective inclinations.

The VIEW problem-solving style model defines style as "consistent individual differences in the ways people prefer to plan and carry out generating and focusing activities in order to gain clarity, produce ideas, and prepare for action" (Treffinger, Selby, Isaksen, & Crumel, 2007). This model proposes three specific dimensions of problem-solving style, with two principal styles in each dimension:

- **Orientation to Change:** the person's perceived preferences in two general styles for managing change and solving problems creatively: the Explorer (who prefers high-risk, high-novelty solutions and may feel constrained by external structure and authority) and the Developer (who prefers low-risk, practical solutions and is enabled by the guidance of structure and authority).
- **Manner of Processing:** the person's preference for working externally (i.e., with other people early and throughout the process) or internally (i.e., thinking and working alone before sharing ideas with others) when managing change and solving problems.
- **Ways of Deciding:** the primary or initial emphasis the individual gives to *people* (i.e., maintaining harmony and interpersonal relationships) or to *tasks* (i.e., emphasizing logical, rational, and appropriate choices) when making decisions during problem solving or when managing change.

### Exploring the Relationships

What are the relationships among giftedness, creativity, and style, and what are their implications for theory, research, and practice in gifted education? In this paper, we focus on four principal themes:

- Style influences personal creativity characteristics and expanding conceptions of giftedness.
- Style influences how people learn and use a variety of creativity tools and methods to express and expand their strengths and talents, as well as their problem-solving performance.



- Style influences teamwork skills.
- Creativity and style contribute positively to meaningful instructional differentiation for talent development.

Research suggests that there are significant relationships among personal style, creativity, and giftedness (including traditional psychometric views of giftedness and contemporary, broader perspectives on gifts and talents) and creativity. Selby and Treffinger (2003), for example, reviewed many studies of giftedness based on the Dunn and Dunn approach. We found that students identified as gifted (generally defined in traditional psychometric ways) differed from non-identified students in terms of their preferred style of learning as assessed by the Dunns' Learning Styles Inventory (LSI) (Dunn, Dunn, & Price, 1996). Certain style preferences appeared consistently in studies of learning style preferences among high-ability, high-achieving students. Dunn (1998), Dunn and Griggs (1985), Dunn, Griggs, Milgram and Price (1997 - 98), and Griggs and Dunn (1984) concluded that a greater percentage of students identified as gifted (compared with students not so identified) preferred quiet, low structure, bright light, and learning alone, unless the others learning with them are similarly-achieving peers. Gifted students also preferred formal, rather than informal, settings and learning in many ways when learning new and difficult material. Dunn (1998) reviewed many studies with high-ability students and described those students as perceptually strong, more persistent, more flexible, and internally controlled. There have been mixed results in relation to other learning style variables. Dunn (1998), Dunn, Griggs, Milgram, and Price (1997-98), Dunn and Price (1980), Griggs (1984), and Yong and McIntyre (1992) reported that gifted students preferred formal design, while Paskewitz (1985) supported the opposite conclusion. Coleman (1988), Honigsfeld (2000), Nations-Miller (1993), Paskewitz (1985), and Pederson (1984) found a preference for mobility, while Ricca (1984) did not. There have also been mixed findings relating to sound, light, time of day, auditory and visual preferences, and temperature. The mixed and inconsistent findings may result from variations in sample sizes, age, context, definition of giftedness (which often varied considerably among studies), or methodological differences among the studies reviewed. In addition, style prefer-

ences may differ in relation to talent and interest domains (e.g., Dunn, 1993; Honigsfeld, 2000; Milgram & Dunn, 1993; Treffinger & Selby, 1993). Honigsfeld (2000) found, for example, that students talented in science preferred tactual learning and teacher motivation, musically talented students preferred kinesthetic learning and were both teacher and parent motivated, and those with talents in literature were teacher and parent motivated and preferred visual learning. Dunn (1993) reported that students with strengths in a certain talent domain demonstrated, across cultures, similar preferences and differed significantly from students with strengths in different talent areas in their own or other cultures.

Comparing the results of these studies with personal creativity characteristics described above (Treffinger et al., 2002) resulted in several areas of possible overlap or relationship. Flexibility, for example, is a characteristic associated with generating ideas and creativity by several sources (e.g., Amabile, 1983; Starko, 1995) and is also commonly reported in relation to learning style preferences of the gifted (e.g., Dunn, 1998; Milgram, 1990; Paskewitz, 1985). Dunn, Griggs, Milgram, and Price (1997-98) also found that some gifted students prefer an analytic style; analysis is also associated with digging deeper into ideas (Treffinger et al., 2002). Persistence, self-direction, independence of thought, the need for alone time, and willingness to work hard were listed under listening to one's "inner voice." Studies with the LSI link these or similar characteristics as learning style preferences of the gifted (e.g., Chan 2001; Honigsfeld, 2000; Mein, 1986; Paskewitz, 1985; Ricca, 1984; Yong & McIntyre, 1992).

Not all students identified as gifted or creative will share the same characteristics or style preferences (cf., Dunn & Griggs, 1985; Griggs & Dunn, 1984). Studies comparing learning style preferences with individual problem-solving styles (e.g., Selby et al., 2004) indicated that individual problem-solving style is not related to ability level.

Problem-solving style preferences are also related significantly to several dimensions of learning style. In comparing Milgram's (1990) findings with those of Selby et al. (2004), one notes that persistence is a trait associated with high-ability students, as well as those



who prefer a Developer style when solving problems or managing change. Explorers, on the other hand—who seem just as capable in problem solving as Developers—do not display this preference to the same degree. Similarly, Developers are more authority motivated, while Explorers are more self-motivated. High-ability learners often prefer working in a formal rather than an informal environment and with low rather than high structure; however, this finding may vary when problem-solving style is considered. Developers prefer formal design and high structure, while Explorers prefer more flexibility and low structure. Students with the Explorer problem-solving style and learners identified as gifted prefer low structure and flexibility; however, as creative problem-solving style preferences move toward the Developer style, individuals appear to prefer less flexibility and more structure. Developers seem to know how to deal with structure and use it as a tool in successful problem solving, often at a high level, while Explorers often find structure constraining and confining, although they are also capable of high-level performance and accomplishments. Learning alone, a commonly reported preference among high ability learners, appears to be preferred by problem solvers with an Internal processing preference, while those with an External style prefer working with groups (especially groups of peers). Many high-ability students express a preference for quiet and bright light; bright light is preferred by Task-oriented problem solvers, but not by Person-oriented problem solvers. In general, then, considerable caution must be exercised in generalizing about giftedness or creativity as unitary constructs.

Research on the interactions between person and process has led to numerous advances in representing, studying, and applying the Creative Problem Solving (CPS) framework as a dynamic, flexible, and natural process (e.g., Isaksen & Treffinger, 2004; Treffinger, 2007). Contemporary approaches to CPS have also expanded our understanding of instruction in CPS and its applications in gifted education and talent development (Treffinger & Isaksen, 2005).

Wittig (1985) and Corbett-Whitier (1986) found learning style to be related to ways that children learn and successfully use the methods and tools of creative problem solving. Hurley (1993) and Schoonover (1996) found

both quantitative and qualitative relationships between self-reported creative style and how individuals learn and apply various creative problem-solving tools. Selby (1997) reported qualitative evidence of a relationship between the problem-solving styles of middle-school students and their approach to creative processes. Similarly, studies reviewed by Isaksen and Geuens (2007) indicated that while problem-solving tools are style neutral, individuals with varying style preferences may be more comfortable, and more productive, when working with different tools and specific components of the problem-solving process.

Isaksen and Geuens (2007) examined the relationships between problem-solving style and individual preferences for learning and using Creative Problem Solving (CPS) tools, guidelines, stages, and components (e.g., Treffinger, Isaksen, & Stead-Dorval, 2006). In an exploratory study of 81 respondents, they found significant relationships between CPS and all three problem-solving style dimensions. For instance, in relation to generating options, Explorers reported significantly greater enjoyment and use of Brainstorming with Post-its®, as well as higher levels of use for tools for “affirmative judgment,” when focusing their thinking. In comparison with Internals, Externals reported higher levels of use of tools such as the Evaluation Matrix and guidelines relating to “striving for quantity.” The study supported the conclusion that style influences both the level of enjoyment in learning and the use of a variety of CPS tools and guidelines.

Treffinger (2006a) found that teams of adolescents (at both the middle and senior levels) who received feedback on their individual and team’s problem-solving style preferences performed significantly better than control group students who did not receive style feedback on evaluations by independent judges of problem-solving performance in the Future Problem Solving Program. The experimental groups’ evaluations exceeded those of the control groups by more than 20% on initial problem-solving task evaluations.

Treffinger and Purifico (2004) examined research and theory on teamwork in relation to effective performance by groups on Creative Problem Solving tasks. Their review yielded eight general factors that may be important in building effective CPS teams. These included:



common goals and purposes, shared responsibility and leadership, program expertise, process expertise, high communication, respect for people and ideas, focus on important results, and, managing change.

In a study of problem-solving style, teamwork skills, and problem-solving performance, Treffinger (2006a) found that style feedback to adolescent students on problem-solving teams did not appear to enhance the students' initial perceptions of their effectiveness of individual or group teamwork skills (which were generally quite high). Particularly at the middle-school (early adolescent) level, students may need instruction and support in managing collaborative behavior and in separating it from social relationships, peer pressures, friendship concerns, and other developmental issues; however, the data indicated significant relationships between the Manner of Processing dimension of problem-solving style and teamwork skills assessments. Teams with higher average External processing style scores had higher scores on teamwork skills assessments.

If we hope to reach the needs of students with high talent potential, differentiated instruction and flexible approaches to programming (rather than a single, fixed or "one-size-fits-all" program) are clearly required (Treffinger, Young, Nassab, & Wittig, 2004). This applies even to classes in which students are homogeneously grouped; every student has unique learning needs. Selby and Treffinger (2006) noted that an understanding of style is important to the successful differentiation of instruction. Specifically, they suggested that problem-solving style may relate to differentiating instruction in several ways.

#### *Explorers need*

- freedom to be spontaneous and to go in unusual directions and
- open-ended projects, novelty and permission to take risks.

#### *Developers need*

- structure, to know how new material fits into what they know and
- an understanding of what they are doing in terms of the big picture.

#### *Externals need*

- opportunities to be engaged, explore ideas, and gain clarity through discussion and

- projects involving others and outward events, allowing early active involvement.

#### *Internals need*

- opportunities for quiet reflection, apart from others, and
- projects tied to personal interests that can be pursued alone.

#### *Person-Oriented Deciders need*

- to understand how their work benefits others, and to develop rapport with peers, and
- to engage in human-focused projects involving collaboration in a supportive climate.

#### *Task-Oriented Deciders need*

- to explore cause-and-effect relationships with problems requiring in-depth analysis, and
- to learn through logical, sequential instruction and projects designed to bring order out of confusion.

Treffinger (2006b) observed, "All problem solvers need to be able to use any (and all) CPS components, stages, and tools, and they should believe that they can do so successfully and effectively." Individuals tend to use many thinking tools and processes in unique ways while maintaining the power and effectiveness of both the process and tools. In instruction, it is important to remember that Developers prefer analytic tools and instructions on how to use them correctly. Explorers may begin modifying tools on their own, preferring tools that help generate many novel possibilities. Those with an External style prefer "high activity" tools and strategies, while Internals prefer more reflective ones. In terms of Ways of Deciding, Person-Oriented Deciders prefer tools that involve relationships, whereas Task-Oriented Deciders prefer tools that help them get directly to the task.

### *Conclusion*

The constructs of giftedness, creativity, and style are clearly complex and multi-dimensional, and when we considered the interactions among the three constructs, the challenges became even more complex. Looking at research with students identified as gifted or of high ability, we found a set of style preferences that differentiates this group from those not so identified; however, the data also suggested that style preferences can vary



widely within and across talent domains, cultural contexts, and specific tasks in which they may be engaged. Our review also reinforced the conclusion that our understanding of these three constructs and their interactions is just in its infancy. Future research directed toward understanding the complex relationships among giftedness, creativity, and learning style will certainly require complex, multivariate designs and analyses, careful definitions of multi-faceted variables, and multiple assessment tools. Educators must be cautious in their approach to recognizing and nurturing giftedness and creativity, investing effort in seeking many strengths and talents among students and in constructing dynamic, flexible approaches to curriculum and instruction. It is important for practitioners to gain as complete an understanding of the style preferences of each individual student and of the implications of style for the context of the activity at hand, (e.g., learning new and difficult material or working creatively on complex, open-ended problems). It is also important to recognize that the links between talent and style must be examined in relation to one's specific concep-

tual and operational definitions of both constructs.

For both researchers and practitioners, the power and potential of learning style derive more from understanding the dynamics of talent development and instructional differentiation than from categorization of people or the search for group differences. This is especially true, given the varying conceptions of giftedness, talent, and creativity that are prevalent today, the availability of multiple "windows" on individual style preferences, and the complexity of interactions among multiple variables. Continued research will certainly enhance our ability to bring style theory into practice, thereby increasing its power and also enabling us to increase, significantly, the effectiveness of instruction for all students. Designing and conducting education for personal strengths, talents, and creativity challenge us to look to new approaches and tools for assessment, curriculum, instruction, and evaluation, lest we find that in our zeal for "high-stakes assessment," we have left many children behind.

## References

- Amabile, T. (1983). *The social psychology of creativity*. New York: Springer-Verlag.
- Chan, D. (2001). Learning styled of gifted and nongifted secondary students in Hong Kong. *Gifted Child Quarterly*, 45 (1), 35-44.
- Coleman, S.J. (1988). An investigation of the relationships among physical and emotional learning style preferences and perceptual modality strengths of gifted first-grade students. (Doctoral dissertation, Virginia Polytechnic Institute and State University, 1988). *Dissertation Abstracts International*, 59(04), 873A.
- Corbett-Whitier, C. (1986). The relationship of learning style preferences by high school gifted students on the Torrance Tests of Creative Learning. Unpublished master's thesis. State University College at Buffalo, New York: Center for Studies in Creativity.
- Dunn, R. (1993). The learning styles of gifted adolescents in nine culturally diverse nations. *InterEd*, 20 (64), 4-6.
- Dunn, R. (1998). Learning styles, creativity, and talent development. In D. J. Treffinger & K. W. McCluskey (Eds.), *Teaching for talent development* (pp. 45-52). Sarasota, FL: Center for Creative Learning.
- Dunn, R., & Dunn, K. (1992). *Teaching elementary students through their individual learning styles*. Boston: Allyn & Bacon.
- Dunn, R., & Dunn, K. (1993). *Teaching secondary students through their individual learning styles*. Boston: Allyn & Bacon.
- Dunn, R., Dunn, K., & Price, G. (1996). *Learning Style Inventory*. Lawrence, KS: Price Systems, Inc.
- Dunn, R., Dunn, K. & Treffinger, D. (1992). *Bringing out the giftedness in your child*. New York: Wiley.
- Dunn, R. & Griggs, S. (1985, November-December). Teaching and counseling gifted students with their learning style preferences: Two case studies. *G/C/T Magazine*, 40-43.
- Dunn, R. Griggs, S., Milgram, R. & Price, G. (1997-98). Learning styles of gifted adolescents in nine culturally-diverse nations. *National forum of Applied Educational Research Journal*, 10, 2, 3-18.
- Dunn, R. & Price, G. (1980, Winter). Identifying the learning style characteristics of gifted children. *Gifted Child Quarterly*, 24(1), 33-36.
- Gardner, H. (1983). *Frames of mind: The theory of multiple intelligences*. NY: Basic Books.
- Griggs, S. (1984). Counseling the gifted and talented based on learning styles. *Exceptional Children*, 50, 5, 429-432.
- Griggs, S.A. & Dunn, R. (1984). Selected case studies of the Learning Style Preferences of Gifted Students. *Gifted Child Quarterly*, 28(3), 115-119.
- Honigsfeld, A. (2000). The learning styles of high-achieving and creative adolescents in Hungary. *Gifted and Talented International*, 15, 1, 39-51.
- Hurley, C. (1993). *The relationship between Kirton Adaptation-Innovation style and the use of creative problem solving*. Unpublished master's thesis, Center for Studies in Creativity, Buffalo State College, Buffalo, NY.
- Isaksen, S. & Geuens, D. (2007). An exploratory study of the relationships between an assessment of problem solving style and creative problem solving. *Korean Journal of Thinking and Problem Solving*, 17(1), 5-26.
- Isaksen, S. G., & Treffinger, D. J. (2004). Celebrating 50 years of reflective practice: Versions of creative prob-



- lem solving. *Journal of Creative Behavior*, 38(2), 75-101.
- MacKinnon, D. W. (1978). *In search of human effectiveness*. Buffalo, NY: Bearly Limited.
- Mein, J.R. (1986). Cognitive and learning style characteristics of high school gifted students. (Doctoral dissertation, University of Florida, 1986). *Dissertation Abstracts International*, 48, 04, 880A.
- Milgram, R. (Ed.). (1990). *Teaching gifted and talented learners in regular classrooms*. Springfield, IL: Charles C. Thomas.
- Milgram, R. & Dunn, R. (1993). Identifying learning styles and creativity in gifted learners: Subjects, instrumentation, administration, reliability, validity. In R. Milgram, R. Dunn, & G. Price (Eds.), *Teaching and counseling gifted and talented adolescents: An international learning style perspective* (pp. 25-36). Westport, CT: Praeger.
- Nations-Miller, B. A profile analysis of the learning styles of tenth- through twelfth-grade, at-risk vocational and gifted students in a suburban Georgia public school. (Doctoral dissertation, Georgia State University, 1993). *Dissertation Abstracts International*, 53(8), 2784.
- Paskewitz, B. U. (1985). A study of the relationship between learning styles and attitudes toward computer programming of middle school gifted students. (Doctoral dissertation, University of Pittsburgh). *Dissertation Abstracts International*, 47(03), 697A.
- Pederson, J. K. (1984). The classification and comparison of learning disabled students and gifted students. (Doctoral dissertation, Texas Tech University). *Dissertation Abstracts International*, 45(09A), 2810.
- Ricca, J. (1984). Learning styles and preferences for instructional strategies of gifted students. *Gifted Child Quarterly*, 28 (3), 121-126.
- Renzulli, J.S. (1978) What makes giftedness? Reexamining a definition. *Phi Delta Kappan*, 59, 180-184.
- Rhodes, M. (1961). An analysis of creativity. *Phi Delta Kappan*, 42, 305-310.
- Schoonover, P. F. (1996). *The preferences for and use of creative problem solving tools among adaptors and innovators*. Unpublished doctoral dissertation. Walden University.
- Selby, E. (1997). Lucy and Michael: Case studies of creative styles in teenagers. *Creative Learning Today: Center for Creative Learning Newsletter*, 7, 2, 4-6.
- Selby, E. C. & Treffinger, D. J. (2003). Learning style, giftedness, and creativity. In: R. Dunn & S. A. Griggs (Eds.). *Synthesis of the Dunn and Dunn learning-style model research*. (pp. 61-66). Jamaica, NY: St. John's University.
- Selby E. & Treffinger, D. (2006). *Problem solving with style: What is it? Why is it important?* Conference presentation. National Association for Gifted Children Conference, Charlotte, NC.
- Selby, E. Treffinger, D., Isaksen, S., & Lauer, K. (2004). Defining and assessing problem-solving style: Design and development of a new tool. *Journal of Creative Behavior*, 38 (2), 221-243.
- Starko, A. J. (1995). *Developing creativity in the classroom: Schools of curious delight*. White Plains, NY: Longman.
- Sternberg, R. (1990). What constitutes a "good" definition of giftedness? *Journal for the Education of the Gifted*, 13, 96-100.
- Taylor, C.W. (1986). Cultivating simultaneous student growth in both multiple talents and knowledge. In J. S. Renzulli (Ed.), *Systems and models for developing programs for the gifted and talented* (pp. 306-351). Mansfield Center, CT: Creative Learning Press.
- Treffinger, D. J. (2006a). *Impact of style awareness on team performance: Final report*. Sarasota, FL: Center for Creative Learning.
- Treffinger, D. (2006b). *Personalizing creative problem solving: Building creative excellence*. Conference presentation. National Association for Gifted Children Conference, Charlotte, NC.
- Treffinger, D. J. (2007). Creative problem solving (CPS): Powerful tools for managing change and developing talent. *Gifted and Talented International*, 22(2), 8-18.
- Treffinger, D. J., & Isaksen, S. G. (2005). Creative problem solving: History, development, and implications for gifted education and talent development. *Gifted Child Quarterly*, 49(4), 342-353.
- Treffinger, D., Isaksen, S., & Stead-Dorval, K. B. (2006). *Creative problem solving: An introduction*. (4th Ed.). Waco, TX: Prufrock Press.
- Treffinger, D., & Purifico, S. (2004). *Building successful creative problem-solving teams: Growing, guiding, celebrating*. Glassboro, NJ: Destination ImagiNation, Inc.
- Treffinger, D., & Selby, E. (1993). Giftedness, creativity and learning style: Exploring the connections. In R. Milgram, R. Dunn, & G. Price (Eds.), *Teaching and counseling gifted and talented adolescents: An international learning style perspective* (pp. 87-102). Westport, CT: Praeger.
- Treffinger, D., Selby, E., Isaksen, S., & Crumel, J. (2007) *Problem-solving style: An introduction and overview*. Sarasota, FL: Center for Creative Learning.
- Treffinger, D., Young, G., Nassab, C., & Wittig, C. (2004) *Enhancing and expanding gifted programs: The levels of service approach*. Waco, TX: Prufrock Press, Inc.
- Treffinger, D., Young, G., Selby, E., & Shepardson, C. (2002). *Assessing creativity: A guide for educators*. Storrs, CT: National Research Center on the Gifted and Talented, University of Connecticut.
- Wittig, C. (1985). *Learning style preferences among students high or low on divergent thinking and feeling variables*. Unpublished Master's dissertation, State University College of Buffalo at New York, Center for Studies in Creativity.
- Yong, F. & McIntyre, J. (1992). A comparative study of the learning style preferences of students with learning disabilities and students who are gifted. *Journal of Learning Disabilities*, 25, 2, 124-132.

## Endnotes

<sup>1</sup>CORRESPONDENCE: Donald J. Treffinger, Centre for Creative Learning, Inc., 4921 Ringwood Meadow, Sarasota, Florida, United States of America, 34235; e-mail: don@creativelearning.com.





## PART 2: SPECIAL POPULATIONS





# Reclaiming “Lost Prizes:” Projects to Identify and Develop the Talents of At-Risk Populations<sup>1</sup>

Ken W. McCluskey<sup>2</sup>

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## Abstract

This paper reviews several made-in-Manitoba initiatives designed to serve marginalized, at-risk populations. In these projects, Creative Problem Solving and mentoring have been used together to reclaim talented but troubled high-school dropouts (Lost Prizes), to turn around the lives of disadvantaged Aboriginal teens (Northern Lights), and to reduce the recidivism rate of Native-Canadian inmates (Second Chance). More recently, through various other programs at the University of Winnipeg, pre-service teacher mentors have been recruited to identify and nurture the talents of vulnerable young people at risk for school failure, alienation, dropping out, and criminal and gang activity.

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Well over a year ago, my colleagues and I vowed never to do another piece about our past projects with at-risk young people. For one thing, much had already been written. In addition, I simply wanted to avoid being type-cast as the “*Lost Prizes Guy*.” (I really do have other professional interests.)

Of late, however, we have had cause to change our collective mind. The flood of requests for information about our work has made it clear there is profound and enduring interest from those striving to create similar service delivery programs. If our efforts can serve as a stimulus or model for anyone committed to identifying and enhancing the talents of at-risk young people, we are more than willing to share our findings, thoughts, and perspectives. It goes without saying that we don’t expect others to use our exact framework. Naturally, practitioners and researchers will develop variations on the original theme that are unique to their own settings. Another development that has made us less reluctant to revisit earlier projects is the fact that there has recently been some

new action on the local front. Specifically, our team at the University of Winnipeg has secured a large grant to establish an Innovative Learning Centre—in effect, a base from which to reach out and reclaim Aboriginal youth mired in difficult inner-city circumstances. A director has been hired and trained, needy young people have been identified, and programming is just underway. In other words, *Lost Prizes* is in the process of being reincarnated in a larger and more permanent form. We do not have much in the way of outcomes to discuss, as yet, but we will surely be engaging more students and generating substantially more data than we have in the past.

## *Potential Lost*

Most gifted and talented programs in most school jurisdictions are created predominantly for “teacher pleasers”—the students who are academic or social “stars,” if you will. Concomitantly, there is a decided dearth of services for the alienated “tough bright” that don’t fit nicely into our educational moulds (Peterson, 1997). Nonconforming, troubled, and



troubling children and youth often march to the beat of their own drummer (Sisk, 2003) and view the school curriculum as irrelevant (Baum, Renzulli, & Hébert, 1995).

Be that as it may, recalcitrant, relationship-resistant, young people are often tremendously capable. A case in point: it takes real (albeit misdirected) talent to be a successful leader or member of a youth gang (Baker, McCluskey, & McCluskey, 2003). Indeed, it is not at all uncommon for at-risk children and adolescents—many of whom are blocked from legitimate paths to recognition—to become serious social problems. One major conclusion arising from the First World Conference on Gifted Children in London in 1975 was that high-ability individuals whose needs are not met are apt to turn their talents toward unsavory pursuits. One seminal report, produced by Statistics Canada (1991) just as we were first considering these issues, showed clearly that very capable students are likely to become disenchanted, bored, and unproductive at school. In fact, only 8% of the dropouts sampled identified difficulty with academic work as their main reason for quitting. Some 30% had actually been maintaining averages of A or B before leaving. Incidentally, 48.18% of gifted dropouts in America fell into the bottom quartile in terms of socio-economic level. Only 3.56% were in the top quartile (Renzulli & Park, 2000).

The economic implications of inaction have been documented repeatedly by governments of many countries. To illustrate, as we were about to launch our first project, it was estimated that the cost of having 11,000 disadvantaged Canadian teens drop out of school over a 20-year period was \$1.4 billion in unemployment and social assistance payments, \$9.9 billion in uncollected tax revenue, and \$23 billion in lost income and productivity (Canadian Council on Social Development, 1991). In our home province of Manitoba, about \$1,000 a minute—or \$1.4 million per day—was spent on at-risk young people (Manitoba Department of Finance, 1995 - 96).

Further, there are the impossible-to-quantify, yet significant, social ramifications 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, p. 216).

### *Potential Regained*

In any case, let us take one last, brief look back before moving forward. In the '90s, the following three projects—each designed to address some of the foregoing needs—attracted considerable attention locally and abroad.

**Lost Prizes.** This three-year (1993 - 1996) program was a shared tri-district undertaking to recapture talented high-school dropouts. Their talents notwithstanding, the young people in question had left or been removed from the system. The best-case scenario was that they were floating aimlessly. More often than not, they had become involved in debilitating substance abuse and petty crime. Many had run seriously afoul of the law. The intent of Lost Prizes was to reconnect with these individuals and awaken dormant potential and enthusiasm. A more detailed description of the program planning has been laid out in an earlier publication (McCluskey, O'Hagan, Baker, Treffinger, & Feldhusen, 1995).

Teachers, employing Feldhusen's (1995) Talent Identification and Development in Education (TIDE) model, identified dropouts who were deemed to possess talent in the Academic-Intellectual, Artistic, Interpersonal-Social, or Vocational-Technical domains. In the first phase of the project, a facilitator worked directly with these youth in an off-site classroom. Along with information and career awareness sessions, the curriculum featured Creative Problem Solving (CPS) training (Treffinger, Isaksen, & Dorval, 2006). The students, using CPS tools, gradually learned to make more reasoned educational, career, and life decisions. Part of the process involved mapping out Individual Growth Plans to help them move from their current reality to a desired future state. Participants who completed this portion of the program earned one high-school credit.

During the second phase of the *Lost Prizes* experience, students gained first-hand knowledge of the world of work (and their second credit) through on-the-job placements. Supported by philanthropic mentors within the local business community, they had the chance to come face to face with and work



through some real-life problems. The entrepreneurs were not expected to offer traditional work placements as such, but rather to motivate, support, and guide the participants. The mentors took their new-found roles extremely seriously, typically going above and beyond the call of duty by bonding with and literally "adopting" their *Prizes*.

The project outcomes have been documented elsewhere (McCluskey, Baker, & McCluskey, 2005; McCluskey, Baker, O'Hagan, & Treffinger, 1998). To summarize succinctly, during the life of the project, many formerly discouraged, disconnected dropouts turned their lives around in a dramatic manner. Once their talents were identified, validated, and nurtured, 65% of the students (i.e., 57 of 88) responded by returning to and performing well at high school, entering and proceeding successfully through post-secondary programs at community college or university, or finding full-time employment.

**Northern Lights.** A follow-up undertaking, Northern Lights, was developed to address the plight of Aboriginal youth (cf., McCluskey, O'Hagan, Baker, & Richard, 2000). In the United States, Aboriginal students are far less likely to have their talents recognized or be included in gifted programs than their non-Aboriginal counterparts (Callahan & McIntire, 1994; Sisk, 1993; United States Department of Education, 1991).

The circumstances are similar in Canada, where Aboriginal youngsters are also under-represented when it comes to school enrichment opportunities (Bowd, 2003). Certainly, the situation is grave in the province of Manitoba, where in excess of 70% of children in care and youth in correctional facilities are of Aboriginal ancestry (Government of Canada or Province of Manitoba, 2002). As well, 50.3% of Aboriginal youth in our capital city of Winnipeg drop out of school, compared to only 19.5% for non-Aboriginals (Social Planning Council of Winnipeg, 1999).

From 1996 - 99, *Northern Lights* provided assistance to Aboriginal youth who had dropped or been pushed out of school for attendance, behavioral, or academic reasons. Although similar to *Lost Prizes* in most ways, pronounced program modifications were required to reach this population, including an infusion of culturally appropriate material and the hir-

ing of Aboriginal social workers and educational assistants to connect with the students and their families. The mentoring component was also increased from four to five weeks. Once these extra supports were put in place, some 65% (38/58) of the participants again returned to school, graduated, enrolled in post-secondary programs, or obtained jobs.

**Second Chance.** Sponsored by Human Resources Development Canada and Corrections Canada, this endeavor targeted Native-Canadian inmates from Northern reservations who had ended up in provincial jails. They had been incarcerated for a variety of offences, including break and entry, robbery, assault, physical or sexual abuse, drug trafficking, and even juvenile murder. You really can't get more at-risk than that. Not surprisingly, in light of the high recidivism rate for Aboriginal people in Canada (Canfield & Drinnan, 1991), 18 of the 31 participants had prior convictions.

The *Second Chance* intervention again consisted of Creative Problem Solving training, mentoring, and job preparation for the offenders (Place, McCluskey, McCluskey, & Treffinger, 2000). Inmates in a matched control group received no such pre-release support. They were simply "warehoused" through the prison system in traditional "Do the crime, do the time!" fashion, and left to their own devices at sentence end. Unfortunately, a year after release, a staggering 90% (28/31) of the individuals in the unsupported control group had re-offended; however, of those who had participated in our pre-release program, only 39% (12/31) were recidivist. Importantly, that rate has held for almost a decade. Even extremely high-risk Aboriginal inmates showed they were able to turn their lives around, and keep them turned around.

### *Lost Prizes: A Rebirth*

We are now in the midst of establishing the Innovative Learning Centre at our institution. This facility, home of a program modeled in large part after the original *Lost Prizes*, is being created to support large numbers of disadvantaged Aboriginal teens in the city centre. To borrow a phrase from the newly appointed Director, Kevin Chief (an appropriate name for an up-and-coming young man who is Aboriginal himself), the goal is to reach out to at-risk inner-city youth who have dismissed post-secondary education (and even high school)



as unrealistic, and "give them a tap on the shoulder." This encouragement—a wake-up call of sorts—is intended to help them understand that they may have more possibilities in their future than they have hitherto realized.

Kevin and his staff run a *Lost Prizes* type of program, and more, by reaching out to far larger numbers of students than in our earlier attempts. Since there is a marked shortage of Aboriginal students in the sciences, we are placing extra emphasis on that discipline. One great advantage we have at the University of Winnipeg is the fact that a high school—The Collegiate—is attached and fully integrated into our campus. As a consequence, we can offer a secure, carefully monitored high-school haven as part of the reclamation process.

Kevin is now fully equipped for the role, having completed training in CPS and the Circle of Courage (Brendtro, Brokenleg, & Van Bockern, 1990), an approach which builds upon traditional Native American teachings to create reclaiming environments and connect with at-risk youth. As well, he has completed the Response Ability Pathways (RAP) training (Brendtro & du Toit, 2006), a universal curriculum that prepares caregivers to respond to the needs of hard-to-reach young people, rather than merely reacting to their problems. The goal is to guide youth toward problem ownership and responsibility. Soon to come is Life Space Crisis Intervention (LSCI) (Long, Wood, & Fecser, 2001)—a strength-based intervention which helps caregivers rethink the conflict cycle, decode the meaning of recalcitrant behavior, and move from crisis *management* to crisis *teaching*.

Although it is still early, much has already been accomplished. Aside from making sure Kevin is as ready as possible, the first wave of participants has been selected, a mentoring component has been built into the program, and some preliminary programming is underway. In addition, personnel at our own Institute of Urban Studies are preparing, from the outset, to gather information, analyze the data, and evaluate the process and outcomes.

### *Mentoring Projects*

Various researchers in the areas of at-risk and gifted education have shared their thoughts and described various mentoring programs in a recent volume (McCluskey & Mays, 2003). Suffice it to say here, then, is that—if done

appropriately—mentoring offers exciting possibilities for enriching the lives of students, including those who are at-risk (Bergsgaard, Land, & Myles, 2003; Dubois, Holloway, Valentine, & Copper, 2002; DuBois & Neville, 1997; Ferguson & Snipes, 1994; Grossman & Rhodes, 2002; Grossman, & Tierney, 1998; Meyer, 1997; Renzulli, Baum, Hébert, & McCluskey, 1999; Royce, 1998). Cross-cultural mentoring with Aboriginal and other students has also shown promise (McCluskey & Torrance, 2003; Torrance, Goff, & Satterfield, 1998).

Responding to our mandate to address urban, inner-city, and Aboriginal issues, the Faculty of Education at the University of Winnipeg has launched a series of wide-ranging mentoring projects to reach out to needy young people in the city's core. Creative Problem Solving has been used both to help plan these ventures and to arm our student mentors with tangible, pragmatic skills.

To step back for a moment, the mentors—drawn from the ranks of pre-service teachers in our Faculty—are prepared through a fourth-year Issues with At-Risk Children and Youth course (which examines topics such as anger management, bullying, gang prevention, resilience, talent development, CPS, LSCI, and mentoring per se). The point is, of course, that these individuals are not simply volunteers thrown into the trenches: they are teachers-to-be who have many university courses and some very specific training under their belts.

The follow-up pass or fail mentoring practicum provides the experiential link between theory and practice. Selected pre-service teachers, who keep detailed reaction logs summarizing their experiences, serve as mentors for at least fifty hours through one university term. In part, they function as talent scouts (McCluskey & Treffinger, 1998), searching for and building upon strengths in their young charges. Meaningful connections typically develop between mentors and mentees, to the point where our teachers-in-training often find they are voluntarily putting in far more time than required. In fact, of the total number of mentors placed in the community to date, in excess of 50% have maintained contact with their mentees after the completion of their particular project. More than 10% have stayed connected over an extended period of time.



MARS (Mentoring At-Risk Students), our first project of this type, focused on disadvantaged, gang-involved Aboriginal "street kids." Through MARS, we matched 58 mentors with 58 mentees, aged 9 to 18 years. Fifty of those mentees came from single-parent families, and all of the families involved were living in poverty. Many other mentoring programs followed: PLUTO (Please Let Us Take Off) involved a partnership with two core-area schools, VENUS (Versatility in Educating Non-attending, Underachieving Students) was another endeavor to engage sporadic attendees in another school, SATURN (Storefront Activities To Unleash Resilience and Nurturing) taught parents in a storefront operation how to build the literacy skills of their preschoolers, and NEPTUNE (Nurturing Enrichment Programming Through University Networking and Empowerment) used mentors prepared through an Enrichment and Talent Development course to challenge some at-risk students through higher-order projects. As we, jokingly, say to the funding agencies, "If they've got the money, we've got the planets!"

In all, we feel we have raised the bar somewhat compared to many traditional mentoring programs. To us, the entire experience seems to be a win-win scenario, in that it offers concrete support and enrichment to needy young people who might otherwise "fall through the cracks," while, at the same time, providing invaluable, front-line experience for our teachers-to-be.

In a project of a different sort, *Three Stars and a Wish*, we used mentors, both as tutors and emotional supporters, of grades 4 and 5 students at Fort Rouge School in Winnipeg's inner city. It is a very intriguing place; at the time of the project, there were 30 first languages spoken among the school's 180 elementary students. Talk about diversity!

Sixteen pre-service teacher mentors from our Language Arts course worked with 16 youngsters to help them write biographical sketches of significant moments in the lives of their parents. At the end of the exercise, there was a celebration (held in our university theatre) where the children, after being introduced by their mentors, read their stories aloud to a packed audience. Parents then shared a personal wish they had for their child. There wasn't a dry eye in the place. At the event, each child was presented with a book, de-

signed by one of the mentors, that included their story, the wish, pictures of the three stars (the child, the parent, and the mentor), and photos of maps of their parents' childhood communities and treasured possessions.

The project has been described in detail in another article (Katz & McCluskey, 2003). To make things come alive, let me cite directly from Katz's introduction to *Three Stars and a Wish*:

The children wrote to learn about real people of importance to them. They gained a new understanding of themselves, their families, and their communities. One child wrote, "I am happy that my Mom told me this story because it gave me a chance to know what my mother was like when she was a little girl." Another child wrote, "My Mom wants me to know that sometimes life is hard and sometimes there are good times. It is important to get to know your family better." In articulating their stories, parents learned, too. A parent wrote, "My parents were not perfect and, now that I am a parent, I know there is no such thing as 'perfect.'" A father wished for his daughter, "that you stay in Canada where you can enjoy freedom—but never forget our country, family, and culture." (Katz & King, 2000, p. iii)

To elaborate a little further, young Ernie wrote this about his mother:

"Once there was a little girl named Rebekah. She went to school in the 60s on the reserve (Poplar River, Manitoba). The reserve is much different from today. There was no electricity. They had to use gas lamps for light and wood stoves for cooking. There were no phones and no television ..." (Katz & King, p. 3).

For her part, Sabrije wrote, "Imagine looking outside your window and seeing houses on fire on your street. Imagine hearing the sounds of bombs at night when you fall asleep. This was our life in our country of Kosovo. During these times ... my father would take my family ... to my uncle's house where we would be safe ..." (Katz & King, p. 5)



## Final Thoughts

When all is said and done, we must confess that all this work has been more about service than research. Indeed, although we have gathered data along the way, none of the initiatives was constructed with empirical rigor in mind; the aim was to help people. Still, some interesting data have emerged from following participants and monitoring their achievements, from analyzing hundreds of rich reaction logs, and from comparing pre- and post-intervention measures of dropout rates, behavioral incidents at school, run-ins with the law, and so on. The aforementioned "Comparing Current Realities with Desired Futures" exercise, a tool borrowed from the CPS literature (Treffinger, Isaksen, & Dorval, 2006), has been very helpful in terms of setting direction and tracking the performance of individual participants.

We are also gradually moving from the ethereal, mentoring-feels-good realm toward more

objective data gathering. Goal attainment scaling (Kiresuk, Smith, & Cardillo, 1994), where personalized goals are set, quantified, and measured for each participant, offers some interesting possibilities.

Although imperfect, after obtaining feedback from large numbers of participants, mentors, educators, and significant others, our team is confident that our projects have made a real difference to marginalized populations. Hunt (1987) has challenged university types to put away their "little professor" and to remember that "in the beginning" there was experience, not a "blackboard." Heeding this admonition, we try to break free from the ivory tower, to seek outside wisdom in respectful ways, to connect with schools and agencies, and to improve the situation for as many young people as possible. We hope, in some way, that our projects stand as a monument to partnership and as a roadmap illustrating how a university can contribute to its community.

## References

- Baker, P. A., McCluskey, K. W., & McCluskey, A. L. A. (2003). Youth gangs: Cesspool or talent pool? In D. Sutherland & L. Sokal (Eds.), *Resiliency and capacity building in inner-city learning communities* (pp. 147-168). Winnipeg, MB: Portage & Main Press.
- Baum, S. M., Renzulli, J. S., & Hébert, T. (1995). *The prism metaphor: A new paradigm for reversing achievement*. Storrs, CT: The National Research Center on the Gifted and Talented, The University of Connecticut.
- Bergsgaard, M., Land, R., & Myles, E. (2003). The prism project: Colors in the dark. In K. W. McCluskey & A. M. Mays (Eds.), *Mentoring for talent development* (pp. 87-102). Sioux Falls, SD: Reclaiming Youth International, Augustana College.
- Brendtro, L. K., Brokenleg, M., Van Bockern, S. (1990). *Reclaiming youth at risk: Our hope for the future*. Bloomington, IN: National Educational Service.
- Brendtro, L. K., & DuToit, L. (2006). *Response ability pathways: Restoring bonds of respect*. Cape Town, South Africa: Pretext Publishers.
- Bowd, A. D. (2003). *Identification and assessment of gifted and talented youth particularly in northern, rural and isolated communities*. Thunder Bay, ON: Centre of Excellence for Children and Adolescents with Special Needs, Lakehead University.
- Callahan, C. M., & McIntire, J. (1994). *Identifying outstanding talent in American Indian and Alaska Native students*. Washington, DC: U.S. Department of Education (Javits Gifted and Talented Education Program, Office of Educational Research and Improvement).
- Canadian Council on Social Development. (1991). The poverty connection. *Social Development Overview*, 1, 9-10.
- Canfield, C., & Drinnan, L. (1991). *Native and non-native federal inmates: A five year history: Comparative statistics*. Ottawa, ON: Correctional Service of Canada.
- Dubois, D. L., Holloway, B. E., Valentine, J. C., & Copper, H. (2002). Effectiveness of mentoring programs for youth: A meta-analytic review. *American Journal of Community Psychology*, 30, 157-197.
- DuBois, D. L., & Neville, H. A. (1997). Youth mentoring: Investigation of relationship characteristics and perceived benefits. *Journal of Community Psychology*, 25, 227-234.
- Feldhusen, J. F. (1995). *Talent identification and development in education (TIDE)* (2nd ed.). Sarasota, FL: Center for Creative Learning.
- Ferguson, R. F., & Snipes, J. (1994). Outcomes of mentoring: Healthy identities for youth. *Reclaiming Children and Youth*, 3 (2), 19-22.
- Government of Canada/Province of Manitoba (2002). *Aboriginal people in Manitoba*. Ottawa, ON: Author.
- Grossman, J. B., & Rhodes, J. E. (2002). The test of time: Predictors and effects of duration in youth mentoring relationships. *American Journal of Community Psychology*, 30, 199-219.
- Grossman, J. B., & Tierney, J. P. (1998). Does mentoring work? An impact study of the Big Brothers/Big Sisters program. *Education Review*, 22, 403-426.
- Hunt, D. E. (1987). *Beginning with ourselves in practice, theory, and human affairs*. Cambridge, MA: Brookline Books.
- Katz, H., & King, J. (2000). *Three stars and a wish: A Fort Rouge School & University of Winnipeg project*. Winnipeg, MB: The University of Winnipeg.
- Katz, H., & McCluskey, K. W. (2003). Seeking strength-based approaches in Aboriginal education: The "three stars and a wish" project. *McGill Journal of Education*, 38 (1), 116-134.



- Kiresuk, T. J., Smith, A., & Cardillo, J. E. (1994). *Goal attainment scaling: Applications, theory, and measurement*. Hillsdale, NJ: Hove and London.
- Long, N. J., Wood, M. M., & Fecser, F. A. (2001). *Life space intervention: Talking with students in conflict* (2nd ed.). Austin, TX: pro•ed.
- Manitoba Department of Finance. (1995-96). *Public accounts*. Winnipeg, MB.
- McCluskey, K. W., Baker, P. A., & McCluskey, A. L. A. (2005). Creative problem solving with marginalized populations: Reclaiming lost prizes through in-the-trenches interventions. *Gifted Child Quarterly*, 49 (4), 330-341.
- McCluskey, K. W., Baker, P. A., O'Hagan, S. C., & Treffinger, D. J. (1998). Recapturing at-risk, talented high-school dropouts: A summary of the three-year Lost Prizes Project. *Gifted and Talented International*, 13 (2), 73-78.
- McCluskey, K. W., & Mays, A. M. (Eds.). (2003). *Mentoring for talent development*. Sioux Falls, SD: Reclaiming Youth International, Augustana College.
- McCluskey, K. W., O'Hagan, S. C., Baker, P. A., & Richard, S. (2000). Nurturing the talents of Aboriginal Canadian youth. *TalentEd*, 18 (4), 1-9.
- McCluskey, K. W., O'Hagan, S. C., Baker, P. A., Treffinger, D. J., & Feldhusen, J. F. (1995). Lost prizes project: Program development. In K. W. McCluskey, P. A. Baker, S. C. O'Hagan, & D. J. Treffinger (Eds.), *Lost prizes: Talent development and problem solving with at-risk students* (pp. 147-159). Sarasota, FL: Center for Creative Learning.
- McCluskey, K. W., & Torrance, E. P. (2003). Mentoring: One pathway to Aboriginal talent development. In K. W. McCluskey & A. M. Mays (Eds.), *Mentoring for talent development* (pp. 178-195). Sioux Falls, SD: Reclaiming Youth International, Augustana College.
- McCluskey, K. W., & Treffinger, D. J. (1998). Nurturing talented but troubled children and youth. *Reclaiming Children and Youth*, 6 (4), 215-219, 226.
- Meyer, W. (1997). A turn down the harbor with at-risk children. *Phi Delta Kappan*, 79 (4), 312-316.
- Peterson, J. C. (1997). Bright, tough, and resilient – and not in a gifted program. *Journal for Secondary Gifted Education*, 8 (3), 121-136.
- Place, D. J., McCluskey, A. L. A., McCluskey, K. W., & Treffinger, D. J. (2000). The second chance project: Creative approaches to developing the talents of at-risk native inmates. *Journal of Creative Behavior*, 34 (3), 165-174.
- Renzulli, J. S., Baum, S. M., Hébert, T., & McCluskey, K. W. (1999). Reversing underachievement through enrichment. *Reclaiming Children and Youth*, 7 (4), 217-223.
- Renzulli, J. S., & Park, S. (2000). Gifted dropouts: The who and the why. *Gifted Child Quarterly*, 44 (4), 261-271.
- Royce, D. (1998). Mentoring high-risk minority youth: Evaluation of the Brothers Project. *Adolescence*, 33, 145-158.
- Sisk, D. (1993). *Systemic training educational programs for under-served pupils (Project Step-UP)*. Washington, DC: U.S. Department of Education.
- Sisk, D. (2003). Gifted with behavior disorders: Marching to a different drummer. In D. Montgomery (Ed), *Gifted and talented children with special educational needs: Double exceptionality* (pp. 131-154). London, England: David Fulton Publishers.
- Social Planning Council of Winnipeg. (1999). *Note on Aboriginal youth educational attainment levels*. Winnipeg, MB: Author.
- Statistics Canada. (1991). *School leavers survey*. Ottawa, ON: Employment and Immigration Canada.
- Torrance, E. P., Goff, K., & Satterfield, N. B. (1998). *Multicultural mentoring of the gifted and talented*. Waco, TX: Prufrock Press.
- Treffinger, D. J., Isaksen, S. G., & Dorval, K. B. (2006). *Creative problem solving: An introduction* (4th ed.). Waco, TX: Prufrock.
- U.S. Department of Education (1991). *National education longitudinal study (NELS:88) on gifted and talented education*. Unpublished study, Washington, DC: Author.

## Endnotes

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<sup>2</sup>Correspondence: Ken McCluskey, Dean, Faculty of Education, 515 Portage Ave., Winnipeg, Manitoba, CANADA, R3B 2E9; 204-786-9470; e-mail: k.mccluskey@uwinnipeg.ca





## 2.

# Motivating Adolescent Gifted Learners: Battling Underachievement

Richard M. Cash<sup>1</sup>

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### Abstract

Adolescent gifted learners are some of the most complex students a teacher may encounter in his or her career. These learners are undergoing the challenges of both adolescence and giftedness. Trying to keep these learners motivated, engaged, and productive may require a concerted effort. This article briefly reviews possible causes of underachievement among adolescent gifted learners and offers practical ideas that teachers of gifted students may employ to keep them motivated and on track.

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Gifted underachievement is a topic rarely discussed in the early literature on gifted education; however, as the field developed, researchers became increasingly aware of the unnecessary loss of human potential and the importance of preventing underperformance among gifted youth. Adolescence is a particularly vulnerable time in one's lifespan. Gifted youth face not only the normal challenges that accompany adolescence but the difficulties associated with the cognitive precocity of giftedness. The aim of this article is to examine the reasons for underachievement among adolescent gifted learners and to provide practical suggestions for teachers of gifted youth in order to keep them motivated and focused in the classroom.

### *Why Adolescents Underachieve*

The reasons for adolescent underachievement are multifold, ranging from lack of challenge, procrastination, and distraction to difficulty with organization, unrealistically high expectations, and lack of support (see Table 1).

Lack of motivation to learn is of particular significance in this study because of its relevance to the classroom and potential to be addressed and reversed by educators. Lack of motivation may be rooted in either an ab-

sence of challenge and disinterest in the curriculum or lack of relevance of required course work, resulting in boredom. Reis and McCoach (2000) suggest, based on a four-year longitudinal study, that boredom "often contributes to underachievement in high school" (p. 156).

### *Reversing Patterns of Underachievement in Adolescent Gifted Students*

Teachers who develop a motivating curriculum that engages the learner in quality instruction (Emrick, 1992) may help reverse underachievement among gifted learners. Below are five principles of curriculum and instruction that may help turn around the patterns of underachievement in adolescent gifted students and nurture an intrinsic desire to learn.

#### *Principle 1: Make it Relevant.*

Adolescence is a time for personal growth and development. During the middle school and early high-school years, youth are struggling for a sense of identity, growing into their bodies, and working out mood and emotion. It is essential that middle school and high school teachers help students find themselves in the curriculum. Teachers must make the connection between what is being taught and the



Table 1. Reasons for Adolescent Underachievement  
(Adapted from Sternberg & Grigorenko, 2000)

Too little	Too much / many	Cannot
motivation challenge interest self-efficacy impulse control ability to control situations balance in one's life focus on completion of tasks support from others effort persistence social competence	self-confidence other activities procrastination self-pity dependency on others distractions ideas	determine the individual tasks from the greater project put thought into action follow through fail get organized

learner. For instance, in social studies, students may be asked to identify a social issue that is personally important to them. Teachers may assist the students in mapping out ways in which they can have an impact on the situation, either directly or indirectly. Alternatively, students may be engaged through the use of interest-based surveys or discussions. Knowing students' interests provides teachers with a means for focusing topic discussions or project work toward these interests. Students work harder, stay engaged longer, and, ultimately, learn more when content is personally significant (Daggett, 2005).

- Use reciprocal teaching, allowing students to share themselves or their passions with the class.
- Provide time in the day for students to meet in interest-based small groups, to find commonalities and develop intellectual and social bonds.
- Have students start thinking about career pathways, building on their personal interests, and then contact experts in those fields and bring them into the classroom to share their career experiences.

#### *Principle 2: Make it Meaningful*

The adolescent brain is undergoing an enormous amount of change and neural refinement, pruning, and connection-making (Wolfe, 2001). These cognitive changes signal a shift in how adolescents approach learning. The connections made during the teen years will, most likely, "hard-wire" the brain for the future; for instance, youth exposed to theater, dance, music, and the arts during adolescence will

stay attuned to these in later years. Conversely, students who are disengaged academically, socially, or physically during the adolescent years, most likely, will stay disconnected for years to come (Wolfe, 2001).

When students find curriculum and instruction meaningful and its application to their lives relevant, they are more likely to engage in the learning (Johnson, 2002). Meaningfulness in curriculum is realized when the learner is able to see himself or herself in the learning or find the information he or she is learning immediately useful. Students must find purpose and use for the curriculum. Lessons that incorporate personal experiences, authentic productions, and self-reflection can bring life into the curriculum for the adolescent gifted learner.

To make curriculum and instruction meaningful, the teacher may utilize the following strategies:

- Use metaphors, similes, and analogies to make unfamiliar topics familiar.
- Use mnemonic devices, acronyms, or acrostics to help learners with lists and orders of items (e.g., Roy G Biv = red, orange, yellow, blue, indigo, violet).
- Use graphic mind maps to connect seemingly disconnected topics.
- Use elaborative rehearsals, such as mock trials, role-playing, drama and simulations.
- Integrate personal stories (both students' and teachers') into the content.
- Connect the content to what is current (using the media or Internet).

*Principle 3: Make it Rigorous*

Rigor involves the advancement of intellectual engagement that requires learners to stretch beyond their comfort zone in order to reach what Vygotsky (1979) calls their “zone of proximal development.” A student’s zone of proximal development is defined as the difference between what a child can do with help and what he or she can do without help (Morris, n.d.). Students must stretch to learn. Students who achieve without effort or failure have not truly met success.

Rigor also involves the use of complex thinking, which is the cognitive process that requires sophisticated forms of and interactions among creative thinking, critical reasoning, advanced levels of inquiry, problem finding and solving strategies, and metacognition skills. Bloom’s Taxonomy (1956) provides an excellent scaffold for building a framework for increasing rigor. Gifted learners must be required to use the higher levels of Bloom’s Taxonomy (e.g., analysis, synthesis, and evaluation) to greater degrees of sophistication. Increasing the complexity of Bloom’s Taxonomy demands the use of testing hypotheses, making generalizations, engaging in substantive conversation, providing interpretations, applying open-ended approaches, and making interdisciplinary connections.

Below are additional ideas for making curriculum and instruction more rigorous.

- Teach critical, creative, and effective thinking strategies throughout the content areas and encourage students to use them.
- Teach and use metacognitive skills, such as goal setting and monitoring, self-reflection, summarization, and effective memorization strategies.
- Use brainstorming and other creative thinking techniques to help students create new and original products.
- Help students apply content knowledge across disciplines in authentic ways, such as through service-learning projects that require them to solve real-world problems with real-world solutions.

Use more complex and abstract concept development to encourage deeper investigation and understanding, for example, using the

concept of cycles, a discussion of the four seasons in the year may be simple and concrete; a discussion of the political cycle may be complex and abstract. See Table 2 for additional examples.

Table 2.  
The Concept of Cycles:  
Simple and Concrete to  
Complex and Abstract

SIIMPLE / CONCRETE	COMPLEX / ABSTRACT
Seasons Water Air	Political Economic Philosophical

*Principle 4: Make it Safe for Intellectual Risk-Taking*

Some gifted adolescent learners have not been exposed to learning experiences that require intellectual effort throughout their elementary years. The lack of true challenge during these early years may lead to maladaptive learning strategies, such as low tolerance for struggle or frustration, an inability to see mistakes as learning opportunities, or a lack of perseverance at tasks that require complex thinking (Reis & McCoach, 2000). Students must learn to fail in order to succeed, or they, most certainly, will succeed to fail. Teachers working with adolescent gifted learners must create safe and supportive learning environments that allow them to take intellectual risks. Students should be exposed to strategies and techniques for dealing with failure, keeping organized, and showing persistence.

Further ideas for making curriculum and instruction safe for intellectual risk-taking are listed below.

- Show learners how making mistakes leads to incredible inventions.
- Emphasize problem-solving techniques. Give the students many types of strategies and help them identify when to use the appropriate tool.
- Encourage students to work outside of their preferred learning style.
- Offer learners appropriate strategies for dealing with stress, e.g., meditating, exercising, taking deep breaths, or listening to soothing music.



### *Principle 5: Offer Choices*

Students must be empowered to learn. Students are motivated when meaningful choices are offered (Erwin, 2004). In this way, student ownership and responsibility for learning increases, and creative production is strengthened. Allowing student choices also increases self-determination and content competence (Anderman & Midgley, 1997). As students build their confidence for learning, they become more self-directed and independent (NWREL, 2004).

Choices may be accomplished in some of the following ways.

- Allow students to choose different ways to demonstrate knowing.
- Permit students to develop and investigate different topics of study.
- Support the use of a variety of materials and resources to complete projects and assignments.
- Provide various seating arrangements or flexible grouping arrangements in the classroom.
- Encourage students to create their own evaluation rubrics and types of assessments.

An excellent way for teachers to provide for choices in the classroom is to create choice menus, a formatting strategy for differentiating curriculum. Choice menus allow students to use their preferred learning style, incorporate personal interests in their learning, and study a topic in depth.

The first step in constructing choice menus is to decide what the essential learning is in the unit or project that students are to complete. Essential learnings are the big ideas, concepts, themes, or generalizations that make the topic or unit of study important for future learning. Second, decide how the menu is to be arranged. Teachers can arrange the menu so that it focuses on learning profiles or styles, interests, or students' need to go into greater depth. Choice menus for gifted students can be created either to replace or supplement the regular curriculum. If the curriculum is to be replaced, the teachers must be sure that the

student has mastered the required curriculum and has the necessary skills to complete a replacement project. Guaranteeing student proficiency in the curriculum can be accomplished through pretests, end-of-unit tests, level tests, and end-of-year evaluations. If the menu is meant to supplement the regular curriculum, then the same assessment strategies can be used to identify those students who are in need of a deeper, more enriching learning experience. Teachers must be able to document the students' need for either enrichment or curricular extensions. Choice menus are not intended to be more work, but to be more engaging work. Choice menus can be built on Bloom's Taxonomy, Gardner's Multiple Intelligence Theory (1993), or Sternberg's Successful Intelligence (Sternberg, 1996). Ensure that the learning experiences scaffold to higher more complex activities that move to authenticity.

When working with choice menus, it is important to remember the following points and cautions. (1) Projects and activities should be fun and engaging—not fluff 'n stuff! Always keep the “essential learning” at the heart of what you create. (2) Use Bloom's higher-level learning verbs in your menu. Focus activities for gifted adolescents on the analysis and synthesis levels. Offering students choices is one form of differentiation for *all* students. Offering students choices that engage them in upper-level thinking skills is true differentiation for your high-performance students. (3) Focus activities for the gifted adolescent learner on the bigger (“juicy”) issues in the unit. Give students something to “chew” on; the activities should constitute “new learning”; they should be challenging to the adolescent gifted learner. (4) Don't over-use the choice menu idea. Too much of a good thing can be spoiled by “Do we have to do this again?” (5) Finally, for gifted students, it is not about giving them more work; it is about giving them different, more challenging, and engaging work. (Donaldson, n.d.)

Teachers who follow these five principles have a greater likelihood of realizing success in meeting the needs of adolescent gifted learners and battling underachievement.

## References

- Anderman, E., & Midgley, C. (1997). Changes in personal achievement goals and the perceived classroom goal structures across the transition to middle level schools. *Contemporary Educational Psychology*, 22, 269-298.
- Bloom B. S. (1956). *Taxonomy of Educational Objectives, Handbook I: The Cognitive Domain*. New York: David McKay Co. Inc.
- Daggett, W. (2005). *Reforming American high schools: Why, what, and how*. New York: International Center for Leadership in Education.
- Donaldson, J. (n.d.). *Choices: Designing project menus students love* Unpublished: Bloomington Public Schools. Available from author; jdonaldson@bloomington.k12.mn.us
- Emrick, L. J. (1992). Academic underachievement among the gifted: Students' perceptions of factors that reverse the pattern. *Gifted Child Quarterly*, 36, 140-146.
- Erwin, J. C. (2004). *The classroom of choice: Giving students what they need and getting what you want*. Alexandria, VA: ASCD.
- Gardner, Howard (1983; 1993) *Frames of Mind: The theory of multiple intelligences*, New York: Basic Books.
- Johnson, E.B. (2002). *Contextual teaching and learning: What it is and why it's here to stay*. Alexandria, VA: ASCD.
- Morris, C. (n.d.). *Lev Semyonovich Vygotsky's Zone of Proximal Development*. Retrieved December 12, 2006 from <http://www.igs.net/~cmorris/zpd.html>.
- Northwest Regional Educational Laboratory (NWREL) (2004). *Developing self-directed learners*. Retrieved January 15, 2007 from <http://www.nwrel.org/planning/reports/self-direct/>
- Reis, S. M. & McCoach, D.B. (2000). The underachievement of gifted students: What do we know and where do we go? *Gifted Child Quarterly*, 44, 152-170.
- Sternberg, R.J. (1996). *Successful intelligence; How practical and creative intelligence determine success in life*. New York: Plume Book.
- Sternberg, R.J. & Grigorenko, E.L. (2000). *Teaching for successful intelligence to increase student learning and achievement*. Arlington Heights, IL: SkyLight Professional Development.
- Vygotsky, L. S. (1979). *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.
- Wolfe, P. (2001). *Brain Matters: Translating research into classroom practice*. Alexandria, VA: ASCD

## Additional Resources

- Feinstein, S. (2004). *Secrets of the teenage brain: Research-based strategies for reaching & teaching today's adolescents*. San Diego, CA: The Brain Store.
- Heacox, D. (2002). *Differentiating instruction in the regular classroom: How to reach and teach ALL learners, grades 3-12*. Minneapolis, MN: Free Spirit Publishing.
- Jensen, E. (2005). *Teaching with the brain in mind, 2<sup>nd</sup> edition*. Alexandria, VA: ASCD.
- Reis, S.M., Burns, D.E. & Renzulli, J.S. (1992). *Curriculum compacting: The complete guide to modifying the regular curriculum for high ability students*. Mansfield CT: Creative Learning Press, Inc.
- Tomlinson, C.A. (2001). *How to differentiate instruction in mixed-ability classrooms, 2<sup>nd</sup> edition*. Alexandria, VA: ASCD.
- VanTassel-Baska, J. and Little, C.A. (2003). *Content-based curriculum for high-ability learners*. Waco TX: Prufrock Press, Inc.

## Endnotes

<sup>1</sup>CORRESPONDENCE Richard Cash, Director Gifted Programs, Bloomington Public Schools, 1350 W. 106<sup>th</sup> St., Bloomington, Minnesota, United States of America; e-mail: rcash@bloomington.k12.mn.us





### 3.

# Enrichment Opportunities for Educators: New Directions for Helping At-Risk Youth in Russia<sup>1</sup>

Eleoussa Polyzoi<sup>2</sup>

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## Abstract

In 2003, a Canadian International Development Agency project was launched through a partnership between the University of Winnipeg, Canada and the Russian Academy for Advanced Professional Standards and In-Service Teacher Training. The purpose was to (a) train fifty educators in the Russian Federation in the area of talent development among at-risk youth, (b) examine the impact of this training, (c) develop professional educational materials, and (d) suggest policy recommendations to encourage new directions. In this paper, an overview of the project is provided, project outcomes are discussed, and an evaluation of the success of the enrichment opportunities offered is shared.

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## Background

For Russia, change has not come without a cost. Economic restructuring and the transition from a centralized to a market economy that followed the dissolution of the Union have led to serious challenges (Polyzoi & Dneprov, 2003). Inflation has resulted in increased social costs, especially for the nation's already most vulnerable groups: the poor, the aged, and children. The breakdown of the family and the growing numbers of "social orphans" and "street" children have prompted the Russian government to seek new approaches to the problems of its at-risk children and youth. Training in the area of at-risk students is not available in many Russian pedagogical universities. Educational materials addressing the socio-emotional, motivational, and academic needs of this vulnerable group are not always available for Russian teachers, especially beyond the capital region. Typically, at-risk children and youth either attend regular schools, where little resource support is available, or, if their condition is compounded by the presence of learning difficulties, are trans-

ferred to special schools for the mentally challenged. Those with criminal records may be sent to special correctional institutions. Social reform efforts in Russia designed to introduce new models of intervention for this growing segment of the student population are hindered by limited resources, and lack of trained professionals to work collaboratively with the government and educational institutions to develop alternative programs, design new curricula, and suggest new policy directions.

In 2002, a new partnership was formed between the University of Winnipeg and the Russian Academy for Advanced Professional Standards and Teacher Training. Through this partnership, a three-phase CIDA project, Russian Teacher Training for At-Risk Students, was launched to develop new ways to meet the challenges presented by Russia's growing population of at-risk youth. This article describes the various enrichment opportunities offered by Canadian specialists to educators in Russia over a two-year period and outlines the impact of this partnership on the initiation by the Russian Academy of new directions in



Russian teacher training, university curriculum and resource development, and education policy changes.

### Partners

The Canadian-Russian teacher-training project involved two institutions, one in each of the co-sponsoring countries, Canada and Russia. Canadian partners included The University of Winnipeg, Education (Dr. Eleoussa Polyzoi, Project Team Coordinator; Dr. Ken McCluskey, Director of Professional Development; Dr. Annabelle Mays and Mike Bergsgaard, Project Evaluators; and Dr. Tatiana Nazarenko,<sup>3</sup> Curriculum Materials Coordinator). Russian partners included: 1. The Russian Academy for Advanced Professional Standards and In-Service Teacher Training (Dr. Irina D. Chechel, Vice-Rector of Research and International Programs, and Dr. Olga E. Gribova, Head of the Department of Special and Correctional Pedagogy and Special Psychology); and 2. The Ministry of Education of the Russian Federation, Office of Special Education and Health (Vice-Director, Mr. Boris Victorovich Belavsky). The Russian Academy for Advanced Professional Standards and In-Service Teacher Training is an educational and research centre of the federal system of educators' retraining, playing a leading role in advancing Russian pedagogical education in the Federation. The Academy also has extensive experience with international, cooperative educational projects and works very closely with the Russian Ministry of Education.

### Issue Definition

The term "at-risk", in both Russia and Canada, refers to students who are academically challenged, come from difficult family backgrounds, and have personal and social problems that place them at risk for failure, resulting in school drop-out and wasted potential. They include those with learning difficulties, victims of terrorism and industrial disasters, social orphans,<sup>4</sup> and those involved in crime and substance abuse. In Russia, education for these at-risk students was historically grounded in a model of intervention that focused on student deficits; until very recently, the term "defectology" was used to define the field. Currently, Russia's educational system is moving towards a more positive, strength-

based model, one that focuses not on deficits, but on resiliency and talent development. The CIDA project was designed to provide Russian educators with strategies and skills to meet the needs of at-risk children and youth more effectively and to help them nurture the talents of their students.

### Objectives

The objectives of the CIDA project were to: 1. provide training to educators in the Russian Federation in the area of talent development among at-risk children and youth, 2. examine the impact of this training on educational practice in selected Moscow and St. Petersburg sites, 3. develop professional educational materials to be made available to regional educational offices throughout Russia, and 4. suggest policy recommendations, in collaboration with the Russian partners, that would encourage new directions in the education of at-risk children and youth in the nation.

### Three Phases

To accomplish these objectives, the project plan was implemented across three phases.

#### Phase 1

In May 2002, the first team of Canadian specialists, Ken McCluskey, Andrea McCluskey, and Mike Bergsgaard, traveled to Russia to lead a series of Moscow-based workshops for a contingent of approximately fifty Russian teachers, administrators, curriculum specialists, psychologists, diagnosticians, and university faculty. Participants were drawn from various parts of the Federation, including Moscow, the Moscow region, St. Petersburg, Novosibirsk, Yakutia (Siberia), Syzran (Volga region), and Irkutsk (Siberia). Workshops took place at the Academy for Advanced Professional Standards and In-Service Teacher Training. The goal of the seminars was to lay a *theoretical* foundation for future training by exploring attitudes, strength-based interventions and resiliency, and protective factors for at-risk youth. Based on a "training the trainer" model, the sessions were designed to familiarize participants with many of the key issues and concepts in the field. Topics ranged from mentoring at-risk youth, creative problem solving, contemplative education, just and effective schools, programming for at-risk students, and attention-deficit and hyperactivity disorder.



ders. Extensive seminar support materials were provided to all participants. Each day, Russian specialists (faculty from the Academy) in the area of at-risk youth provided a series of additional seminars to the Russian participants, following those of the Canadian specialists.

### Phase 2

In May 2003, a subgroup of twelve Russian delegates from Phase 1 was invited to Winnipeg for first-hand demonstrations of the skills and strategies employed by Canadian practitioners, expert in the field of at-risk education. A series of in-depth seminars was organized, as well as visits to a number of Canadian model school sites and programs for at-risk children and youth.

### Phase 3

In June 2003, a second team of Canadian specialists, Jan Stewart, Bob Bastable, Sylvia Bastable, and Phil Baker, traveled to Moscow to deliver a set of intensive, more *practical* workshops to the same large group of Russian teachers, administrators, curriculum specialists, psychologists, diagnosticians, and university faculty who had participated in Phase 1. Workshops, as in the initial phase of the project, took place at the Academy for Advanced Professional Standards and In-Service Teacher Training. Participants were provided with extensive training in Life-Space Crisis Intervention, Creative Problem Solving, anger management, depression, and dealing with the death of a family member, drug and alcohol awareness, and conflict resolution. Extensive seminar support materials, as well as practical hands-on training, were provided to all participants. In the final workshop, Russian participants were provided the guidance and skills to design a concrete action plan that they were to take forward into their work in their school, orphanage, diagnostic centre, or university. These action plans set the stage for developing tangible, real-world programs to support the at-risk children and youth with whom they work.

### Outcomes

What follows is a brief description of the major outcomes of the CIDA project.

- A network of important contacts was developed in Russia in the field of special education, including in the Academy, the regional education offices in Russia, various pedagogical institutes, diagnostic centers, schools, and orphanages throughout the Federation.
- General knowledge, training, and skills were provided in the area of “at-risk children and youth” to Russian teachers, administrators, curriculum specialists, psychologists, diagnosticians, and university faculty who had the potential to effect change in classroom policy and training in Moscow, St. Petersburg, Siberia, and the Volga region.
- The capacity of our Russian partner was enhanced through our three-part seminars to provide more effective training for educators in the area of “at-risk” students.
- Training workshops were delivered in the areas of mentoring at-risk youth, creative problem solving, enrichment and talent development, anger management, conflict resolution, attention-deficit/hyperactivity disorders, life-space crisis intervention, depression, dealing with the death of a family member, and drug and alcohol awareness.
- As part of the Moscow-based seminar support documents, extensive professional education materials were developed in Russian. These served as resources for course development initiatives at various pedagogical universities, counseling seminars at Psycho-pedagogical and Medico-social (PPMS) centers, and psychological consultations at numerous schools whose student body included at-risk children. These materials were made available through the Academy to administrators and teachers throughout Russia who deal with at-risk children and youth. For example, CIDA materials were incorporated in a Moscow program called “Street Children” through the South-West Moscow PPMS Centre, led by Olga Kardashina, as well as in counseling seminars designed to support young victims of the Chernobyl nuclear disaster<sup>5</sup> in Kiev, Ukraine, and victims of the Beslan terrorist attack.<sup>6</sup>



- Pedagogical materials were disseminated to teachers, administrators, curriculum specialists, psychologists, and diagnosticians who participated in the Moscow-based seminars, as well as to faculty at the Academy for Advanced Professional Standards and In-Service Teacher Training, Ministry of Education of the Russian Federation.
- Follow-up evaluation of the effect of CIDA seminar training in all school sites, diagnostic centers, orphanages, and boarding schools in Moscow and St. Petersburg was completed, documented, and incorporated into the final report (Bergsgaard, 2004).
- Concrete action plans were developed and implemented by the Russian delegates, based on the CIDA seminars. Success of these plans was monitored and recorded.
- Evaluation of the overall impact of the CIDA project was documented through interviews where delegates were asked to comment on the effect of the project on their work, their colleagues, the lives of at-risk children at their institution, the curricular materials they use, and their personal and professional lives.
- Suggestions for educational policy changes at the federal and regional education levels—based on the CIDA project—were made by Mr. Alexander Beliavsky, Vice-Director of Special Education and Health for the Ministry of Education for the Russian Federation.
- The Academy, as an outcome of the project, initiated a number of new directions in the education of at-risk children and youth in Russia and explored new policies relating to programming and intervention, as described below.
- A book, *At-risk Children and Youth in Canada and Russia—A Cross-Cultural Exchange for Talent Development*, was published by the University of Calgary Press-Gorbachev Foundation (UCGF) in English and simultaneously in Russian by the Ministry of Education for the Russian Federation. The Russian version was disseminated to all teacher-training institutes throughout the Federation by the Acad-

emy. This volume was also distributed internationally to members of the World Council for Gifted and Talented Children.

### *Impact of the Project from the Perspective of the Academy*

The following excerpts describe the impact of the project from the Academy's perspective. The first excerpt is taken from a brief report written by Dr. Olga Gribova, Head of the Department of Special and Correctional Pedagogy and Special Psychology; the second, by Dr. Irina Chechel, Russian Team Leader and Vice-Rector of Research and International Programs at the Academy of Advanced Professional Standards and In-Service Teacher Training.

Dr. Olga Gribova highlighted the breadth of the impact of the CIDA project on new curricular initiatives undertaken at the Academy.

The CIDA project for at-risk students was the center of attention, a highlight of our department; it became one of the main directions for our work. Four articles have been published, based on the seminar materials. Seminar topics are systematically discussed at the weekly departmental meetings. Last February 2004, a special meeting dedicated to the CIDA project was conducted at the Academy. The representatives of the Academy's administration, vice-rectors, representatives of the other six departments, and the students attended the meeting.

The CIDA project also contributed to changes in the Academy's curriculum by broadening the range of topics discussed. Currently, our curriculum includes topics such as integration, social adaptation (socialization), and at-risk prevention. We have developed a two-week program, based on the CIDA project materials, which includes training, seminars, and lectures for teachers, educators, administrators, and psychologists from the educational institutions of the Russian Federation. I would like to point out that the audience at the Academy includes top-ranking educational administrators, rectors of the regional educational branches, and representatives of educational administra-



tion, rectors and vice-rectors of the regional institutes for in-service training, classroom teachers and school psychologists. Seminars are presented not only at the Academy, but also in the various regions of Russia, for example, in Ekaterinburg [middle Russia], Elabuga [Moscow region], Astrakhan [Volga region], and Moscow region.

Dr. Irina Chechel addressed the importance of accessibility of the new resources as well as the initiation of several experimental sites for at-risk students in Russia, as a major outcome of the CIDA project.

The Academy of Advanced Professional Standards and In-Service Teacher Training intends to disseminate the UCGF publication, *At-Risk Children and Youth in Canada and Russia – A Cross-Cultural Exchange for Talent Development*, to all the regions of Russia (87 administrative units) as a part of a series of planned presentations or courses, through the following organizations:

- *Regional Administrative Offices of Education* (departments responsible for the education of children who are at risk),
- *Regional Institutes for Advanced In-Service Teacher Training* (departments responsible for training of teachers and psychologists who work with at-risk children), and
- *Pedagogical Universities and Institutes* (departments and faculties that provide training for teachers and psychologists to work with at-risk children).

Dissemination of the CIDA publication, as a part of course lectures, will be followed by presentations by various Russian specialists on the CIDA project, on the significance of materials published in the UCGF book, and on the goals of these materials. Thus, according to the Academy's plans, the published CIDA materials will be accessible to practicing specialists and administrators, educators trained in Advanced In-Service Teacher Training Institutions, and students at pedagogical universities.

In regard to new policy directions in the education of at-risk children in Russia, the Academy is currently preparing programs for differentiated, individualized education and is involved in the licensing of educational institutions, together with the Ministry of Education for the Russian Federation. In addition, the Academy's Department of Correctional Pedagogy and Special Psychology (headed by Dr. Gribova) has opened several new experimental sites for at-risk students in Russia, as an outcome of the CIDA project. These experimental sites use, or plan to use, the experience of the Canadian at-risk specialists. Experimental sites implement new techniques and strategies for working with particular categories of at-risk children, in order to spread successfully proven methods throughout the Russian Federation. A sampling of sites is described below.

*Moscow Orphanage for the Intellectually Challenged.* Children may only reside in and receive education at this institution for eleven years. As the intellectually challenged usually receive no state pension or disability benefits, it is crucial that they be integrated into society before graduating. Without special training in social, vocational, and life skills that will empower them to become employed and survive successfully on their own, these children, upon leaving the school, may resort to begging, criminal activity, addiction, and homelessness. In this experimental orphan home, the "school family" model (involving teachers and mentors who work closely with the youth, preparing them to live independently) is being tested with the senior-years students. Life-skills classes, including budgeting skills, not only reduce students' aggressiveness but also prepare them to adapt to the outside world.

*Experimental Site in Olekminsk.* Olekminsk, in the circumpolar Republic of Yakutia (Siberia), is a region with one of the highest child-suicide rates in the country. The *Social Shelters* in Olekminsk accommodate social orphans, runaways, and children from socially disadvantaged families. Stu-



dents are of aboriginal Yakut, Russian, and mixed ethnicity. Olekminsk also has a specialized boarding school for intellectually challenged students, as well as several correctional classes for children with academic problems. The goal of this experimental project is to use supplementary educational opportunities to develop strategies of social adaptation for disadvantaged children in a small town. This experimental project involves a Children's Music School, a Creativity Centre for Children and Teenagers, a Centre for Psychopedagogical and Medico-social Guidance, and the Social Shelter.

**Experimental Site in Yaroslavl.** Yaroslavl is a small town in central Russia and the capital of the region. The goal of the Yaroslavl experimental site is to develop computer-monitoring programs to screen, identify, and diagnose socially disadvantaged students. Timely detection of a child's interpersonal and academic problems will permit school guidance specialists and the PPMS Centre to intervene promptly and design appropriate strategies to prevent anti-social behavior. This experimental program is also useful in monitoring the social welfare of developmentally challenged children in an integrated education setting and in identifying the factors that cause children to become at risk.

## Conclusion

According to Porter, Garet, Desimone, Yoon, and Birman (2000), professional development that focuses on specific higher-order teaching strategies increases teachers' use of these strategies in the classroom. The effect is even stronger when the professional development activity is of a reform type with study groups, provides opportunities for active learning and collective participation, and incorporates experiences that are consistent with teachers' goals.

The current Russian project provides empirical support for the core features of successful professional development identified by Porter et al. (2000). In the CIDA initiative, training involved *higher order strategies*, which focused on both theory and practice. A *reform-type change* was represented in the Canadian

philosophy for teaching at-risk students grounded in a strength-based resiliency model rather than a student-deficit approach. *Active learning* was emphasized as delegates had an opportunity to see, first-hand, exemplary programs in Canada. In addition, the modeling of instructional strategies during the CIDA seminars, including creative problem solving, reinforced the practical nature of the training. Furthermore, collective learning was encouraged by the selection of several delegates from the same Russian institution who, together, could discuss, strategize, and initiate change in their own educational setting. Finally, *experiences consistent with teachers' goals* were incorporated when delegates were taught how to develop their own action plans for change that were unique to their institution, local setting, administration, and culture. This served not only to increase their sense of ownership but also created more meaningful involvement. This multi-phased approach to training Russian participants in the CIDA project helped reinforce the teaching, strengthen the impact of the effect on practice, and increase the participants' potential for influencing change at the local and even national levels.

On a personal note, as project leader, it was a privilege to lead the teams of at-risk specialists in Canada and Russia. It has been gratifying to see the seeds of our CIDA project take root. We have been humbled by the numerous positive comments of our Russian participants—too many to include in this short chapter. My colleagues and I would be delighted to continue our collaboration with the Academy in the area of at-risk children and youth and to explore further opportunities to work together in the field of talent development and resiliency. We are committed to building a strong, supportive, and mutually beneficial relationship, with the advantage of the many valuable lessons learned through this joint international initiative.

- Lesson 1: Capacity-building through a "training the trainer" model ensures greater potential for sustainability of skill development among Russian educators.
- Lesson 2: A spirit of collaboration and collegiality between partner institutions is essential.



- Lesson 3: Teacher-training materials must be widely disseminated, with the assistance of the Russian partner, so that recommended strategies and techniques can reach a broader audience.
- Lesson 4: A three-phase approach to training Russian participants helps to reinforce the training, strengthen the impact of the effect on practice, and increase the participants' potential for influencing change at the local level, and even national level (Porter et al., 2000).
- Lesson 5: A well-defined management structure for implementing, controlling, and monitoring the project is imperative.
- Lesson 6: Ensuring that the final teacher-training materials are not inconsistent with the traditional educational culture in Russia and that they reflect the best elements of international expertise is important.
- Lesson 7: The development of action plans by the Russian participants, as a measure of the impact of the seminars, was a key element in our evaluation strategy. This allowed the Russian delegates to identify their *own* plans for change that were not only culturally sensitive but unique to their institutional needs.

It is evident that both Russian and Canadian educators share a passion for teaching, a genuine desire to reach out to one of our most vulnerable groups in the student population—at-risk children and youth—to nurture their talents and help them succeed. As Strini Reddy, a well-known Winnipeg educator, urged at a recent Canadian conference, "We need to touch the heart, to reach the soul, to unlock the mind's potential." Dr. Reddy's appeal aptly captures the wisdom and philosophy embraced by educators of at-risk children and youth in both Canada and Russia. This article is a reflection of the project's success, as well as a celebration of the many friendships that grew out of this CIDA initiative.

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## References

- Arnold, C. (2005, June). Beslan mothers' futile quest for relief. *BBC News World Edition*. Retrieved June 15, 2005, from <http://news.bbc.co.uk/2/hi/europe/4608785.stm>
- Bergsgaard, M. (2004). *Final evaluation report: Canada-Russia CIDA project, Russian teacher training for at-risk students*. Winnipeg, MB: University of Winnipeg.
- Grammaticas, D. (2004, Oct.). Beslan families united in grief. *BBC News World Edition*. Retrieved June 15, 2005, from <http://news.bbc.co.uk/1/hi/world/europe/3741434.stm>
- Jarvik, E. (2000a). The orphans of Vladivostok, Special Report, March 19, 2000. Retrieved May 10, 2005 from <http://deseretnews.com/misc/orphans/>
- Jarvik, E. (2000b). A Russian hard-knock life: Abandoned children face harsh futures—Special Report, March 19, 2000. Retrieved May 10, 2005, from <http://deseretnews.com/misc/orphans/index2.html>
- Lovgren, S. (2004, April). Chernobyl disaster's health impact remains cloudy. *National Geographic News*. Retrieved June 15, 2005, from [http://news.nationalgeographic.com/news/2004/04/0426\\_040426\\_chernobyl.html](http://news.nationalgeographic.com/news/2004/04/0426_040426_chernobyl.html)
- Polyzoi, E., Bergsgaard, M., McCluskey, K. W., & Olifirovych, O. A. (Eds.). (2005). *At-risk children and youth in Canada and Russia—A cross-cultural exchange for talent development*. Calgary: University of Calgary Press-Gorbachev Foundation.
- Polyzoi, E. & Dneprov, E. (2003). *Harnessing the forces of change: Educational transformation in Russia*. In E. Polyzoi, M. Fullan, & J. P. Anchan *Change forces in post-communist Europe: Education in transition*. London: Routledge Falmer Press.
- Porter, A. C. Garet, M. S., Desimone, L., Yoon, K. S., & Birman, B. F. (2000). *Does professional development change teaching practice? Results from a three-year study*. Washington: U.S. Department of Education.

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## Endnotes

<sup>1</sup>This article is an adaptation of a chapter entitled, "Reflections on the CIDA Project: Teacher Training for At-Risk Students—A Russian-Canadian Collaboration," which appeared in *At-Risk Children and Youth in Canada and Russia—A Cross-Cultural Exchange for Talent Development*, edited by E. Polyzoi, M. Bergsgaard, K. W.

McCluskey, & O. A. Olifirovych (2005), Calgary: University of Calgary Press-Gorbachev Foundation.

<sup>2</sup>CORRESPONDENCE: Eleoussa Polyzoi, Professor, Faculty of Education, The University of Winnipeg, 515 Portage Ave., Winnipeg, Manitoba, CANADA R3B 2E9; e-mail: [l.polyzoi@uwinnipeg.ca](mailto:l.polyzoi@uwinnipeg.ca)



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<sup>3</sup>Dr. Tatiana Nazarenko, at the time of the CIDA project, was Assistant Professor in the Department of Slavic and Germanic Studies at the University of Manitoba.

<sup>4</sup>According to E. Jarvik (2000a), there are over 600,000 abandoned children in Russia, 90% of those children have parents who either cannot afford to raise them or have abandoned them because of alcoholism or prostitution. According to the March 3, 2000 issue of *Moscow Times* (as reported in Jarvik, 2000b), of the 15,000 Russian teenagers who leave the orphanages each year, 40% become homeless, 30% become criminals, and 10% commit suicide.

<sup>5</sup>See Lovgren, S. (2004, April). Chernobyl disaster's health impact remains cloudy. *National Geographic News*. Retrieved June 15, 2005 from [http://news://news.nationalgeographic.com/news/2004/04/0426\\_040426\\_chernobyl.html](http://news://news.nationalgeographic.com/news/2004/04/0426_040426_chernobyl.html)

<sup>6</sup>See Arnold, C. (2005, June). Beslan mothers' futile quest for relief. *BBC News World Edition*. Retrieved June 15, 2005, from <http://news.bbc.co.uk/2/hi/europe/4608785.stm>; Grammaticas, D. (2004, Oct.). Beslan families united in grief. *BBC News World Edition*. Retrieved June 15, 2005, from <http://news.bbc.co.uk/1/hi/world/europe/3741434.stm>

## PART 3: AROUND THE WORLD





# A Computerized Strength Assessment and Internet-Based Enrichment Program for Developing Giftedness and Talents

Joseph S. Renzulli<sup>1</sup>  
Sally M. Reis

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## Abstract

A new system developed at the University of Connecticut is designed to use our longstanding research on strength-based assessment and high-end learning as a theory-based model for providing differentiated learning experiences for gifted and talented students. The Renzulli Learning System (RLS) is based on a high-end learning theory called the Enrichment Triad Model, which was developed in 1977 and is the most widely used model in programs for the gifted around the world. The diversity of talents and interests that we attempt to serve in gifted programs requires a remarkable range of resources and inordinate amounts of time on the parts of teachers working with gifted students. The RLS is a research based approach that is built around the following four components: (1) Strength Assessment Using the Electronic Learning Profile, (2) Enrichment Differentiation Databases, (3) The Wizard Project Maker, and (4) The Total Talent Portfolio.

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Every teacher has had the satisfaction of seeing a child "turn on" to a topic or school experience that demonstrates the true joy and excitement of both learning and teaching. We have sometimes wondered how and why these high points in teaching occur, why they don't occur more frequently, and why more students are not engaged in highly positive learning experiences. Teachers are also painfully aware of the boredom and lack of interest that so many of our young people express about so much of the work they do in school. Highly prescriptive curriculum guides, endless lists of standards to be covered, and relentless pressure to increase achievement test scores have often prevented us from doing the kind of teaching that results in those joyous, but rare, times when we have seen truly remarkable engagement in learning.

One teacher we interviewed as part of a research project dealing with high engagement in learning said, "I could easily improve student enthusiasm, enjoyment, and engagement if I had about a dozen teaching assis-

tants in my classroom!" It was comments like this, in addition to the almost infinite resources that are now available through the Internet, that inspired the development of the Renzulli Learning System (RLS) at the University of Connecticut's Neag School of Education. The program is sponsored by the University of Connecticut Research and Development Corporation, with income from subscriptions used to support further research.

The use of instructional technology, and especially the Internet, has evolved rapidly over the past decade. First-generation use of technology consisted mainly of what might be called "worksheets-on-line," with the added advantage of providing students with immediate feedback about correct responses and subroutines for remediating incorrect answers. This generation was not unlike the teaching machines of the 1950s. The next generation consisted mainly of courses online and, although this innovation enabled students to have access to teachers and professors with expertise beyond what might be available lo-



cally, it usually followed the same pedagogy to traditional courses (i.e., read the chapter, answer questions, take a test). The third generation was a great leap forward because of the advent of hypertext. Students could now click on highlighted items in online text to pursue additional, more advanced information and the kinds of scaffolding that consumes more time than most teachers can devote to individualized learning.

The Renzulli Learning System might best be viewed as the next generation of applying instructional technology to the learning process. This program is *not* a variation of earlier generations of popular e-learning programs or web-surfing devices being offered by numerous software companies. It is a unique use of the Internet that combines computer-based strength assessment with search-engine technology, thus allowing true differentiation in the matching of thousands of carefully selected resources to individual strengths. The RLS also has what might best be called theoretical integrity. It is based on a high-end learning theory called the Enrichment Triad Model (Renzulli, 1977) and numerous research studies dealing with model implementation (Renzulli & Reis, 1994). The Triad Model focuses on the kinds of creative productivity that develops higher-level thinking and investigative skills, and it places a premium on the application of knowledge to learning situations that approximate the *modus operandi* of the practicing professional. With minimal skills in the use of the Internet and only a small amount of the teacher's time, all schools can easily make use of a system that will give teachers the equivalent of "a dozen assistants" in their classrooms. The Renzulli Learning System is a four-step procedure that is based on more than thirty years of research and development dealing with the diagnosis and promotion of advanced-level thinking skills, motivation, creativity, and engagement in learning. An overview of the system is presented in Appendix I.

### *Step 1: Strength Assessment Using the Electronic Learning Profile*

The first step consists of a computer-based diagnostic assessment that creates a profile of each student's academic strengths, interests, learning styles, and preferred modes of expression. The online assessment, which takes about thirty minutes, results in a per-

sonalized profile that highlights individual student strengths and sets the stage for step two of the RLS. The profile acts like a compass for the second step, which is a differentiation search engine that examines thousands of resources that relate specifically to each student's profile. Student profiles can also be used to form groups of students who share common interests. A project management tool guides students and teachers to use specifically selected resources for assigned curricular activities, independent or small group investigative projects, and a wide variety of challenging enrichment experiences. Another management tool enables teachers to form instructional groups and enrichment clusters based on interests and learning style preferences. Teachers have instant access to student profiles, all sites students visited on the web, and the amount of time they spent in each activity. Parents may also access their own child's profile and web activities. In order to promote parent involvement, students can also be encouraged to work on some of their favorite activities with their parents.

### *Step 2: Enrichment Differentiation Databases*

In step two, the differentiation search engine matches student strengths and interests to an enrichment database of 10,000 enrichment activities, materials, resources, and opportunities for further study that are grouped into the following categories:

- Virtual Field Trips
- Real Field Trips
- Creativity Training
- Critical Thinking
- Projects and Independent Study
- Contests and Competitions
- Websites
- Fiction Books
- Non-Fiction Books
- How-To Books
- Summer Programs
- Online Classes and Activities
- Videos and DVDs

These resources are not merely intended to inform students about new information or to occupy time surfing around the web. Rather, they are used as vehicles for helping students find and focus a problem or creative exploration of personal interest that they might like to pursue in greater depth. Many of the re-



sources provide the methods of inquiry, advanced-level thinking and creative problem-solving skills, and investigative approaches that approximate the *modus operandi* of the practicing professional. Students are guided toward the *application of knowledge* to the development of original research studies, creative projects, and action-oriented undertakings that put knowledge to work in personally meaningful areas of interest. The resources also provide students with suggestions for outlets and audiences for their creative products. A set of learning maps for teachers is provided for each of the fourteen enrichment resource databases and for the many other resources available for teachers. Teachers can also download numerous curricular activities for use in their classrooms. Management tools classify and cross reference activities by subject area, thinking skill, and subject matter standards.

Our goal in this approach to learning is to promote high levels of engagement by providing a vehicle where students can engage in *thinking, feeling, and doing like the practicing professional*, even if they are operating at a more junior level than adult scientists, artists, writers, engineers, or other adults who pursue knowledge in professional ways.

Research on the role of student engagement is clear and unequivocal—high engagement results in higher achievement, improved self-concept and self-efficacy, and more favorable attitudes toward school and learning. There is a strong body of research that points out the crucial difference between time spent and time engaged in school achievement. In the recently published international PISA study, the single criterion that distinguished between nations with the highest and lowest levels of student achievement was the degree to which students were engaged in their studies. This finding took into account demographic factors, such as ethnicity and the socioeconomic differences among the groups studied. In a longitudinal study comparing time spent versus time engaged on the achievement of at-risk students, Greenwood (1991) found that conventional instructional practices were responsible for the students' increased risk of academic delay. A study by Ainley (1993) reported that there were important differences in achievement outcomes favoring engaged over disengaged students of similar ability.

The resources available in step two also provide students with places where they can pursue advanced-level training in their strength areas and areas of personal interest. Online courses and summer programs that focus on specific academic strengths and creative talents are ways that any school or parent can direct highly able and motivated students to resources that may not be available in the regular school program.

### Step 3: The Wizard Project Maker

A special feature of Renzulli Learning is a project organization and management plan for students and teachers called The Wizard Project Maker. This guide ([http://www.aifs.com/renzulli/tour\\_wizard.asp](http://www.aifs.com/renzulli/tour_wizard.asp)) allows teachers to help students use their web-based explorations for original research, investigative projects, and the development of a wide variety of creative undertakings. The sophisticated software used in this tool automatically locates potentially relevant web-based resources that can be used in connection with the student's investigative activity. This management device is designed to fulfill the requirements of a Type III Enrichment experience, which is the highest level of enrichment described below in the discussion of the Enrichment Triad Model. Specifically, the Project Maker provides students with the metacognitive skills to define a project and set a goal; identify and evaluate both the resources to which they have access and the resources they need (e.g., time, Internet sites, teacher or mentor assistance); prioritize and refine goals; balance the resources needed to meet multiple goals; learn from past actions, project future outcomes; and monitor progress, making necessary adjustments as a project unfolds.

The Wizard Project Maker helps students make the best use of web resources, it helps to focus their interests as they pursue advanced-level work, and it is a built-in safeguard against using Renzulli Learning merely to surf around the web. It also establishes a creative and viable responsibility for teachers in their role as "the guide on the side." By helping students pursue advanced levels of challenge and engagement through the use of the Wizard Project Maker, students see teachers as mentors, rather than taskmasters or disseminators of knowledge. The Wizard Project Maker also has a metacognitive effect on students, that is, they have a better under-



standing about what investigative learning is all about. As one teacher recently said, "The Wizard Project Maker helps my students understand 'the why' of using the Internet." The Wizard software is built into the RLS to help students acquire resources for the various sections of this planning device.

#### *Step 4: The Total Talent Portfolio*

The final step in the Renzulli Learning System is an automatic compilation and storage of all student activity from steps one, two, and three into an ongoing student record called the Total Talent Portfolio. A management tool allows students to evaluate each site visited and resource used, students can complete a self-assessment of what they derived from the resource, and, if they choose, they can store favorite activities and resources in their portfolio. This feature allows easy return access to ongoing work. The portfolio can be reviewed at any time by teachers and parents through the use of an access code, which allows teachers to give feedback and guidance to individual students and provides parents with information about students' work and opportunities for parental involvement. The portfolio can also be used for

- providing points of reference for future teachers,
- making decisions about possible class project extra credit options,
- selecting subsequent enrichment preferences,
- designing future projects and creative activities,
- exploring online courses and competitions,
- participating in extra-curricular activities,
- deciding on electives in middle and high school, and
- guiding college selection and career exploration alternatives.

The Total Talent Portfolio "travels" with students throughout their educational career. It can serve as a reminder of previous activities and creative accomplishments that they might want to include in college applications, and it is an ongoing record that can help students, teachers, guidance counselors, and parents make decisions about future educational and vocational plans.

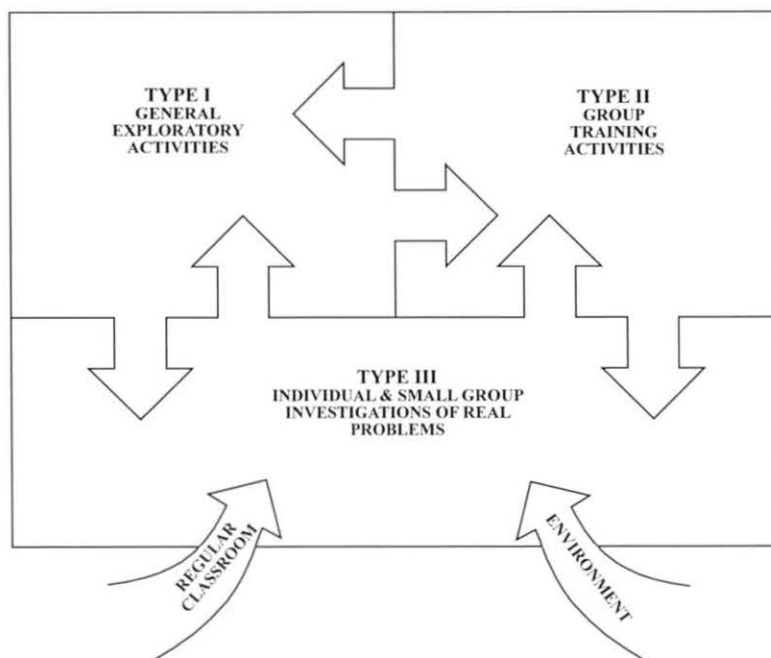


Figure 1. The Enrichment Triad Model

### *The Theory and Research Underlying the Renzulli Learning System*

The RLS is based on a learning theory called the Enrichment Triad Model, which was developed in 1977 and implemented in thousands of schools in the United States and several overseas nations (see Figure 2). A wide range of programs based on the Enrichment Triad Model were developed by classroom teachers and gifted education specialists in different school districts across the country that serve diverse populations of students at all grade levels. Many examples of creative student work were completed as part of the enrichment opportunities built around the Triad Model.

Teachers using the model worked very hard to access resources to provide enrichment for students, but the many responsibilities of classroom teachers and the amount of time required to track down resources made this a daunting task. In the Renzulli Learning System, thousands of resources and enrichment materials are provided for teachers and students with the click of a mouse. What makes this system unique is that these resources are individually tailored to students' abilities, interests, and learning styles. The resources can be accessed in school, during after-school programs, or even at home when students want to pursue enriched learning opportunities on their own.

The Enrichment Triad Model was designed to encourage advanced-level learning and creative productivity by (1) exposing students to various topics, areas of interest, and fields of study in which they have or might develop an interest, (2) providing students with the skills and resources necessary to acquire advanced-level content and thinking skills, and (3) creating opportunities for students to apply their skills to self-selected areas of interest and problems that they want to pursue.

Type I Enrichment is designed to expose students to a wide variety of disciplines, topics, occupations, hobbies, persons, places, and events that would not ordinarily be covered in the regular curriculum or that are extensions of regular curriculum topics. In the Renzulli Learning System, Type I Enrichment includes virtual field trips, online activities that challenge student thinking, exciting websites,

books, videos, and DVDs related to areas of special interest, and other exposure activities that are associated with independent projects and other components of the system. Type I experiences might be viewed as the motivational "hook" that causes individual students to become turned-on to a particular topic or area of study that they will, subsequently, pursue in greater depth.

Type II enrichment consists of materials and activities designed to develop a broad range of higher-level thinking processes and advanced inquiry skills. Some Type II training is general, including the development of (1) creative thinking and problem solving, critical thinking, and affective processes; (2) a wide variety of specific learning how-to-learn skills; (3) skills in the appropriate use of advanced-level research methods and reference materials; and (4) written, oral, and visual communication skills. Teachers can use general Type II Enrichment activities (e.g., a lesson in creative thinking) that are available online for whole-group or small-group instruction or recommend an online activity for individuals or small groups to pursue on their own.

Other forms of Type II Enrichment are specific to a particular project that a student might be pursuing. It cannot be planned in advance and, usually, involves advanced research skills in an interest area selected by the student. For example, a small group of students became interested in mechanical engineering after a Virtual Field Trip that dealt with some of the world's most imaginative bridges. They located resources on the Internet that provided instruction for designing, planning, and building a model of a bridge. They also found a number of model bridge competitions to which they, subsequently, submitted their designs.

In the Renzulli Learning System, Type II training is embedded across many of the Enrichment Activities listed above. A quick tour of the various categories will help the teacher become familiar with the vast array of resources that can be used for all three types of enrichment in the Triad Model. If several students are using the Renzulli Learning System, it will be fun and informative to take a "tour" through their Enrichment Activities with them.

Our experience in using the Enrichment Triad Model over the years has shown that Types I and II enrichment and interests gained in the



regular curriculum or out-of-school activities will motivate many students to pursue self-selected topics in greater depth. These advanced types of involvement are called Type III Enrichment, which is defined as individual or small-group investigations of real problems. When students choose to become involved in Type III Enrichment, they usually are interested enough in a topic to pursue a self-selected area of study in great depth. They also are willing to commit the time necessary for advanced content acquisition and process training in which they assume the role of a first-hand inquirer. The goals of Type III Enrichment are

- to provide opportunities for applying interests, knowledge, and creative ideas, and for exercising task commitment to a self-selected problem or area of study;
- to acquire advanced-level understanding of the knowledge (content) and methodology (process) that are used within particular disciplines, artistic areas of expression, and interdisciplinary studies;
- to develop authentic products that are primarily directed toward bringing about a desired impact upon a specified audience;
- to learn self-directed learning skills in the areas of planning, organization, resource utilization, time management, decision making, and self-evaluation; and
- to further develop task commitment, self-confidence, and feelings of creative accomplishment.

In the Renzulli Learning System, the Type III component can emerge from almost any of the options that students choose to pursue. They can, for example, get an idea for what they might like to learn more about by becoming involved in a virtual field trip or a real field trip. They might find an idea from a creativity training exercise or critical thinking activity. The most logical way for students to become involved in a Type III project is by pursuing an independent study or by becoming involved in a contest or a competition. Students may become interested in doing in-depth research by using any of the other components of the RLS, such as special topic websites, Fiction, Non-Fiction, and How-To Books, Summer Programs, Online Activities, and Research Skills. There are also hundreds of options in Renzulli Learning for students to pursue Type

III studies in specialized areas, for example, Math League, Invention Convention, and National History Day Competition.

Type III Enrichment is different from the types of projects and reports that students typically do in connection with their regular schoolwork. The best way to describe this difference is to list the three things that make a problem "real" to a student. First, real problems are based on a sincere interest of the student rather than one assigned by the teacher. It is something the student *wants* to do rather than something he or she is assigned to do. A teacher may discuss and provide guidance in helping a student find and focus a problem, and the problem might be within the general curriculum area, but the subject or theme on which a student chooses to work must represent a personalization of the topic for him or for her.

The second distinguishing feature of working on a real problem is that the student will use the methods of investigation of the practicing professional. They are going to do what the real geologist, scenery designer, or community activist does, even if it is at a more junior level than an adult professional working in one of these fields. This focus will help to distinguish a *bona fide* Type III project from the ritualistic reports that students typically complete by merely gathering and summarizing information from reference books or Internet sites. The most powerful tools for giving students the know-how of authentic methodology, such as *How-To Books for Conducting Research and Creative Projects*, can be found in the Enrichment Database under the category How-To Books. Some of the material in these books can be used for whole-class and small group lessons on teaching research and investigative skills. Teaching young people a practical data-gathering technique, such as questionnaire design, for example, will motivate them to identify a problem that allows them to use their new skill on a problem in which they have a personal interest.

The third characteristic of a real problem is that it is always geared toward an audience other than, or in addition to, the teacher. In the adult world, practicing professionals carry out their work because they want to have an impact on one or more relevant audiences—people who voluntarily attend a performance, read a newsletter, or go to a science fair. Presenting to classmates occasionally may qual-



ify as a real audience, but such presentations should be viewed more as practice sessions for more real-world settings, such as a presentation to the local historical society, submission of one's writing to a magazine that publishes poetry or short stories, or an application to an invention contest. The enrichment category entitled Contests and Competitions will give the teacher and the students many ideas about opportunities for audiences in all areas of student interest. The Websites category includes many organizations and professional societies that produce journals and newsletters where high-quality student products might be included. These organizations are also excellent sources for resources in specialized areas of study, and some of them even provide online mentoring services for students.

The goal of Type III Enrichment is to transform the role of the student from a person who merely acquires information to a role in which she or he is thinking, feeling, and working like the practicing professional by actually engaging in *authentic* activities. In reflecting on the characteristics of authentic activities described by researchers, the following ten broad design characteristics that relate to online learning have been identified by Reeves, Herrington, and Oliver (2002):

- Authentic activities have real-world relevance and match, as nearly as possible, the real-world tasks of professionals in practice rather than de-contextualized or classroom-based tasks.
- Authentic activities are ill-defined and open to multiple interpretations, rather than being easily solved by the application of existing algorithms, requiring students to define the tasks and sub-tasks needed to complete the activity.
- Authentic activities comprise complex tasks to be investigated by students over a sustained period of time.
- Authentic activities provide the opportunity for students to examine the task from multiple theoretical and practical perspectives, requiring the selection of a variety of resources and the discrimination between relevant and irrelevant information.
- Authentic activities provide the opportunity to collaborate.
- Authentic activities provide the opportunity to reflect.
- Authentic activities can be integrated and applied across different subject areas, encouraging interdisciplinary perspectives and enabling students to play diverse roles, thus building robust expertise.
- Authentic activities are seamlessly integrated with assessment of the major task in a manner that reflects real world assessment.
- Authentic activities create polished products valuable in their own right rather than as preparation for something else.
- Authentic activities allow for original, competing solutions and a diversity of outcomes (p. 565).

To help students understand the difference between an authentic Type III activity and the more traditional kinds of reports that they typically do in school, the authors have developed The Wizard Project Maker, which consists of an online planning form. This form highlights the specific ways in which teachers can provide guidance in helping students find and focus a problem, examine potential outlets and audiences, and obtain the necessary resources to carry out their investigative activities. Blank copies of this form can be downloaded at the RLS website. The teacher's role in this type of enrichment becomes more like a coach and guide-on-the-side rather than a disseminator of knowledge. The teacher's role is an active one, but requires minimal time because it does not require large amounts of face-to-face instruction. More information about the role that teachers play in facilitating Type III Enrichment can be obtained by reviewing the short article on this topic in the Teacher Resource section of this website.

One of the questions that teachers frequently ask is, "Where will students find the time to do Type III projects?" All students can use the Renzulli Learning System, but the above-average ability students—those who can master the regular curriculum at a faster pace than others—can "buy" some time for enrichment activities through a sub-component of the RLS called Curriculum Compacting. Essentially, compacting is a process through which the



teacher uses formal and informal assessment at the *beginning* of a unit of study to determine which students have already mastered basic skills, and, therefore, do not need the same amount of practice material as others. Indeed, it is sometimes this excessive practice of skills already mastered that causes many of our more able students to become bored with school! In subjects, such as science and social studies, students may not know the material to be covered, but are eager to select an option that allows them to cover it at an accelerated pace. Many students are especially eager to select this option if they know that it will "buy" them the time to work on Type III enrichment, as well as other options in the RLS. A brief article on the steps teachers use in Curriculum Compacting is located in the Teacher Resource section of this website.

### *The Value-Added Benefits of Learning with Technology*

The conditions of learning have changed dramatically for young people going to school today. Don Leu and his team of New Literacies researchers at The University of Connecticut (2004, 2005), have pointed out that the Internet is this generation's defining technology for literacy and learning and that profound changes have already taken place in higher education, adult learning and the workplace—all situations for which we are preparing the young students who are in our classrooms today. There was a time when teachers and textbooks were the gatekeepers of knowledge, but today virtually all of the world's knowledge is accessible to any student who can turn on a computer and log into the Internet. One of the dangers of a content-abundant resource, such as the Internet, however, is that we might be tempted to use it simply to cram more information into students' heads! But by applying a learner-centered pedagogy, rather than a traditional drill-and-practice approach, educators can harness the power of the Internet in a way that respects principles of high-level learning developed by the Task Force on Psychology of the American Psychological Association (APA, 1997). A crucial question, therefore, is: Will we use this information wisely? Or will we simply turn the powerful resources available through the Internet into electronic work sheets, test-prep tutorials, and online courses that adhere to the same prescriptive model for learning that

almost all reform initiatives have followed thus far—a model that has, indeed, left so many young people bored, disengaged, and behind? Or will the new technologies be the workhorse that can finally allow teachers truly to differentiate learning experiences for all students? These technologies now make it possible to apply to all students the pedagogy typically used with high-achieving students. In an article entitled "A Rising Tide Lifts All Ships" (Renzulli, 1988), the primary author pointed out how a "gifted education approach" can improve engagement and achievement for all students.

With almost unlimited access to the world's knowledge, a critical issue for educators is selecting the software and providing the training that will help young people use this access safely, efficiently, effectively, and wisely. Leu and his colleagues define the five major skill sets of the new literacies as follows: (1) Identifying Important Questions, (2) Locating Relevant Information, (3) Critically Evaluating Information, (4) Synthesizing Information, and (5) Communicating Effectively.

In addition to improved academic achievement and opportunities for creative productivity, which are the major goals of the Renzulli Learning System, there are a series of metacognitive tools that result from computer-based learning environments. Metacognition is, generally, defined as the monitoring and control of one's own thinking processes. Metacognitive tools are skills that help students organize and self-regulate their learning so that they can make the most efficient use of time, resources, and the cognitive skills that contribute to higher levels of thinking. Metacognition involves problem-solving skills, such as exploring alternative options and strategies in open-ended problem situations, as well as critical thinking skills, such as examining the sources of evidence and the logic of arguments, and knowing how to find and use reliable information. Training and experiences in metacognitive skills may be the single, biggest difference between the education provided in high- and low-achieving schools!

Several researchers studying constructivist models of learning and metacognition have developed or modified traditional theories of learning to explain the role of computer environments in mediating the interactions between and among the cognitive, metacogni-



tive, affective, and social processes that are involved in learning complex material (Bandura, 1986; Corno & Mandinach, 1983; Pintrich, 2000; Schunk, 2001). Promising results have emerged from these new developments in theory and research on the ways in which computer-learning environments facilitate metacognitive skill development.

The Internet can also be a good educational tool for hard-to-reach populations. Researchers from Michigan State University examined the positive effects of home Internet access on the academic performance of low-income, mostly African-American children and teenagers, involved in a home Internet project. In this research, 140 children between the ages of 10 and 18 years (83% African American and 58% male) living in single-parent households (75%) with a \$15,000 or less median income were followed for a two-year period to see whether home Internet use would influence academic achievement. The children who participated in the project were online for an average of 30 minutes a day. Findings indicate that children who used the Internet more had higher standardized test scores in reading and higher grade-point averages (GPAs) at one year and at 16 months after the project began compared to children who used the Internet less, said lead author Linda Jackson. Internet use had no effect on standardized test scores in mathematics. "Improvements in reading achievement may be attributable to the fact that spending more time online typically means spending more time reading," said Dr. Jackson. "GPAs may improve because GPAs are heavily dependent on reading skills," she added.

An even more promising trend is emerging as computer use evolves from traditional e-learning (i.e., taking an online course or developing basic skills through computer-assisted instruction) to inquiry-based software that focuses on the *application* of knowledge to creative productivity and investigative research projects that promote high levels of student engagement. Students learn the basic difference between to-be-presented information that characterizes traditional instruction

and just-in-time information, which is the hallmark of problem-based learning. Skills, such as problem finding and focusing; stating research questions; task understanding and planning; identifying appropriate investigative methodologies; searching, skimming, selecting, and interpreting appropriate resource material; identifying appropriate outlets, products, and audiences; and preparing effective communication vehicles, are all value-added benefits when the learning theory that underlies the Enrichment Triad Model is combined with the vastness of resources available through the Internet.

### *The Renzulli Learning System – Summing It All Up*

The Renzulli Learning System is designed to be an aid to busy teachers who seek the tools for effective differentiation as they go about the process of dealing with a broad range of individual differences, diverse student needs, and increased pressures to improve student achievement. Through the use of technology and an approach to learning that is the opposite of highly prescriptive instruction, the RLS provides teachers with the "dozen teaching assistants" whom every teacher would like to have in his or her classroom. The main goal of the RLS is to increase achievement and enjoyment of learning simultaneously by making available an inexpensive, easy-to-use, research-based system that promotes student engagement. This is defined as the infectious enthusiasm that students display when working on something that is of personal interest and that challenges them to "stretch" for the use of materials and resources that are above their current comfort level of learning. Research on the role of student engagement is clear and unequivocal: high engagement results in higher achievement, improved self-concept and self-efficacy, and more favorable attitudes toward school and learning. Numerous students involved in our field tests of the RLS summed it up with one word – "Awesome!" Interested readers can examine the RLS by going to [www.renzullilearning.com](http://www.renzullilearning.com) and clicking on Test Drive Renzulli Learning.



## References

- Ainley, M. D. (1993). Styles of engagement with learning: Multidimensional assessment of their relationship with strategy use and school achievement. *Journal of Educational Psychology, 85* (3), 395-405.
- APA Work Group of the Board of Educational Affairs. (1997). *Learner-centered psychological principles: A framework for school reform and redesign*. Washington, D. C.: American Psychological Association.
- Bandura, A. (1986). *Social foundation of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice Hall.
- Brown, A.L. (1987). Metacognition, executive control, self-regulation and other mysterious mechanism. In F.E. Weinert & R.H. Kluwe (Eds.), *Metacognition, motivation, and understanding* (pp. 655-116): Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.
- Butler, D., & Winne, P.H. (1995). Feedback as self-regulated learning: A theoretical synthesis. *Review of Educational Research, 65*, 245-281.
- Corno, L. & Mandinach, E. (1983). The role of cognitive engagement in classroom learning and motivation. *Educational Psychologist, 18*, 88-109.
- Greenwood, C. R. (1991). Longitudinal analysis of time, engagement, and achievement in at-risk versus non-risk students. *Exceptional Children, 57*, (6), 521-536.
- Flavell, J.H. (1985). *Cognitive Development*. Englewood Cliffs, NJ: Prentice Hall.
- Hacker, D.J., Dunlosky, J., & Grassner, A.E. (Eds.). (1998). *Metacognition in educational theory and practice*. Mahwah, NJ: Lawrence Erlbaum Associates, Inc.
- Paris, S. G., Byrnes, J.P., & Paris, A.H. (2001). Constructing theories, identities, and actions of self-regulated learners. In B. Zimmerman & D. Schunk (Eds.), *Self-regulated learning and academic achievement: Theoretical perspectives* (pp. 253-288). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.
- Pintrich, P.R. (2000). The role of goal orientation in self-regulated learning. In M.Boekaerts, P.Pintrich, & M. Zeidner (Eds.), *Handbook of self-regulation* (pp. 452-502). New York: Academic.
- Reeves, T. C., Herrington, J., & Oliver, R. (2002). Authentic activities and online learning. In A.Goody, J. Harrington, & M. Northcote (Eds.), *Quality conversations: Research and Development in Higher Education, Vol. 25* (pp. 562-567). Jamison, ACT:HERDSA.
- Renzulli, J. S. (1977). The enrichment triad model: A guide for developing defensible programs for the gifted and talented: Part II. *Gifted Child Quarterly, 21*, 237-243.
- Renzulli, J. S. (1998). A rising tide lifts all ships: Developing the gifts and talents of all students. *Phi Delta Kappan, 80*(2), 105-111.
- Reis, S. M., & Renzulli, J. S. (1994). Research related to the Schoolwide Enrichment Triad Model. *Gifted Child Quarterly, 38*(1), 7-20.
- Schunk, D. (2001). Social cognitive theory of self-regulated learning. In B. Zimmerman & D. Schunk (Eds.), *Self-regulated (Eds.), Self-regulated learning and academic achievement: Theoretical perspectives*. (pp. 125-152). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.
- Zimmerman, B., & Schunk, D. (Eds.). (2001). *Self-regulated learning and academic achievement* (2<sup>nd</sup> ed.). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

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## Endnotes

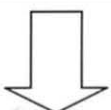
<sup>1</sup>CORRESPONDENCE: Joseph S. Renzulli, Director of The National Research Center on the Gifted and Talented, Distinguished Professor of Educational Psychology, The Neag Center for Gifted Education and Talent Development, 2131 Hillside Rd., The University of Connecticut, Storrs, Connecticut, United States of America 06269-3007; e-mail: joseph.renzulli@uconn.edu.

## APPENDIX I: Renzulli Learning System Overview At-A-Glance

## Renzulli Learning System Overview At-A-Glance



### Individualized Strength Assessment

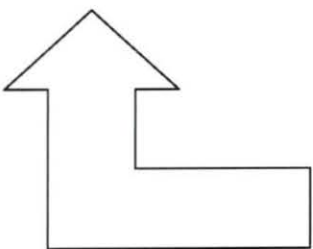
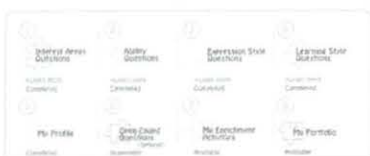


#### MY PORTFOLIO:

Select an option below:



Assessment of My Skills  
My Favorite Activities  
My Work in Progress  
My Documents



### Resource Matching with Search Engine and Data Bases

- Reproducible Activities
- Teacher Monitoring Tools
- Lesson Plans & Learning Maps
- Grouping By Interest Areas, etc.
- Teacher's Favorites Portfolio
- Curricular Related "Push-Ins"
- Built-In Assessment Tools
- Parent Review Access
- 24/7/365 Usage

### Application of Resources to Class Work And Projects







# Gifted and Talented Children In Turkey: A Chronological Review of the Literature

Nilgün Metin<sup>1</sup>  
Saniye Bencik  
Gökçe Yılmaz  
Fatma Çalisandemir

## Abstract

This paper provides a compilation and analysis of studies, conducted in Turkey between 1948 and 2007, on gifted and talented children. After several decades of negligible research, a distinct surge is noted in the late 1980s. The majority of the research studies focus on the education of gifted and talented students, as well as on their developmental characteristics. Few focus on identification criteria and even fewer on families of gifted children. There is a notable paucity of studies on gifted preschool children. In the last decade, policy making has resulted in a marked proliferation of programs in Turkey, an increased number of children being identified as gifted, and private sector initiatives transforming the state of gifted education in Turkey.

## A Brief History

The history of the education of gifted and talented children in Turkey goes back to the 15th century. The Ottoman Empire developed an education system called *Enderun*, for the purpose of educating talented and gifted children. Most of the soldiers, administrators, educators, and artists of the Empire were considered gifted and talented as children and constituted the great majority of the student body in the respective institutions of the late Middle Ages (Akarsu, 2001).

In modern Turkey, the edicts reached at the 1962 Seventh Council of National Education regarding gifted and talented children resulted in the founding of the first *Fen Lisesi* (High School for Science) in Ankara. Two years later, applications for special gifted classes were initiated in public schools across Turkey. In 1989, Anatolian High Schools of Fine Art were established, with students chosen according to their artistic talents as well as academic achievements. In 1990, the İnönü Foundation gave underprivileged gifted and

talented students access to free boarding education.

In 1994, the first Science and Art Center for the Gifted was established with the aim of improving gifted children's education by providing opportunities to share leisure activities and special interests with like-minded peers. Within two years, a second Science and Art Center was established for the gifted with an enrollment of 45 students. Since 1996, numbers have increased exponentially. Based on figures provided by the Ministry of Education ([www.meb.gov.tr](http://www.meb.gov.tr)), the number of Centers in 2007 reached 35, with a total student enrollment of 5,175 (see Table1).



Table 1. Number of Science and Art Centers (BILSEMs),  
Registered Students and Teachers Per Year  
Source: www.meb.gov.tr

Academic Year	Number of BILSEMs	Number of Students	Number of Teachers
1996 - 1997	2	45	8
1997 - 1998	4	52	9
1998 - 1999	4	42	15
1999 - 2000	5	90	22
2000 - 2001	9	289	55
2001 - 2002	11	629	111
2002 - 2003	18	881	151
2003 - 2004	21	1410	191
2004 - 2005	25	2232	253
2005 - 2006	28	3370	352
2006 - 2007	35	5175	411

The evident increase in the number of Science and Art Centres, students, and teachers is a result of Turkey's eighth *Five-Year Development Plan* (2000) which proclaims that schools shall be designed to meet the needs of all students; they shall provide appropriate physical environments, equipment, personnel and programs to meet their needs; counseling and guidance services for the gifted and talented children shall be promoted, starting from the preschool years; and private-sector enterprises shall be supported.

#### *Objectives of the Current Study*

The current brief report provides a compilation of studies, conducted in Turkey between 1948 and 2007, on gifted and talented children. The authors searched the entire collection of studies carried out in Turkey and attempted to locate every article in the field. The studies that were uncovered were grouped under three broad categories: review articles, research studies, and dissertations. These categories were further defined according to topic: identification of gifted and talented students, education issues, developmental characteristics of gifted learners, families of gifted

children, national education policies, and level of students addressed in the studies (pre-school, primary school, high school).

#### *Results*

Table 2 shows the number of studies on gifted and talented children conducted during various ten-year time intervals. The first such study in Turkey was conducted by Ayşegül Güzel in 1948 (as reported in Enç, 1973). Güzel was commissioned by the government to explore the outcomes of sending talented students abroad for further study. Between 1948 and 1957, Güzel's was the only attempt to study this unique group. While, in the next decade, there were only two articles (both reviews) written on giftedness. Between 1968 and 1977, this increased to ten, including one research article. Relevant dissertations emerged in the late 1980s. Despite the slow progress, the number of studies in all three categories increased dramatically after 1988. Since then, there has been an eight-fold surge in the number of research articles on gifted children.

Table 2. Studies of Gifted and Talented Children in Turkey by Category Type and Time Interval

Category	Time Interval													
	1948 - 1957		1958 - 1967		1968 - 1977		1978 - 1987		1988 - 1997		1998 - 2007		Total	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Review	-	-	2	100	9	90	12	85.7	29	76.3	59	56.7	111	65.7
Research	1	100	-	-	1	10	2	14.3	3	7.9	25	24.0	32	18.9
Dissertation	-	-	-	-	-	-	-	-	6	15.8	20	19.2	26	15.4
Total	1	100	2	100	10	100	14	100	38	100	104	100	169	100

Table 3 identifies studies according to both topic addressed and category, collapsing all time intervals. The most common topic addressed across categories was gifted education (51.8%), followed by developmental char-

acteristics of gifted students (20.8%). Six percent of the studies focused on government policies; all were reviews; no research was conducted in this area.

Table 3. Studies by Topic Addressed and Category, Combined Time Intervals

Topic Addressed	Category						Total	
	Review		Research		Dissertation			
	#	%	#	%	#	%	#	%
Identification	10	9.1	6	18.8	5	19.2	21	12.5
Education	60	54.5	16	50	11	42.3	87	51.8
Family	9	8.2	3	9.4	3	11.5	15	8.9
Developmental Characteristics	21	19.1	7	21.9	7	26.9	35	20.8
National Policies	10	9.1	0	0	0	0	10	6.0
Total	110	100	32	100	26	100	168	100

Table 4 identifies studies by topic, level of the students addressed in the study, and category type. Both research and dissertation studies, regardless of the topic investigated, generally focused equally on primary and high-school

student populations, with the least attention being paid to pre-school. Identification of gifted children most likely occurs once a child begins formal education.



Table 4: Studies by Topic Addressed, School Level, and Category  
(Research and Dissertation Only)

Topic	School Level	Category				Total	
		Research		Dissertation			
		#	%	#	%	#	%
Identification	Pre-school	2	33.3	2	40.0	4	36.4
	Primary school	3	50.0	2	40.0	5	45.5
	High school	1	16.7	1	20.0	2	18.2
	Subtotal	6	100	5	100	11	100
Education	Pre-school	2	12.5	-	-	2	7.4
	Primary school	7	43.8	4	36.4	11	40.7
	High school	7	43.8	7	63.6	14	51.9
	Subtotal	16	100	11	100	27	100
Family	Pre-school	-	-	-	-	-	-
	Primary school	2	66.7	1	33.3	3	50.0
	High school	1	33.3	2	66.7	3	50.0
	Subtotal	3	100	3	100	6	100
Developmental Characteristics	Pre-school	1	14.3	-	-	1	7.1
	Primary school	2	28.6	2	28.6	4	28.6
	High school	4	57.1	5	71.4	9	64.3
	Subtotal	7	100	7	100	14	100
	Grand Total	32	55.2	26	44.8	58	100

*Note: National Policy Studies are not included because none were research based.*

Table 5 exclusively identifies dissertation studies on gifted and talented children conducted in Turkey by author credentials (M.Sc. or Ph.D.) and topic addressed. Of the 26 dissertation studies examined, 23 were at the M.Sc. and 3 were at the Ph.D. level.

These mostly focused on education themes (42.3%), followed by an examination of developmental characteristics of gifted students (26.9%). None of the Ph.D. dissertations addressed the latter or family topics.

Table 5. Dissertation Studies by Level (M.Sc. or Ph.D.) and Topic Addressed

Topic	Dissertation Level				Total	
	MSc.		PhD.			
	#	%	#	%	#	%
Identification	3	13.0	2	66.7	5	19.2
Education	10	43.5	1	33.3	11	42.3
Family	3	13.0	-	-	3	11.5
Developmental Char- acteristics	7	30.4	-	-	7	26.9
Total	23	100	3	100	26	100

## Conclusions

The current report provides a compilation of studies on gifted and talented children conducted in Turkey between 1948 and 2007. Although the number of studies in this field has increased rapidly in the last few years, the studies do not appear to advance significantly the literature on Turkish gifted children. Nevertheless, the distribution of studies and topics over time marks the period in which Turkish academics began to take an interest in gifted children and identifies the issues of greatest interest.

Until the 1980s, there were few research studies or dissertations on gifted children in Turkey. In the last decade, the number of studies has almost doubled. Most of the research focuses on the education of gifted and talented students, as well as on developmental characteristics of gifted children. Few studies focus on identification issues and even fewer on families. The paucity of studies on gifted preschool children may be due to inadequate identification instruments for this age group. Notable is the absence of studies examining the effects of national policies on gifted education.

The World Council on Gifted and Talented Children, held in Istanbul in 1999, may, to some degree, account for the heightened interest in research on gifted children in Turkey in the last decade. In 2004, the First Na-

tional Congress on Gifted Children was held in Turkey, creating further interest among researchers.

Studies in gifted and talented children is a new specialization in Turkey. The scarcity of Ph.D. dissertations in this field is a testament to its novelty. Students pursuing their M.Sc. degrees in this field may realize the overwhelming challenges of studying this nascent field in Turkey and choose not to continue with this topic for their Ph.D. program. Identification issues and families of gifted children are the least studied aspects of this gifted specialization in graduate school.

It is believed that the dramatic increase in the number of Turkish studies on gifted and talented children is a result of new national policies, for example, the eighth Five-Year Development Plan (2000). In addition, the supporting private sector, through various initiatives and projects regarding gifted children, has contributed to an increased research interest in the field. The surge in the number of Science and Art Centres (BILSEMs) throughout Turkey is linked also to these new national policies. Because the proliferation of BILSEMs has created a need to select its beneficiaries, an increasing number of gifted children in Turkey has also been identified.

Despite the fact that gifted individuals constitute only 2% to 5% of Turkey's population, they play a significant role in the development



of any country. Strengthening collaborative efforts between the government and academics will help move gifted education in Turkey forward. Researchers should concentrate particularly on improving the identification criteria for pre-school and school-age children, as well as on developing support programs for their families. Gifted children should

be accurately identified, and appropriate programs should be developed; families of gifted children should receive suitable guidance; and relevant education policies should be planned. In this way, gifted children can more fully participate in and successfully contribute to Turkish society.

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## References

- Akarsu, F. (1993). Üstün Yeteneklilerin Eğitiminde Sorunlar. *Milli Eğitim Dergisi* Sayı 121, Ankara.

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## Endnotes

- <sup>1</sup>CORRESPONDENCE: Nilgün Metin, Professor, Faculty of Health Science, Department of Child Development, Hacettepe University, Ankara, Turkey; e-mail: enmetin@gmail.com

### 3.

## The Education of Gifted and Talented Children in Poland

Zofia Palak<sup>1</sup>

Janusz Kirenko

Piotr Gindrich

Zdzisław Kazanowski

Andrzej Pielecki

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### Abstract

This paper addresses the education of gifted and talented children in Poland. It focuses on the ways teachers identify, evaluate, and program for gifted children through enrichment activities. It describes the role of the Psycho-Educational Counseling Centers in Poland and identifies relevant institutions, organizations, and societies that may assist gifted youth, their parents, and their teachers. Finally, it offers recommendations for improving gifted education in Poland.

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In Poland, the process of identifying gifted and talent children is multifaceted. It considers school achievement test scores, out-of-school competition results, informal classroom observations, Intelligence Quotient (IQ) scores, and parent, teacher, or peer nominations. In Poland, the identification of gifted children typically begins with a preliminary assessment of talents involving both psycho-educational and psychological criteria (Partyka, 1999, p. 58). Identification is based on the assumption that "a gifted child has a high IQ... [and shows] exceptional achievement in one or more domains" (Janas-Stawikowska, 2004, p. 126). Partyka (1999, p. 59) cautions that, although "nomination by an experienced and highly competent teacher is regarded as a valid method of identifying a child as gifted...in Poland, teachers show great variability in work experience and competence level." Thus, Partyka suggests that teacher nomination, alone, may not be a reliable method of identification.

### *The Role of Psycho-Educational Counseling Centers*

Psycho-Educational Counseling Centers in Poland are institutions that support a teacher in the assessment of student giftedness. Centers evaluate the abilities of a child, based on their own test results, as well as on information received from a variety of other sources, including parents, teachers, educators, and psychologists who work at the child's school; instructors who work in other educational, cultural, or sports settings where the child participates; pediatricians who care for the child; and the child's peers. Centers recognize the importance of observing a child interacting with peer groups in his or her normal social milieu. The use of the label "gifted" allows one to distinguish more easily gifted children from their non-gifted peers with respect to selected cognitive, affective, social, and physical dimensions (Zeidner & Schleyer, 1999).

Psycho-Educational Counseling Centers, concerned with the validity and reliability of diagnostic tests, create their own identification checklists for parents and educators who work with gifted children—incorporating more in-



formal identification methods in their diagnoses. A teacher may use a checklist of key features or behaviors (see the questionnaire by S. R. Laycock, as cited in Partyka (1999, p. 172)). Such a checklist might include items like

- has an above-average reasoning ability,
- can manipulate abstract concepts,
- looks very deeply into things,
- finds it easy to learn and learns rapidly,
- has a wide range of interests,
- has a long attention span that enhances concentration, problem solving, and interests,
- reaches higher levels of vocabulary in quantity and quality,
- is a prodigy reader (has learned to read very early),
- is a careful observer,
- takes initiative and shows unusual mental activity,
- is absorbed in philosophical and world issues,
- has reading interests in many subject areas,
- has a great imagination,
- can easily follow complex directions,
- reads quickly,
- has a wide range of interests (hobbies),
- makes use of the library frequently and efficiently, and
- is effective at solving problems.

To make an initial diagnosis, teachers consider not only informal checklists, such as the one above, but also test and achievement scores, competition results, and Olympiad outcomes. Achievement scores, however, should be approached with caution, for a teacher must also consider the way a child learns, the goal the test serves, and its content. Some school achievement tests do not accurately show giftedness or a child's talent (Partyka, p. 60).

If the child displays many of the traits found in the initial checklist, a more thorough examination of his or her personality and academic performance is made by Psycho-Educational Counseling Center personnel. In a diagnostician's practice, a variety of additional measures are used depending on the specific aptitude being tested. The most popular tests of intelligence used in Poland are the WISC, the WISC-R, the Raven's Matrices Test, the Intel-

lectual Abilities Assessment (DMI) by A. Matczak (1992), and the Vocabulary Test "Leksykon" by A. Jurkowski (1997). In examining other dimensions, one also might find the following tests useful: the Interest Test "Z", the Interest Inventory by A. Frydrychowicz et al. (2004), the Test of Interest and Personality by E. Mittenecker and W. Toman (n.d.), the Sentence-Completion Samples Test, and a variety of other instruments measuring different spheres of a child's personality, such as self-esteem, neuroticism, and temperament (Janas-Stawikowska, 2004, pp. 129 - 137)

The child's IQ is often an important consideration in the assessment of his or her exceptionality. However, there are some dangers when focusing exclusively on IQ; for example, test scores may not reflect the child's true abilities, making it an invalid measure of giftedness. If this performance-achievement score discrepancy is significant, it may be interpreted as an indication of the presence of a learning disability (LD) (Fletcher et al., 1998) although Sternberg and Grigorenko (2002) caution that this, in and of itself, may be insufficient. Nevertheless, one must recognize the possibility that individuals with LD may also be gifted (Gordon, Lewandowski and Kaiser, 1999).

Contests, competitions, and Olympiads may also be helpful in identifying gifted and talented children. Their usefulness, however, depends on the competence of the jury members who assess students, as well as on the competence of the competitors themselves. Jurors should reflect the specific domains of expertise they are required to judge.

In assessing for giftedness, Counseling Center professionals should consider factors that may potentially both enhance and hinder the child's development and the learning processes that will nurture his or her talents, as well as various social supports that are available (Barański et al., 1999). It is important to note, too, that the presence of a learning disability does not exclude giftedness, talent, or creativity (Partyka, 1999; Sękowski, 2000; Steeves, 2003; Sternberg, 2005; Freeman, 2005). Highly able children and youth can be supported by Counseling Center personnel in numerous ways (Barański et al., 1999, pp. 33 - 34), for example, by



- enhancing children's interpersonal competence and creativity,
- helping them to control their emotions,
- fostering appropriate learning skills,
- facilitating the building of a positive self-esteem,
- encouraging better relationships with family members,
- helping them to make good choices for further education,
- consulting with teachers on the provision of appropriate supports, and
- assisting them in the effective planning of work and leisure-time activities.

### *Individualized Education Plans for the Gifted*

According to Barański et al. (1999), schools in Poland are obliged, by state law, to provide gifted students with individually devised education plans (IEPs); permit students to finish school in a shorter time period, if desired; allow them to drop a problematic teaching subject, provided that they show exceptional ability in another domain; offer them psychological and educational support through the school system; and provide them with financial aid and scholarships. In 2007, amendments were introduced to the Polish Act on the education system with respect to conditions and forms of participation of highly-gifted students taking college and university courses. These amendments mean that, today, the university senate is responsible for defining the exceptional circumstances of gifted or high-ability, tertiary education (O. J., No. 80, pos. 542)

Partyka (1999) urges that educational plans be designed to meet the individual needs, interests, and capabilities of gifted youth. He elaborates,

The diagnosis of the child's psychological condition, his/her emotional state, motivational levels, interests, self-esteem, and interpersonal or emotional competencies should serve as the foundation for developing the child's educational program. In Poland, the education system caters to gifted pupils by applying individual educational plans (IEPs) and by allowing them to finish any level of school much earlier. IEPs,

modified to meet the special educational needs of the gifted child, enhance the learning of one or more curricular subjects. Individual tuition programs refer to educational opportunities that lie outside the regular class schedule. They often involve unconventional teaching methods and are directed to children who have shown high ability or unique talents. Such programs may be present at any level of education (elementary or high-school). Students who attend such programs may be promoted an entire school year, as long as they acquire in one year the skills that typically are taught over two years . . . (pp. 63 - 64).

### *The Academic Secondary School in Toruń: An Experimental School for the Gifted*

There is much debate in Poland over which methods of teaching are best suited for highly gifted children. Unlike Israel (Zeidner & Schleyer, 1999), Poland has no special school system for students of high ability; however, on September 1, 1998, an educational experiment was conducted at the Academic Secondary School in Toruń, in collaboration with Nicolaus Copernicus University (NCU). Adolescents from all parts of Poland attend this school. The manner in which education is organized at the Toruń Academic Secondary School makes it possible for pupils to reach their General Certificate of Secondary Education (GCSE) level at the age of 16 or 17 years.

Following the Toruń example, the Ministry of National Education launched a project requesting changes in Polish educational law to facilitate the establishment of other schools for exceptionally gifted adolescents; however, it was rejected by the Council of Ministers because, philosophically, the Polish government opposes the establishment of separate schools for the gifted, citing results achieved by pupils from the Toruń Academic Secondary School, who do not outscore pupils attending other schools. Furthermore, students from the Toruń school are not as successful in national competitions as the state might expect. Another problem concerns how pupils are selected. Despite the fact that the school eventually (after eight years) developed an appropriate method for selecting highly able candi-



dates, an acceptable gifted education system for successful students was difficult to create. In the government's opinion, as formulated in the Statement issued by Council of Ministers in 2007, establishing schools of this sort goes against the grain of modern educational trends which support the "maximum inclusion-minimum exclusion" rule.

### Enrichment Activities

According to Partyka (1999, pp. 75 - 76), the education of gifted students in Polish schools, whether in exclusive or inclusive settings, may be enriched through the incorporation of a wide variety of activities. For example, teachers may

- organize special contests (at the classroom, school, district, local, regional, or international levels);
- present exemplars of students' creative work through exhibitions, class and school newspapers, diaries, blogs, web-sites, albums, sculptures, or paintings;
- invite individuals who are highly successful in their field; for example, highly gifted parents may come in to teach special lessons or students may visit their parents' work place;
- arrange class excursions to inspire creativity (e.g., lessons may be held at museums, exhibitions, or "green schools");
- devise courses in knowledge management, skills that are not typically taught at school;
- encourage pupils' contribution to cultural activities (e.g., theatre performances, recording sessions, television programs, dance, and music bands);
- arrange for coaches or mentors to help teach the skills required for students to compete successfully as well as assist with organizing contests, publishing newspapers, and participating in competition committees;
- teach in accordance with the goals of programs created by pupils;
- nominate pupils for financial aid and scholarships; and

- keep in touch with the schools of higher-level learning, beyond high school.

### *Institutions, Organizations, and Societies for Gifted Youth in Poland*

Institutions designed to help in the provision of enrichment activities for gifted children and youth include Psycho-Educational Counseling Centers and Methodological Centers of Psycho-Educational Support, governed by the Ministry of National Education (MEN), that provide in-service training for teachers who work, or who are going to work, with the gifted (Partyka, 1999, pp. 121 - 122).

Other foundations, organizations, and societies in Poland that are also helpful are, most notably, the National Fund for Children, The Information and Consulting Center for Gifted Children, Creative Schools Society (TST), The Psychology of Aptitude and Creativity Unit of the Polish Psychological Association (PTP), Workshop for Creativity and Imagination affiliated with The Center of Psychological Research and Service, Friends of Gifted Children, and various other foundations, such as Primus Inter Pares and Overcoming Barriers in Communication. Assistance through these organizations is available not only to gifted pupils but to their parents and teachers.

### *Conclusions*

Based on this brief review of gifted education in Poland, the authors offer a number of recommendations that emerge from the identified needs. A school-wide monitoring system of students' exceptional abilities and talents should be developed because parents, who are not always aware of the criteria, are typically "the first detectors" of their child's giftedness. More teacher preparation is needed because, in spite of the support of the Psycho-Educational Counseling Centers, teachers are not adequately prepared to work with gifted students. Teacher-training programs should include courses that address creativity education, individual differences, and ability and special-skills identification. Psycho-Educational Counseling Centers should pay more attention to searching for and identifying highly able children. Teachers should be provided with greater incentives to acquire competencies in the identification of gifts and talents and in effective instructional practices. Knowledge of the development of the excep-

tionally gifted is equally important. Various state institutions and organizations should coordinate their actions to facilitate the identification and education of the highly gifted, rendering the process more efficient. Government institutions, as well as other relevant professional organizations, should intensify their collective efforts to make society more

conscious of the advantages of a better organized education system for the gifted.

Finally, research should be supported so that we can learn more about the quality of life of exceptionally gifted children, their cognitive and emotional functioning, and the gifted learning disabled.

## References

- Barański A., Janas-Stawikowska B., Krypa J., Łapowicz Cz., Nakoneczna D., Rakowski R., Sękowski A., & Wojda, K. (1999). *Ministerstwo Edukacji Narodowej o uczniu zdolnym. (Ministry of National Education booklet on a gifted pupil)*. Warszawa: MEN.
- Fletcher J.M., Francis D.J., Shaywitz S.E., Lyon G.R., Foorman B.R., Stuebing K.K., Shaywitz B.A. (1998). Intelligent testing and the discrepancy model for children with learning disabilities. *Learning Disabilities Research and Practice*, 13, 186-203.
- Freeman J. (2005). Annotation: Recent studies of giftedness in children. *Journal of Child Psychology and Psychiatry*, 36, 531-547.
- Gordon M., Lewandowski L., & Kaiser S. (1999). The LD label for relatively well-functioning students: A critical analysis. *Journal of Learning Disabilities*, 32, 485-490.
- Janas-Stawikowska B. (2004). Identyfikacja i diagnozowanie uzdolnień dzieci i młodzieży w poradni psychologiczno-pedagogicznej. Uwagi o przydatności istniejących metod i własne rozwiązania. (Identification and assessment of the aptitude of children and youth in a Psycho-Educational Counseling Center. Some tips on usefulness of the well-known methods and its own solutions) w: Sękowski A. (red.) *Psychologia zdolności. Współczesne kierunki badań*. In A. E. Sękowski (Eds.) (*The Psychology of aptitude. Modern trends in research*). Warszawa: PWN
- Partyka M. (1999). *Zdolni, utalentowani, twórczy. (The Gifted, the talented, the creative)*. Warszawa: CMPPP.
- Sękowski A. (2000). *Osiągnięcia uczniów zdolnych. (The Achievement of gifted students)*. Lublin: Towarzystwo Naukowe KUL.
- Stanowisko Rady Ministrów w sprawie komisijnego projektu ustawy o zmianie ustawy o systemie oświaty z dnia 2.04.2007. (*The statement on act's project changing Polish education system act issued by Council of Ministers on 2<sup>nd</sup> of April in 2007*). Warszawa: MEN.
- Steeves J. (2003). Very good at everything: social & emotional ramifications of dyslexia and other atypical learning styles & patterns. *Perspectives*, 29, 15-17.
- Sternberg R.J. (2005). Creativity or creativities?. *International Journal of Human-Computer Studies*, 63, 370-382.
- Sternberg R.J., Grigorenko E.L. (2002). Difference scores in the identification of children with learning disabilities. It's time to use a different method. *Journal of School Psychology*, 40, 65-83.
- Zeidner M., Schleyer E.J. (1999). Educational setting and the psychosocial adjustment of gifted students. *Studies in Educational Evaluation*, 25, 33-46.

## Endnotes

<sup>1</sup>CORRESPONDENCE: Piotr Gindrich, Institute of Pedagogy, Department of Special Psychopedagogy, University of Maria Curie-Skłodowska (UMCS), Narutowicza 12, 20-004 Lublin, Poland; e-mail: piotrgindrich@lycos.com.





## Mapping the Journey: Putting Māori Perspectives of Giftedness into Practice

Bruce R. Farthing<sup>1</sup>  
Mary I. Irvine  
Sheena R. Millar  
Madeleine R. Lambert

### Abstract

This paper outlines the policies and provisions being introduced for gifted and talented Māori students at Otumoetai College, a large state-funded, New Zealand secondary school. The College, by listening to student voices and recognizing Māori epistemologies, is better able to address the needs of its gifted Māori students and deliver a more culturally appropriate pedagogy. This paper explores the thinking surrounding a Māori concept of giftedness and the implementation of provisions and practices within the College that reflect Māori perspectives.

*Aotearoa*, the Māori name for New Zealand, consists of two islands in the southwest Pacific, whose Polynesian migrants became the Māori. The Māori, in origin, are Pacific islanders who, between 900 and 1200 AD, comprised the first wave of migration to the last uninhabited portion of the earth's surface. In isolation, the Māori established the unique indigenous culture of *Aotearoa*. Māori society was a collective tribal (*iwi*) society with a strong attachment to place (*tūrangawaewae*). The Māori developed a very strong sense of belonging to their family (*whanau*). Leadership came either from belonging to the chief caste through inheritance or by demonstrating expertise in a particular skill, for example, as a warrior or orator. Greatness could transcend fixed levels of society. The Māori culture, oral in nature, handed down its knowledge and traditions through song and story from one generation to another. These traditions recognized greatness in a diverse range of cultural expressions, from facial and body tattoos (*moko*), carving, fighting, and hunting to weaving, singing, dancing, and storytelling.<sup>2</sup>

The Māori world was irrevocably changed in the early nineteenth century as Europeans, motivated by the personal agendas of the age

and driven by the British Crown, colonized New Zealand. The Treaty of Waitangi (1840), which was signed as a covenant to the rights and responsibilities of settlement between the British Crown and Māori chiefs of the North, was to become the document that facilitated the legal right for the mass settling of New Zealand by the British (Orange, 1997). The Treaty was written in English and translated into Māori in such a way that the Māori and the Crown came to have different understandings. The Māori believed that they had ceded merely administrative control (*kawanatanga*) to the colonial government, while retaining their powers of chiefly authority. As one of their chiefs expressed it, "The shadow of the land passed to the Queen while the substance remained with the chiefs" (Northcott & Ofner, 1994, p. 35).

Throughout the colonization periods of the nineteenth and twentieth centuries, the dominant European worldviews, beliefs, customs, and attitudes defined the government of New Zealand. The power imbalance saw European practices gain and retain power over issues of representation, legitimization, and accountability within the education system. Now, as New Zealand moves into the twenty-first cen-



tury, the government is fully committed to biculturalism. Embedding the core concepts that underpin both the Māori and English texts of the Treaty, the government is dedicated to providing clear guidance in regards to partnership (power sharing), protection (valuing indigenous knowledge and, therefore, pedagogical values), and full rights of citizenship (equity of access to resources and services).

Māori cultural and value positions, marginalized for so long, have recently been introduced into the education system through the Ministry of Education; however, more than 160 years of European colonization have deeply affected the Māori. Some have learned to function within the dominant European constructs, others comfortably bridge both worlds, and still others remain comfortable within the Māori world. There are also, however, those who are lost between two worlds. In order to reach all the Māori, native notions of learning and being (*mātauranga*) in terms of culturally appropriate pedagogy, must be integrated within education. Māori knowledge exists in parallel with European knowledge so that each way of thinking, doing, and saying is increasingly becoming part of the education system (Doherty, 2008). Major change is being promoted and celebrated in New Zealand's educational institutions to promote equity for the Māori (Ministry of Education, 2008).

The renaissance of Māori culture over the past thirty years within New Zealand has coincided with the recognition of a need to address the issue of gifted and talented education within the country. It is within this context that Otumoetai College, a state-funded, co-educational secondary school, committed itself to implement best practice in order to elevate the needs and aspirations of the school's Māori community. The College, located in Tauranga, a city on the east coast of New Zealand's North Island, has a current enrolment of 1,889 students, including 299 students between Years 9 and 13, who identify themselves as Māori. The ethos of Otumoetai College, up until the late 1990s, was primarily concerned with the implementation of learning programs in mixed-ability groupings intended to raise the performance of low-achieving students.

The establishment of the school's gifted and talented policy, in 2003, represented a com-

mitment to meeting the needs of gifted and talented students and to ensuring that classroom practice was grounded in theory. Included within this policy was the adoption of the Ministry of Education's (2000) definition of giftedness, which states that students who are gifted and talented "are those with exceptional abilities relative to most other people... [and have] certain learning characteristics that give them the potential to achieve outstanding performance" (p. 12). This definition, based on the theories of Renzulli and Reis (1985) and Betts (1985), was readily embraced by the school, since it incorporates both a broad and inclusive understanding of giftedness.

Otumoetai College's increased commitment to the learning of gifted and talented students resulted in the formation of a number of strategies designed to cater more effectively to the cognitive and affective needs of these students. These strategies include the formation of gifted and talented classes within the junior school, a greater commitment to professional development for staff who teach these classes, and the formation of teacher focus groups to create greater awareness of effective strategies to maximize learning. The College became aware, however, that these provisions characterized and defined giftedness in Eurocentric terms. This was evident in the underrepresentation of Māori students within the College's gifted and talented classes, an occurrence consistent with Bevan-Brown's (2004) and Cathcart and Pou's (1992) national research.

Keen (2001, as cited in Macfarlane, 2004) reported that Māori and Polynesian students are identified as gifted and talented at about half the rate of New Zealand Europeans and Asians, relative to enrollment numbers. The Māori are also underrepresented, relative to other ethnic groups. Keen (2001) hypothesized that Māori representation in gifted and talented programs could be equally accounted for by learner socioeconomic status. Bevan-Brown (2004) acknowledges that this is certainly a contributing factor, but emphasizes the role that classroom teachers play in creating further barriers for Māori and, particularly, gifted Māori learners. Negative and stereotypical assumptions by teachers, in conjunction with misunderstandings of Māori constructs of giftedness, mean that few gifted Māori students are recognized as gifted and talented. Otumoetai College also acknowl-



edges that over-reliance on written testing failed to accommodate for cultural differences when attempting to identify giftedness in the Māori. In addition, Davis and Rimm (1994) refer to low self-esteem as the primary characteristic of Māori underachievement and, when combined with low teacher expectation, this also leads to a lack of recognition of Māori children with special abilities.

Otumoetai College is entirely committed to redressing the traditional power imbalances between European and Māori epistemologies. Consequently, the College sought guidance on how best to address issues around Māori achievement and meet the needs of gifted Māori. Bevan-Brown (1995, 2004) and Macfarlane (2004) have both been instrumental in shaping the educational vision of Otumoetai College in order to provide for gifted Māori students.

Bevan-Brown (1995, 2004) highlights the fact that Māori constructs of giftedness differ greatly from European understandings. She identifies that, while Māori are a diverse people, there is an underlying understanding that giftedness is based on "qualities" and "abilities" that are shared for the benefit of others.

These qualities are holistic in nature and congruent with the very fabric of traditional Māori society. They are inextricably intertwined with other Māori concepts, including the building of relationships (*whanaungatanga*), love (*aroha*), and bravery (*maia*).

Bevan-Brown's (1995) research also reveals that Māori values, beliefs, and attitudes from the past are very similar to those of the present. These shape the Māori worldview and create a better understanding of twenty-first century Māori giftedness. To assist educators, Bevan-Brown offers seven concepts that form an integral part of the Māori culture. These have been further developed by Macfarlane (2004) in his Educultural Wheel (see Figure 1). For Otumoetai College, the Educultural Wheel crystallized the knowledge that every teacher is a teacher of the gifted and every teacher is a teacher of Māori.

Macfarlane's (2004) Educultural Wheel presents an illustration of the Māori concepts being adopted in the development and formation of family- or *whānau*-based classrooms at Otumoetai College for the gifted and talented. While practicing the principles of the ethic of bonding (*kotahitanga*) and the ethic of caring

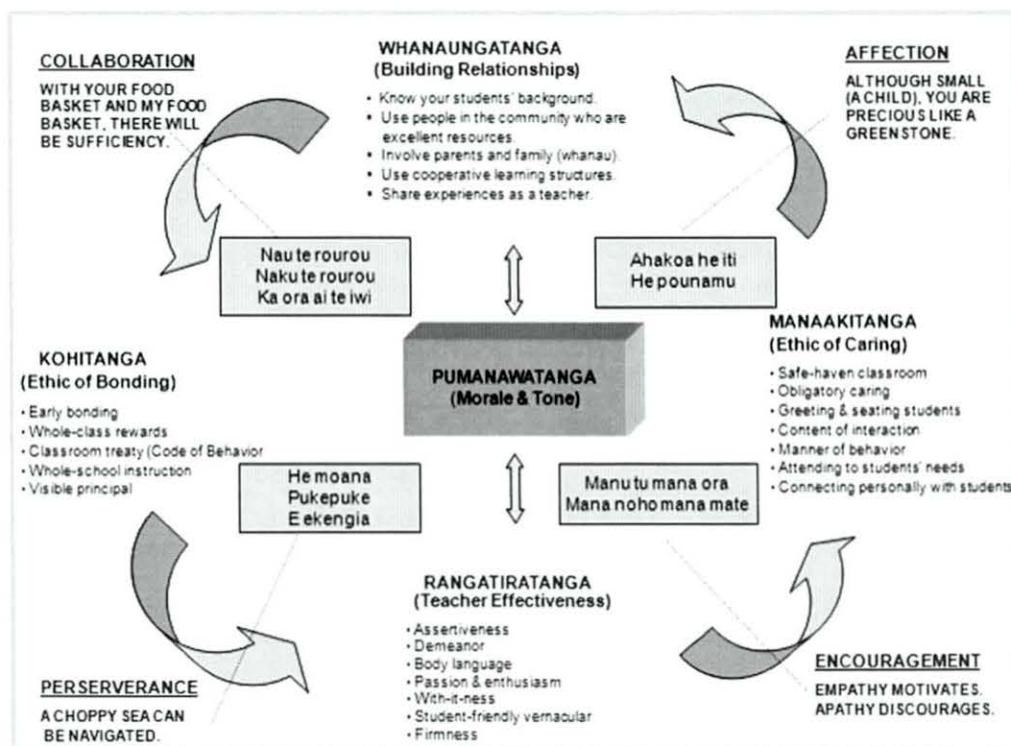


Figure 1. The Educultural Wheel - (Adapted from Macfarlane, 2004)



(*manaakitanga*), students build strong relationships (*whanaungatanga*) which are sustained by positive morale and tone (*pumanawatanga*). Within these classrooms, full recognition is given to Bevan-Brown's components of the Māori concept of giftedness and, when empowered by this knowledge, teachers are able to provide learning opportunities and structures that enable Māori concepts of giftedness to be recognized, valued, and celebrated. Such an environment also allows for the gifts of Māori students, which had previously been dormant and unacknowledged, to emerge, develop, and flourish. This can only occur within a context that values Māori knowledge, including its centeredness in culturally authentic contexts.

Knowledge of the Educultural Wheel poses a real challenge for Otumoetai College staff. It means that teachers need to be aware that, in order to guide the Māori students in their classrooms, they must embrace the elements of the Wheel (Macfarlane, 2004). Student voice is the vehicle that allows this to occur. Teachers may believe they are promoting all the aspects of the Educultural Wheel; however, Māori students sometimes feel that features of the Wheel are ignored or undervalued. The understanding that morale and tone (*pumanawatanga*) is the hub of the Wheel drives teachers to hear the student voice. At first, Māori students may feel shy (*whakamā*) about sharing their views. The students' recognition of the fact that the teacher is modifying practice as a result of their feedback gives them confidence that their ideas are valued and that they are part of the construction of the teaching and learning process. Through such an environment, Māori students and their families (*whānau*) see the College as their place—their *tūrangawaewae*. Without *pumanawatanga*, the wheel will not turn.

In 2007, recognizing the under-representation of Māori students within gifted and talented classes, Otumoetai College attempted to redress this cultural imbalance by placing a cluster group of Year 9 Māori students in these classes. In hindsight, it was not surprising that this was met with staff objections of reverse racism, largely due to cultural stereotyping and ingrained colonial attitudes towards Māori achievement. Frasier (1997) recognized four critical factors that work against the inclusion of students from non-dominant cultures in gifted programs: access, accommodation,

assessment, and attitudes. It is now acknowledged that attitudes are the greatest barrier to making progress (Bishop, 2007).

It was evident that Māori students felt isolated within a structure that failed to provide them with caring (*manaakitanga*) and bonding (*kotahitanga*). Underrepresentation of the Māori in gifted and talented classes in mainstream education can be largely attributed to inappropriate practices in the identification, programming, and evaluation of gifted students. Classroom programs need to provide opportunities for Māori students to operate in their own cultural milieu.

The placement of clustered groups of Māori students in gifted and talented classes was not motivated by the staff recognizing the need for a more culturally relevant pedagogy to raise Māori achievement; however, this was exactly what was needed, a better way of recognizing and catering to Māori giftedness. Initiatives were introduced in 2008 to raise teacher awareness of Māori gifts celebrated within the Māori community.

One of the three College goals for 2007 - 08 is to raise Māori achievement through individual mentoring, developing positive classroom relationships, introducing appropriate cultural contexts, and allowing for adequate process, product, and pace. To this end, the College staff has undertaken a program of intensive professional development to ensure that informed decisions about Māori epistemology shape pedagogy. Inherent within this development is the awareness of the need for community involvement in sculpting and understanding Māori giftedness. Some staff adopted the principles of culturally responsive pedagogy embedded in the ethic of bonding or *kotahitanga* (Bishop, 2003). They have also become more active in ensuring that the relationships and program provisions reflect the cooperation and power-sharing grounded in the Māori worldview.

Otumoetai College also now recognizes the important role that the community plays in developing the College's understandings of Māori giftedness. The home-school partnership (*Whānau* or Family Support Group) has been strengthened by adopting the principles of the Educultural Wheel, thereby ensuring community participation in the College's decision-making processes. The Board of Trustees has its own *whānau* representative and



local respected Māori elder (*kaumatua*). In addition, the College has provided a traditional meeting house or *whare wananga*, a traditional place for eating or *whare kai*, and a family or *whānau* meeting room and classroom.

The establishment of family or *whānau*-based learning approaches at Otumoetai College promotes lesson planning that reflects the values of Māori students, which signals to them that their culture matters.

The advent at Otumoetai College, in 2008 – 09, of a *whānau*-based, Māori gifted and talented class ensures that student talents are being shared for the collective benefit of the group. The prime identification criteria for student entry, besides peer, family, and teacher nomination, include demonstrating leadership, reflecting knowledge of and interest in Māori ethics and traditional arts and skills, exercising a sense of justice and fair play, speaking Māori, and exhibiting effective group interaction skills.

Otumoetai College has begun to map the steps in this journey. In 2000, the Ministry of Education published its first definition and set of guidelines for gifted and talented education in New Zealand and, in 2004, Macfarlane published the Educultural Wheel. Synthesizing the information, examining previously held

assumptions, and designing new pedagogical approaches has taken time. In 2007, the College initiated a celebration evening for the recognition of Māori talents and successes. This is an evening where Māori students are valued for their rich history and heritage.

It is too early to discuss the outcomes for this journey, other than to say progress to date has been both positive and challenging. The forging and maintenance of close relationships within the Māori community, in conjunction with a greater awareness of the interrelated concepts of pedagogy, culture, and relationships have, nevertheless, created an environment where giftedness is no longer a monocultural construct at Otumoetai College.

Macfarlane's Educultural Wheel (2004) has propelled an understanding of Māori giftedness and appropriate pedagogy to the forefront of education in New Zealand. It has made possible the advancement of gifted Māori by reclaiming their education within the Māori worldview. A framework for Māori values, beliefs and attitudes within the education system is one means of guiding the advancement of Māori achievement. In a country committed to equity in education, the voice of Māori can no longer be ignored.

## References

- Belich, J. (1996). *Making peoples: a history of the New Zealanders: from Polynesian settlement to the end of the nineteenth century*. Auckland, New Zealand: Allen Lane/The Penguin Press.
- Betts, G. T., & Kercher, J. K. (1999). *Autonomous Learner model: optimizing ability*. Greerly, CO: ALPS Publishing.
- Bevan-Brown, J. (1995). *Special abilities: A Māori perspective*. In teaching gifted students at secondary level: Proceedings of the 18<sup>th</sup> National Conference. Palmerston North, New Zealand. Wellington: Special Education Service.
- Bevan-Brown, J. (2000). *Running the gauntlet: A gifted Māori learner's journey through secondary school*.
- Bevan-Brown, J. (2004). Gifted and talented Māori learners. In D. McAlpine & R. Moltzen (Eds.), *Gifted and talented: New Zealand perspectives* (2<sup>nd</sup> ed., pp. 171-197). Palmerston North: ERDC Press, Massey University.
- Bishop, R., Berryman, M., Cavanagh, T., Teddy, L. (2007). *Te Kotahitanga Phase 3 Whanaungatanga: Establishing a Culturally Responsive Pedagogy of Relations in Mainstream Secondary School Classrooms*. Report to the Ministry of Education. Wellington: Ministry of Education.
- Bishop, R., Berryman, M., Tiakiwai, S., & Richardson, C. (2003). *Te Kotahitanga: The experiences of Year 9 and 10 Māori students in mainstream classrooms*. Report to the Ministry of Education. Wellington: Ministry of Education.
- Bishop, R., & Glynn, T. (1999). *Culture counts: Changing power relations in education*. Palmerston North: Dunmore Press Limited.
- Bishop, R., & Glynn, T. (2001). Changing power relations in education: Kaupapa Māori messages from the mainstream. In C. McGee and D. Fraser (Eds.) *The professional practice of teaching* (2<sup>nd</sup> ed.) (pp. 201-219). Palmerston North: Dunmore Press.
- Cathcart, R. & Pou, N. (1992). The gifted child who is Māori. *NZAGC Gifted Children Their future: Our Challenge*, 17(3), 13–17.
- Davis, G.A. & Rimm, S.B. (1994). *Education of the gifted and talented* (3rd ed.). Needham Heights, MA: Allyn & Bacon.



- Doherty, W. (2008). *Making Māori Mainstream*. Keynote address at the 14<sup>th</sup> PPTA national Māori teacher's conference, July 2008. In PPTA news 29(4) pg 7 Place, Publisher
- Doidge, G. (1990). Māori children, Māori studies: A special giftedness. *APEX*, 4(2), 36–39.
- Frasier, M. (1997). Gifted minority students: Reframing approaches to their identification and education. In N. Colangelo & G. Davis (Eds.), *Handbook of gifted education* (pp. 498–515). Needham Heights, MA: Allyn & Bacon.
- Hemara, W. (2000). *Māori pedagogies: A view from the literature*. Wellington: New Zealand Council for Educational Research.
- Hurtubise, J. (1991). *Other gifts: Issues of gender and ethnicity in giftedness*. Proceedings for the NZAGC Teachers' Conference, Education for the gifted and talented child. Palmerston North: Palmerston North College of Education.
- King, M. (1997). *Ngā Iwi O Te Moto: 1000 years of Māori history*. Auckland, New Zealand: Reed.
- Macfarlane, A. (2004). *Kia hiwa ra: Māori students' plea to educators*. Wellington, New Zealand Council for Educational Research.
- Ministry of Education. (2008). *Te Marautanga o Aotearoa*. Wellington, New Zealand. Publisher
- Ministry of Education. (2008). *Ka Hikitia – Managing for success: The Māori Education Strategy 2008 – 2012*. New Zealand: Group Māori Ministry of Education.
- Ministry of Education (2000). *Gifted and Talented Students: Meeting Their Needs in New Zealand Schools*. Wellington, New Zealand: Learning Media.
- Ministry of Education. (2000). *Gifted and talented students: meeting their needs in New Zealand schools*. Wellington: New Zealand: Learning Media.
- Niwa, T. (1998/99). Māori students with special abilities. *APEX*, 11/12(1), 3–8.
- Northcott, D. and Ofner, S. (1994). *Colonialism, rangatiratanga and the pursuit of mana: Māori/Pakeha relations in 19<sup>th</sup> century New Zealand*. Auckland, New Zealand: White Ribbon Promotions Ltd.
- Orange, C. (1987). *The Treaty of Waitangi*. Wellington, New Zealand: Allen & Unwin.
- Persell, C. (1997). Social class and educational equality. In J.A. Banks & C.A. McGee Banks (Eds.), *Multicultural education: Issues and perspectives* (3rd ed., pp. 87–107). Boston: Allyn & Bacon.
- Reid, N. (1990). Identifying the culturally different gifted in New Zealand. *APEX*, 3(3), 3–10.
- Reid, N. (1992). *Correcting cultural myopia: The discovery and nurturance of the culturally different gifted and talented in New Zealand*. Paper presented at the Guiding the Gifted conference, Auckland.
- Renzulli, J. S & Reis, S. M. (1985). *The schoolwide enrichment model: A comprehensive plan for educational excellence*. Mansfield Center, Ct: Creative Learning Press.
- Salmond, A. (1997). *Between two worlds: early exchanges between Māori and Europeans, 1773 – 1815*. Auckland, New Zealand: Viking.

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## Endnotes

<sup>1</sup>CORRESPONDENCE: Bruce R. Farthing, Deputy Principal, Otumoetai College, P.O. Box 8033, Tauranga, New Zealand, 3145; e-mail: bfarthing@otc.school.nz,

<sup>2</sup>Māori histories are more fully documented elsewhere (see, for example, Salmond, 1997; King, 1997; and Belich, 1996).

# Epilogue: Tracking Gifted Children into Adulthood<sup>1</sup>

Joan Freeman<sup>2</sup>

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## Abstract

This study of gifted and non-gifted children began in 1974 with 210 children, aged 5 to 14 years. The sample consisted of 70 matched triads. In each triad, one child was labeled gifted, one was unlabeled but equally gifted, and the third was taken at random. All were from the same school class. The children labeled gifted were found to have significantly more emotional problems than the non-labeled gifted, though their problems normally vanished with increasing independence. More than three decades later, early indicators of giftedness, such as precocity, intelligence scores which hit the ceiling of the tests, top school marks, and grade-skipping have not been found to be a passport to recognizable giftedness in the adult world. The effective dynamics for adult success at all levels of ability have been opportunity, hard work, emotional support, and a positive outlook.

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My long study of gifted and non-gifted children, initiated in 1974, has shown, through the lives of 210 individuals and their families and teachers, that the only real difference between the gifted and everyone else is their gifts (Freeman, 2000a; Freeman, 2001). How other people react to their "specialness," however, can make all the difference to the way the children develop into adults. Being gifted in a normal world means facing special challenges; for example, in my original 1974 study, only one of the 17 children who were accelerated in school (some by as much as three years) is now, in his forties, happy about that move. The main emotional challenges they faced were learning in a classroom with more mature classmates, missing foundational learning, and losing friends. Others from modest backgrounds who could have gained scholarships to elite universities faced a daunting and, sometimes, devastating socio-economic divide.

Whatever obstacles the gifted children in the sample had to overcome, these were small compared to what they had to accomplish as adults in order to be seen as highly achieving in the world. For every one of these gifted children, turning their childhood prodigiousness into adult excellence was always the

most difficult challenge of all. Life can be cruel. Gifts sometimes had to be pushed aside for the tiresome work of earning a living, and fate turned some lives upside down.

How individuals reacted to events outside their control can be seen as partly related to their intellectual ability to cope but, more importantly, to their personalities and views of life. Across the decades, I have seen many times how two people of the same high potential reacted differently to a similar obstacle in life. This could be, for example, getting a position at a prestigious university. Where one would see it as exciting and could not wait to embrace the challenge, another would see it as overwhelming, take fright, and give up.

Most of the students who had been identified as gifted took pride in the acknowledgment and welcomed the status, although it did not necessarily open doors for them. Unfortunately, a few of the gifted were exploited for adult benefit, whether by parents or teachers, while for others, their feelings of personal worth were squashed for being "too clever." A child's self-confidence can be severely wounded by just one humiliating act by a teacher, as when a boy had his precious



poem torn up in front of the class because he had veered from the prescribed lesson. Others found continuing distress from the everyday pressure of unrelenting obligation to achieve brilliantly at all times and the inevitable parental disappointment (still in action even today) that it brought them. At the time, some felt they were living out others' dreams and were not appreciated for themselves. Those feelings are still with them. While some under this pressure did their best to conform to the image of a clever child and worked hard to please parents and teachers, others rebelled, refusing to fulfill their potential. An unfortunate few were incorrectly labeled as gifted and still suffer because of their inability to live up to their anticipated potential.

The reactions to these forces have threaded through the teenage years and persisted into their adult lives, affecting their success and happiness. The label was sometimes used as a presentation of the self, their persona, providing reasons for their behavior, as in "I can only talk to the tutors in my college because my fellow students aren't up to my level." Parents used the label as an explanation for difficult behavior, as in "He can't make friends because he is gifted." expressed in the presence of the young child. For some subjects, the label was like a constantly, irritating thorn in their sides as they grew up. They could either learn to live with the discomfort or attempt to remove it by changing their attitude. One girl, who had had a painful time with it, said poignantly that she only escaped from it when she had children herself; they did not know about it, she explained, and they loved her for herself. One 43-year-old man, who has been largely unemployed all his adult life, still lets everyone know about his childhood label of "gifted," not least as it once got him on to a television program. As a single parent, he says, it enables him to recognize the same signs of giftedness in his son as he had, notably poor concentration and inability to make friends.

### *Gifts and Talents*

In my study, I have used the word "gifted" to mean outstanding mental ability and "talented" to mean outstanding artistic ability, although the two overlap, and many children in the study manifested both abilities. Formal definitions of gifts and talents vary immensely, especially in different cultures, so

that no individual definition is adequate. Most people see "gifted" children as being far in advance of their age group at school, and the "talented" as little virtuosi acknowledging the applause.

Descriptions of giftedness usually depend on what is being examined, whether they are test scores, school marks, solving paper-and-pencil puzzles for an IQ club, such as Mensa, or creative work recognized by an expert. Unfortunately, gifts that are vital to the smooth running of society, such as entrepreneurship, economics, or people-management skills, were rarely considered by the 63 schools in the study. Some gifted children in the sample could do almost anything brilliantly, whether sports, music, or philosophy, while others focused on a single area, typically mathematics or music. Some were gifted in terms of intelligence test results, but even in childhood and with appropriate education, they did not show what they were truly capable of because of family and emotional problems. My concern is with the psychology of giftedness and talent in its many manifestations and with unrecognized high-level potential.

### *Longitudinal Studies of the Gifted*

The major benefit of longitudinal studies lies in their ability to track a participant's behavior as it develops, allowing for early indicators to be recognized, successful developmental procedures to be promoted, and inappropriate ones discarded. However, unless one compares the gifted with other growing children within the context of child development, it is difficult to know what effects can be attributed to giftedness and what to other matters in a child's life. General population statistics do not provide satisfactory comparisons for longitudinal studies in gifted development because they are not focused on the subject matter (Freeman, 1998). The major weakness of longitudinal studies is that, by definition, they started a long time ago when circumstances were different, bringing into question the relevance of findings to the current situation.

Giftedness is a social construct. Children who fit the current description of giftedness are culturally permitted to be recognized as such, whereas others, because of factors such as minority status, disability, social awkwardness or gender, may not (Freeman, 2003, 2005).



Virtually all follow-up studies of gifted children include only those chosen for extremely high IQ or achievement scores, thus demonstrating recognizable giftedness acceptable within the society at that time. Yet, Arnold and Subotnik (1994) found that giftedness might take on different forms; it may appear in quite unexpected situations and at different points during a lifetime. This means that theories and educational programs designed for children who are precocious in conventional areas, may not serve those whose gifts do not fit, either now or in the future. As children, most gifted adults, from Mary Wesley, the highly successful English writer who achieved fame in her seventies, to Albert Einstein, the theoretical physicist, never received any special attention for their gifts.

The long-term benefits of special provisions for the gifted appear to be uncertain. The advantages of higher initial achievement and feelings of satisfaction that gifted students enjoy tend to disappear over a few years (White, 1992). Without the long-term perspective, programs for the gifted may not be justified (Freeman, 2002). A recent United Kingdom review of international research on Accelerated Learning, for example, found evidence of its effectiveness to be scientifically poor, voraciously marketed, and having a strong placebo effect (Comford Boyes, Reid, Brain, & Wilson, 2004). Yet, for many schools around the world, it is the program of choice for the gifted and talented. The questions to be asked of all special programs for the gifted are; how much of the initial boost to achievement is due to the Hawthorne effect, that is, to sheer attention and change; and whether the effects last over years.

There are many concerns about the emotional effects and expectations of the labeled gifted. When emotional disturbance is associated in a stereotyped way with gifts and talents, and so anticipated by parents, it is more frequently seen. Cornell and Grossberg (1989) found that parents who used the term gifted were more achievement-oriented and diminished their children's emotional expression, typically producing less well-adjusted children than the parents who did not use this term.

### *The Freeman Follow-Up Study*

In 1974, when I started this study, the widespread image of gifted and talented children was of rare, exotic creatures with emotional problems. Some people still think of them in that way, especially if their education is described as inadequate. In my long involvement with truly gifted individuals in their daily lives, however, I have seen a very different and much more complex picture. I believe that this work and that of others has influenced the perception of children with gifts and talents as being normal, but with something special to offer the world.

A major research question was whether there is any difference between children who are labeled as gifted and identically able children who are not so labeled. For comparison, each labeled gifted child (whose parents had joined the National Association for Gifted Children, United Kingdom, on their behalf) was matched with two others in the same school class, making a triad. A total of 63 schools were represented in the sample. Each of the three children in the triad was matched for sex, age, education, and socio-economic level.

Additionally, for each labeled (Target) child, the first matched child (Control #1) was measured as being of identical ability but not seen as gifted, whereas the second child (Control #2) was of random ability ( $n = 210$ , ages 5 - 14 years, 70 triads). The study across the United Kingdom used a battery of tests, decades of long, in-depth interviewing with the children, interviews with the parents as well as class and head teachers, and socio-environmental assessments.

In Table 1, the Experimental Groups' intelligence measures show how the whole sample looked in 1974. There are differences in the measured intelligence levels between the Raven's Progressive Matrices scores and the Stanford-Binet Intelligence Scales scores because the tests are different. The Raven's is a non-verbal pattern test and the Stanford-Binet contains many school-type and learned items. By visiting and rating the children's homes and parents, it could be seen that the higher the educational standard of the home, the greater the distance between the scores of the Raven's Progressive Matrices and the Stanford Binet Intelligence Scales measures (for more detail, see Freeman, 2001, p. 16).



Table 1. The Experimental Groups' Mean Intelligence Scores

Groups	Intelligence Measures			
	Raven's Progressive Matrices (Raw Score)		Stanford Binet Intelligence Scales (IQ)	
	Mean	SD	Mean	SD
Labeled Gifted (Target)	34.53	12.85	147.1	17.41
Matched Ability (Control #1)	34.60	11.45	134.34	17.13
Random ClassMates (Control #2)	28.75	11.58	119.2	16.09

There were highly significant differences in the social adjustment levels of the three comparison groups, as can be seen in Table 2. This uses the categories of measured adjustment of the Bristol Social Adjustment Scale (Stott, 1976). It is clear that the Target Group, the children chosen by parents as gifted, had many more social-emotional problems (sometimes in multiple forms) than the two control groups, especially the equally gifted children, and at a highly significant statistical level ( $p < 0.1$ ).

More than three decades later, those childhood problems have largely (but not entirely) disappeared. In adulthood, the emotional differences were not measured by a test but, as explained above, through deep, open-ended, individual interviewing, using rated and statistically analyzed questionnaires.

This study has remained unique in two ways:

1. *In-depth personal interviewing.* Over the decades, this study has reached depths of understanding that few other studies of the gifted and talented have achieved.
2. *Setting up matched comparisons from the start.* The grave lack of controlled comparisons in research on gifted children has often resulted in the presentation of a false picture, notably that the gifted are clearly emotionally disturbed. This is the only longitudinal study to have been concerned with comparative emotional development in gifted and non-gifted children.

Table 2. Student Adjustment at School, as Measured by the Bristol Social Adjustment Scale

Bristol Social Adjustment Scale Measure	Group		
	Labeled Gifted (Target)	Matched for Abilities (Control #1)	Random Classmates (Control #2)
Under-reaction			
Withdrawal	23	10	10
Non-Specific	37	24	21
Over-Reaction			
Impulsiveness	50	26	34
Hostility	39	17	13
Anti-social Behavior	29	14	9

Note: All figures are expressed as percentages ( $n = 70$  for each group).  
All differences are significant at  $p < 0.1$ .

This dual approach, bridged by statistical and interpretive analysis, has made it possible to discover the personal, emotional, and social dynamics of the subjects, their families, and schools. The research has revealed indications as to how gifted children may emerge into adulthood. It has shown that differences in life outcomes are not only influenced by opportunity, but also by the development of personal factors measured from the start—notably personality, intelligence, economic circumstances, and schooling. The effect of these early influences can be detected in adulthood, whether they are the dedicated scholars, the creative mavericks, or the plodders.

Unexpectedly, the audio recordings of the early interviews demonstrated the unreliability of memory, such as when the same incident was described by children and parents separately or when, as adults, the subjects remembered their youth. One example is the student I interviewed at Oxford University in the late 1980s. She had skipped three grades at school, which had not been a happy experience for her and, on reaching university at 16 years of age, found herself young, lonely, and often in tears. Twenty years later, however, she looked back to remember that time as blissful. I did not remind her of how it had really been. Memory distortion is a common phenomenon.

The primary difficulty in this research, in common with all other longitudinal research projects, has been in maintaining the original sample in the follow-up study. To be valid, one cannot add fresh subjects as the others drop out, although some well-known studies (e.g., Terman's, in Holahan & Sears, 1995) have done this liberally. Some of my subjects dropped out because they no longer wanted to be part of the study, while others could not be found, in spite of great efforts to locate them. Nevertheless, many members of the sample keep turning up, even years after I have given up looking for them. Fortunately, the original groupings have retained the same proportions so that outcomes are recognizable. Data analysis is continuing in this ongoing work (See Table 3).

Table 3. The Sample in 2006

Category	<i>n</i>
Interviews Completed	86
Males/Females	50/36
Target Group: Labeled Gifted	34
Control #1: Equally Able Group	27
Control #2: Random Group	25
Subjects with an IQ of 140+	44
Subjects with an IQ of 160+	14
Range of IQs	101-170

Of the original 70 matched triads, making up the 210 youngsters in the sample, just five complete sets remain in 2006. In 1974, those 15 boys and girls, who made up five of these sets of three, had been clearly distinguishable in terms of their experimental groupings, but this was no longer so. The example below of a triad (Target, Control #1, Control #2) of men, aged 37 years in 2005, shows how difficult it is to untangle the long-term life forces associated with gifts and talents

The Target man was one of the first in the United Kingdom to contract AIDS at the age of 18 years and has struggled to continue his work as an Information Technology consultant, as his severe illness stops him from time to time. His gifted Control #1 is an architect, and his random Control #2 of average ability is an airport income clerk, charging airlines for landing. The Target man has always had a wide span of remarkable gifts and talents. He married his male partner in Amsterdam. The sensitive poetic architect has a long-term girl-

friend and more work than he can handle. The income clerk lives at home with his mother, cares for her, has almost never missed a match of his local football team, and has a drink with his pals most evenings. None have children. All three tell me they are content with their lives, although they have obvious problems, respectively—suffering from AIDS and the constant shadow of death, making one's way in a tough world of architecture, and hoping one day that a girlfriend will materialize.

### *Some Conclusions from this Study*

- *The long view.* It is vital to take a long view of life in the study of gifts and talents because the development from childhood roots is not smooth. Snapshots taken at different times of life presented quite different pictures; some children were able to overcome poor prospects to become highly successful adults, while others never saw their gifts and talents fully realized.
- *Individual differences.* The way circumstances affect children was strongly influenced by their personalities and sense of self. Whether youngsters were modest, conventional, and rule abiding or constantly straining to change the world, their adult, personal style was often recognizable from childhood.
- *Opportunity.* The child's self-concept affected the seizing of opportunities. The social pressures, which can diminish a growing child's feelings of worth, were often not helped by the schools and universities they attended, resulting in unnecessarily wasted energies and lost potential.
- *Expectations.* Strong pressure to conform to expectations, particularly to the label of gifted, affected the life path of individuals over decades. The greater their inclination to accept that pressure, the less likely they were to stand out in terms of excellence and gifts as they moved into adulthood. Pressure to score top marks in examinations measurably detracted from creativity. Some (especially boys) appeared to subdue their personalities in their



striving for high grades, so their healthy emotional development, including the freedom to play and be creative, had been severely curtailed. Unfortunately, too, teachers sometimes felt a need to put the liveliest and more creative youngsters in their place.

- *Gender.* Gifted girls sometimes took lower-level, but emotionally satisfying, work and could, therefore, be seen as less successful than high-earning men. It is a subjective judgment as to which life may be more worthwhile, but, in statistical analyses where ratings are given to particular occupations, these women were perceived as being less successful financially.
- *School effects.* Some of these individuals' gifts were encouraged more than others in schools, particularly in science and mathematics—possibly because readily recognizable outstanding results could be more easily achieved in those subjects; however, too many youngsters wasted time and energies following wrong channels because of poor educational guidance.
- *IQ.* In general (but not always), those with exceptionally high IQs, (e.g., within the top 1%), did much better in life than those with merely a very high score (e.g., within the top 10%). The least successful had remained with less mature and effective, shorter-term cognitive techniques, like rote-memorizing their lesson notes at school and rarely looking things up or using other resources. Most high achievers in adulthood had enjoyed a mutually rewarding situation, both at home and school, and a feeling of comfort with their desire to learn, based on their parents' early pride and support as individuals.
- *Ideas of giftedness.* The idea that the recognizably gifted should be more advanced in school achievement than their same-age peers was prevalent among teachers. Being labeled gifted was frequently associated with unmerited emotional complications. Some young people rose to the challenge of the label and thrived on it, while others felt they could never live

up to the image. So, in order to shine, they had chosen a career below their capabilities—a negative outcome. Others simply ignored their potential, fitting in with the local culture, which did not have a place for giftedness.

- *Pressure.* Pressure sometimes had the opposite effect from what was intended, the worst affected being the accelerated boys specializing in science. They missed out on the healthy development of social skills and relationships, and their self-image was poor. Today, many regret the way their childhood was spent in heavy study.
- *Attitudes of others.* The respect of others, especially teachers, was important to the developing young person. When the gifted received it, allowing them enough responsibility to make many of their own discoveries and decisions, they were able to lead more satisfying lives.
- *Creativity.* High-level creativity, as seen in adult careers, demanded a particular type of personality, noticeable in childhood, which enabled the individual to act independently of others' opinions.
- *Emotional poverty.* Poor emotional home circumstances, such as a constant change of "uncles," did nothing but harm to the possibility of adult excellence.
- *Researchers beware.* The adults' memories were not always reliable, and many had retained very different impressions of their childhood and youth from what had been audio-taped and transcribed at the time.

There are, of course, many non-scholastic routes to satisfaction in achievement, such as the woman of a 170 IQ whom I had described, thirty years earlier, as empathetically gifted. Throughout school, she was effectively the class counselor, the one to whom others brought their troubles. She gained a psychology degree and further qualifications and, in 2005, cared with love and deep satisfaction for the down-and-outs of her city, being neither well paid nor, recognizably, a high-flyer.

After innumerable hours of interaction and investigation with the individuals in this sam-

ple as they grew to adulthood, I had to conclude that so many influences on happiness and success are like love—it is possible to say how it feels and what happens because of it, but there is no sure recipe to apply it to others. For the rest, we do have very clear

information about what the gifted and talented need by way of support towards self-fulfilment: an education to suit their potential, opportunities to flourish, and people who believe in them.

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## References

- Arnold, K. D. & Subotnik, R.F. (1994). Lessons from contemporary longitudinal studies, in R.F. Subotnik, & K.D. Arnold, (Eds.) *Beyond Terman: Contemporary longitudinal studies of giftedness and talent* (437-451). New Jersey: Ablex Publishing.
- Comfort Boyes, L., Reid, I, Brain, K. & Wilson, J. (March 2004). *Accelerated Learning: a Literature Survey*. Unpublished report; Department for Education and Skills, UK.
- Cornell, D. G. & Grossberg, I.N. (1989). Parent use of the term "gifted": Correlates with family environment and child adjustment, *Journal for the Education of the Gifted*, 123, 218-230.
- Freeman, J. (1998) *Educating the very able: Current international research*. London: The Stationery Office. ([www.JoanFreeman.com](http://www.JoanFreeman.com))
- Freeman, J. (2000a). Families, the essential context for gifts and talents, in K.A. Heller, F.J. Monks, R. Sternberg & R. Subotnik, *International handbook of research and development of giftedness and talent*. Oxford: Pergamon Press. (669-683)
- Freeman, J. (2001). *Gifted children grown up*. London: David Fulton Publishers.
- Freeman, J. (2002). Out-of-school educational provision for the gifted and talented around the world, Report for the Department for Education and Skills (UK Government). Free on [www.joanfreeman.com](http://www.joanfreeman.com)
- Freeman, J. (2003). Gender differences in gifted achievement in Britain and the USA, *Gifted Child Quarterly*, 47, 202-211.
- Freeman, J. (2005). Permission to be gifted: how conceptions of giftedness can change lives', in R. Sternberg and J. Davidson, *Conceptions of Giftedness*, Cambridge: Cambridge University Press. Pp 80-97.
- Holahan, C.K. & Sears, R.R. (1995). *The gifted group in later maturity*. Stanford, CA: Stanford University Press.
- Terman, L.M. (1925-1929). *Genetic studies of genius* Vols. I-V, Stanford: Stanford University Press.
- Stott, D.H. (1976). *The social adjustment of children*, London: Hodder and Stoughton.
- White, K.R. (1992). The relation between socio-economic status and academic achievement. *Psychological Bulletin*, 91, 461-481.

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## Endnotes

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<sup>2</sup>CORRESPONDENCE: Joan Freeman, School of Arts and Education, Middlesex University, 21 Montagu Square, London, United Kingdom W1H 2LF; e-mail: [Joan@JoanFreeman.com](mailto:Joan@JoanFreeman.com)





# Appendix 1

## Key Features of Gifted and Talented Education Across the Globe: Rapporteurs' Survey Results

Julie Graham<sup>1</sup>

During the Conference of the World Council for Gifted and Talented Children held in Warwick, August 2007, 41 participants, representing 39 countries, were interviewed on site and asked a series of questions regarding the state of gifted and talented education in their respective countries. With participants from 57 different countries attending the conference, it meant that we were able to gather the views from more than 68% of those countries represented<sup>2</sup>. The distribution included 17 European countries, 5 from the Americas, 5 from the Middle East, 7 from the Far East, 3 from sub-Saharan Africa, and 1 from each of Australia and New Zealand.

The goal behind the questioning was to establish an understanding of the key features of gifted and talented education across the globe, including

- how it is organized,
- what the pressing priorities are for the countries concerned and how they are being tackled,
- who is responsible for such work, and
- what is working well and what is working less well.

The intention of this survey was to share the outcomes with other participants in order to create links and establish potential collaborative relationships among countries.

The majority of the people questioned were from universities, including lecturers, researchers, and psychologists. A small number represented their country's government or private institutions, which support gifted and talented education. The survey questions are reproduced below, followed by a summary of the results.

### *1. Who establishes the policy for gifted and talented (G&T) education in your country or state?*

The government is responsible for establishing policy in 30 of the countries represented, with the Ministry of Education as the main lead. There were, however, several qualifying statements, such as: "One person is in charge—but he has a very large remit, so specialized G&T education doesn't take place." or "G&T education is included within special education; consequently, nothing happens." Those countries with a federal or state system of government, such as Austria, Germany, Switzerland, and Australia, set their policies at the state or canton level.

While four of the European and Middle Eastern countries that were represented have limited or no established policy, it is clear from those we interviewed that it tends to be the African (Nigeria, Uganda, and South Africa) and South American (Chile and Costa Rica) countries that have no national policy for G&T education. Any work that takes place in promoting G&T education is provided by individual pioneers and private associations.

### *2. How is G&T education organized within your country or state?*

Although the Ministry of Education may set the policy officially, interpretation and what is happening, in reality, varies tremendously. The extremes range from organized gifted classes within each school district (e.g., Republic of Korea) and specialized schools for gifted children (e.g., Saudi Arabia) to individual schools and teachers who are expected to make their own arrangements. Regional centers, clusters of secondary and primary schools, summer camps, and weekend workshops are examples of varying practice. Inevitably, there are some areas where there is no



G&T education, due to a lack of funding and awareness.

Training for teachers appears to be irregular. There are few references to this aspect of G&T education, although individual universities across the world include G&T courses. Generally, however, the education of G&T pupils does not form part of the basic teacher-training program. The government in Hong Kong, SAR, is the only country where specific reference is made to the training of teachers.

### *3. Which organizations are the most active?*

Thirteen examples of private organizations were cited as providing support for parents and children. In some cases, these organizations are run by parents in order to promote enrichment activities for their children outside the immediate school environment. It would appear that, in many cases, these private organizations are the only source of support for G&T pupils and their families. National associations for gifted children, or the equivalent, are established in several countries, some with local branches. They have used the American model as their example. Seven countries stated that they had no, or few, G&T organizations.

There are some examples of state-run organizations which exist either singly, such as the Research Center for G&T in Salzburg, Austria, with a specialized school in Vienna, or countrywide, as in Saudi Arabia, which has a network of schools for gifted children. Egypt has the King's Foundation for the Gifted that runs a project across the whole kingdom and is in the process of developing a strategic plan. Two countries share a national organization that supports schools and teachers. Further examples of provision include One-Day-a-Week Schools, university departments, and psychologists' groups. Many schools and colleges organize their own "out-of-hours" enrichment programs.

### *4. What are the most pressing priorities and how are they being tackled?*

Raising awareness on a number of levels is crucial, including

- within governments and ministries,
- among teachers and parents
- through public opinion, and
- among doctors and psychologists.

Since some governments and ministries set the education policy nationally and provide the funding, their understanding of this group of G&T students is essential. For some countries, especially those in Africa, there are often too many other problems with which the ministries or governments have to deal, and so the education of G&T pupils is not seen as a priority. In Uganda, for example, the state of the roads does not allow easy access to the more isolated communities located in rural areas.

Funding universities, schools, and centers to support G&T students is an issue in every country. Twenty-seven of the 41 delegates who were surveyed spoke of the need for both pre- and in-service teacher training. A key issue was the attitude of the teachers themselves. A range of reasons was provided:

- The terminology "gifted and talented" is not acceptable.
- There is a lack of acceptance that G&T pupils require a specialized or differentiated curriculum.
- There is failure to acknowledge that G&T pupils even exist.
- G&T education is a new concept that has not been communicated to schools.
- These children will succeed anyway, as they are likely to come from richer families.

One delegate described the situation in the following manner. "[There is a] need to open up the minds of teachers to look out for G&T pupils—otherwise they will be forgotten."

Parents also need to understand the meaning of G&T in order to support their children in a proactive manner. Negative public opinion can be a hindrance to a group that is perceived as elitist. Parents may take children to see a doctor or psychologist if they are experiencing problems at school or at home, and so they, too, need to be fully cognizant of the issues relating to young people who are gifted and talented.

Linked strongly to this theme of raising awareness is the need for greater understanding of the definition of giftedness and identification procedures, followed by the provision of resources to support teachers in the classroom. Curriculum development and enrichment programs are cited as priorities.



Teacher training is a priority for those who are already based in a classroom, as well as for new teachers. This would help to overcome many of the attitudes described above. Universities are already providing “centers of expertise,” for example, at Radboud University in The Netherlands, Oxford Brookes University in England, and Sri-Nakarindara Wirot in Thailand.

Only a few examples were given regarding how these pressing priorities are currently being tackled. The main solution route, where it exists, is through the professional development of teachers as part of initial teacher training or by training teachers already in schools. New Zealand cited the Ministry of Education as making some funding available, but mainly for short-term contracts and pilot programs. One usually has to apply for the money. Funding, in other instances, may come from organizations, such as the Catholic School system in Australia or parents’ associations in France. Far-Eastern countries are interested in setting up academies catering to different talents or holding specific examinations in academic excellence (e.g., Hong Kong SAR, Malaysia, and Singapore).

#### *5. Who is responsible for doing this work?*

Replies concerning the question of responsibility for addressing these priorities ranged from governments to individuals. Some participants were unable to provide an answer. Groups cited included

- the government (Ministers of Education)—both state and federal,
- universities,
- teachers and schools,
- local education authorities, and
- local associations interested in G&T—both privately and publicly funded.

#### *6. What is working well? Why?*

It is apparent that where there are individuals, groups, institutions, or ministries interested in promoting the needs and education of G&T pupils, the outcome is very positive, and progress occurs. The participant from Saudi Arabia commended his Ministry for its organization. Egypt has very good local and international gifted programs that involve about 1000 students each year. An interest in human capital means that management organizations are promoting student ability in the United

Arab Emirates, although a proposal has still to be placed before the government.

The One-Day-a-Week School is working well in Western Australia and New Zealand, and groups of teachers in Poland are running enrichment activities. Enrichment and acceleration programs in schools invariably work well when the teachers are suitably trained and interested. A growing number of programs in teacher training encourages this process, as in parts of Austria, Hong Kong SAR, Taiwan, the University of Waikato in New Zealand, and some state centers in Brazil.

Communication among different groups, such as Departments of Education and university teacher trainers, parents, and other interested educators, helps to maintain positive relationships. Progress also occurs when society accepts that there are gifted children, as is the case in The Netherlands, the United Kingdom, and the United States of America.

#### *7. What is working less well? Why?*

The answers to these questions link back to question 4: “What are the priorities?” Although governments may promote official programs, the reality can be quite different. There may be verbal support but little material input, that is, funding, to create action. For some countries, such as Ireland, the political leaders still have to accept the need for a more specialized form of education for G&T pupils. Children who are disabled or disadvantaged tend to be more heavily supported. Having too many people with conflicting ideas leads to insufficient structure across countries and, consequently, to “patchwork” outcomes.

G&T pupils may still be perceived as precocious and, therefore, not needing any extra provisions. Those pupils who are advanced need to wait for the others. Many teachers find teaching the gifted in classes of mixed ability hard to manage, and more in-service training in the use of differentiation and individualized programs needs to be put into place. This is a common theme across the world. Similarly, those pupils who do not conform and, therefore, hide their potential, are not recognized. Cultural issues, particular to individual countries, can also affect policy.

#### *8. To what extent do you work collaboratively with other countries or states now?*

Collaboration exists between like-minded cultures, as with the Middle-Eastern countries,



some of the South-American countries (Chile and Colombia), and groups of countries within Europe. Other networks center on the World Council for Gifted and Talented Children, the European Council for High Ability, and the National Association for Able Children in Education (England) where experience and expertise can be shared. Universities exchange research findings, often through international conferences or specific links, as is, for example, the Center for Research in Antwerp, Belgium collaborates with the University of Radboud in The Netherlands.

Some governments share initiatives; for example, Northern and Southern Ireland are seeking to produce guidelines for gifted children. Despite the Asia-Pacific Federation, progress in collaboration, overall, is felt to be unsatisfactory in parts of Asia. Educators and individual organizations in many countries seek advice and support from the United States of America, for example, using the National Association for Gifted Children as a model or establishing links with particular universities. Singapore carries out collaborative studies with William and Mary College in the United States of America.

Personal contacts are important in allowing individuals to access information from other countries, especially where there is a lack of home-grown expertise.

*9. Where do you see scope for increasing collaboration with other countries or states?*

There is a high degree of interest in maintaining and increasing links among countries in order to share ideas and projects, indicated with comments, such as: "It is always good to co-operate."; and "Yes, really looking for more." Drawing expertise from other countries is crucial to those that have little expertise of their own. It was suggested that volunteers from the World Council may wish to help in countries where funding is an obvious limitation.

References were made to teacher-training programs and degree courses and, more particularly, the professional development of teachers in the identification of G&T pupils. This would lead to the implementation of school policies and development of appropriate curricula in the classroom. A few participants identified specific countries where they felt links could be established, often neighbor-

ing countries with similar cultures, or where particular areas of expertise tied in with their own agenda. International gifted programs, such as summer camps for students, provide further opportunities for collaboration.

The exchange of academic research and human resources should not only continue, but be extended.

*10. Would you be willing to be involved? Do you foresee any obstacles?*

The response to these questions was virtually unanimous. In answer to further collaboration, many respondents said: "Yes, please."; "Very willing."; "Absolutely."; "Love to be involved."; and more. They also recognized many obstacles, however. Obstacles fell into clear categories, with funding being the biggest challenge, followed by time and the problem of language.

The lack of funding is linked to the need for official state support and, in one case, recognition by the leadership that G&T provision is needed. Conferences are seen as very expensive, especially for those teachers who have to cover the cost themselves. Poverty and lack of funds is an obvious issue for several countries. Resources on the Internet generally have to be paid for, schools do not have sufficient money, and teachers should not be expected to purchase such items at their own expense.

Time had an impact on all groups, with teachers being specifically noted. Lack of time affects their ability to search the Internet effectively for ideas and to travel to conferences outside of vacation periods. In addition, it is difficult to initiate collaboration because many are already committed to study programs. The resistance to change remains an obstacle, as outlined in earlier responses.

Communication as an obstacle covers several areas. English is used at the World Council for Gifted and Talented Children and the European Council for High Ability conferences, but this does not help teachers who are not fluent in this language. Newsletters and journals are too scientific and do not support teachers in their everyday work in the classroom. Information technology is not readily available or accessible in several countries, and it is not the cultural norm for the Internet to be used as a source of information.

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## Endnotes

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<sup>1</sup>CORRESPONDENCE: Julie Graham, Consultant on Gifted and Talented Education and affiliated with the National Association for Able Children in Education, based in Oxford, United Kingdom; 7 Bray Close, Bray, Berkshire, United Kingdom SL6 2BL; e-mail: julie.graham@brayclose.com

This report was collated and written by Julie Graham, with contributing rapporteurs: Maureen Kalbus, United States of America; Annette Heinbokel, Germany; Tony Hurlin, United Kingdom; Kate Niederer, New Zealand; Chwee Geok Qek, Singapore; and Marcelo Staricoff, United Kingdom.

<sup>2</sup>Please, note that the views expressed are those of the individuals selected from the specified countries and do not necessarily represent the actual state of gifted and talented education in their country.





# Appendix 2

**WCGTC Conference Committees**  
**University of Warwick, United Kingdom**  
**August 5 – 10, 2007**

## **STEERING COMMITTEE**

**Deborah Eyre, former Director, National Academy for Gifted & Talented Youth (NAGTY), University of Warwick (Chair)**  
Jim Campbell, Head of Expertise Centre, National Academy for Gifted and Talented Youth (NAGTY), University of Warwick  
Tim Dracup, Head of the Gifted and Talented Education Unit, Department for Education and Skills (DfES), London  
Glenn Earle, Goldman Sachs International, London  
Richard Elsdon, Caterpillar (United Kingdom) Limited, Peterborough  
Maria Evans, Royal Shakespeare Company, Stratford Upon Avon  
Joan Freeman, Ph.D., founding President of the European Council for High Ability (ECHA), Visiting Professor, Middlesex University, London.  
Tom Goldman, Teaching and Learning, Schools Standard Group, Department for Education and Skills (DfES), London  
Mark Gore, Warwickshire County Council Department of Education, Warwick  
John Leighfield, RM plc, Oxford  
Clare Lorenz, Children of High Intelligence, London  
Ken McCluskey, Ph.D., University of Winnipeg, Canada  
Adrian Mills, London Gifted and Talented, London  
Diane Montgomery, Ph.D., Middlesex University  
Geoff Parks, Ph.D., Director of Admissions for the Cambridge Colleges, Cambridge  
Johanna Raffan, Director, National Association for Able Children in Education (NACE), Oxford  
Elizabeth Reid, The Specialist Schools Trust, London  
Ian Rowley, Communications Office, University of Warwick  
Ken Sloan, Head of Campus Affairs, University of Warwick,  
Chris Smith, Head Teacher Additional Support Needs (Acting), Braehead Primary School, Scotland  
Mary Stiasny, Ph.D., The British Council, London  
Tessa Stone, The Sutton Trust, London  
Margaret Sutherland, Scottish Network for Able Pupils (SNAP), Scotland  
Stephen Tommis, Ph.D., Director, National Association for Gifted Children (NAGE), Milton Keynes  
Klaus K. Urban, Ph.D., Universität Hannover, Germany  
Belle Wallace, National Association for Able Children in Education (NACE), Oxford  
Andrew Whiteley, Warwick Conferences, University of Warwick  
Sir David Winkley, Ph.D., Grove Primary School, Birmingham

## **PROGRAM COMMITTEE**

**Johanna Raffan, Director, National Association for Able Children in Education (NACE), Oxford (Chair)**  
Yvonne Burke, Hammersmith and Fulham Local Authority, London  
Sandy Burdett, Conference Organizer  
Tim Dracup, Head of the Gifted and Talented Education Unit, Department for Education and Skills (DfES), London  
Joan Freeman, Ph.D., founding President of the European Council for High Ability (ECHA), Visiting Professor, Middlesex University, London.  
Julie Graham, Trustee of the National Association for Able Children in Education (NACE), United Kingdom  
Gillian Heath, Nottingham City Local Authority, Nottingham  
Hilary Lowe, Oxford Brookes University, Oxford, Vice-President of the National Association for Able Children in Education (NACE) (United Kingdom)  
Ruth Hewston, Ph.D., Senior Research Fellow, National Academy for Gifted and Talented Youth (NAGTY)  
Penny Mortimer, World Council for Gifted and Talented Children (WCGTC) Conference Project Manager  
Kate Niederer, Independent Consultant  
Geoff Parks, Ph.D., Director of Admissions for the Cambridge Colleges, Cambridge  
Chris Smith, Head Teacher Additional Support Needs (Acting), Braehead Primary School, Scotland



Sue Soan, Senior Lecturer, Professional Development, Canterbury Christ Church, Kent  
Marcelo Staricoff, St. Bartholomew's CE Primary School, Brighton  
Margaret Sutherland, Scottish Network for Able Pupils (SNAP), Scotland  
Stephen Tommis, Ph.D., Director, National Association for Gifted Children (NAGC), Milton Keynes  
Barbara Vann, Penair School, Truro  
Belle Wallace, National Association for Able Children in Education (NACE), Oxford  
Carrie Winstanley, Ph.D., University of Roehampton, United Kingdom

## **SOCIAL COMMITTEE**

**Penny Mortimer, World Council for Gifted and Talented Children (WCGTC) Conference Project Manager (Chair)**

Jane Barlow, Lord Mayor's Office  
Brian Bishop, Warwick Arts Centre  
John Bowns, DeCoursey Coaches  
Sandy Burdett, Conference Organizer  
Richard Drakeley, Warwickshire County Council  
Anne Packwood, National Academy for Gifted and Talented Youth (NAGTY)  
Dan Persaud, University of Warwick  
Pru Poretta, Coventry's Lady Godiva  
Pete Walters, CVOne  
Bob Wildman, DeCoursey Coaches

## **MANUSCRIPT SELECTION COMMITTEE**

**Belle Wallace, Past-President of the National Association for Able Children in Education (NACE) (Chair)**

Sue Mordecai, President of the National Association for Able Children in Education (NACE), Oxford  
Hilary Lowe, Oxford Brookes University, Oxford, Vice-President of the National Association for Able Children in Education (NACE) (United Kingdom)  
Julie Graham, Trustee of the National Association for Able Children in Education (NACE), United Kingdom  
Carrie Winstanley, Ph.D., University of Roehampton, United Kingdom

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