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Alessandro Antonietti;
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e-Mail: alessandro.antonietti@unicatt.it
www.antonietti.psycholab.net

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Connecting, Communicating, and Collaborating for Excellence and Innovation in Education

Taisir Subhi Yamin; Ken W. McCluskey

This past July 7-10, the International Centre for Innovation in Education (ICIE) held its 11th International Conference in partnership with and at Université Paris Descartes in France. This event, with its theme of *Excellence in Education: The Creativity-Innovation Challenge*, was highly successful. Todd Lubart, the Conference Chair, and Co-Chairs Linda Jarvin and Sandra Linke, presided over a truly international gathering: there were 375 participants from 85 countries (the largest groups coming from Australia, Canada, USA, Italy, Turkey, and Spain). Nine keynote speakers were featured, together with 180 breakout sessions, 12 posters, 12 symposia, 16 post-conference workshops, and two award presentations.

One of the goals of ICIE is to support practitioners, parents, and programs by disseminating relevant information and materials as widely as possible. To that end, copies of several ICIE publications (including some issues of this journal) were distributed free of charge to many participants at the Paris Conference. As we noted in the previous volume of IJTDC, ICIE has recently published a number of books and monographs, including *A Zen Companion In a Just and Effective Classroom* (Bergsgaard, 2013), *Life Expects: Educating Students to Lead Fulfilling Lives* (Hunter, 2014), *Assessing the Effectiveness of an ACCESS Partnership at the University of Winnipeg* (Mays, 2014), *Thoughts about Tone, Educational Leadership, and Building Creative Climates in Our Schools* (McCluskey, 2013), *From Teaching for Creative Thinking to Teaching for Productive Thought: An Approach for Elementary School Teachers* (Newton, 2013), *Community Connections: Reaching Out From the Ivory Tower* (Sokal & McCluskey, 2013), and *Enhancing the Gift of Leadership: Innovative Programs for All Grade Levels* (Vidergor & Sisk, 2013).

The following titles will be released shortly: *Stories of Transformation: Memories of a Global Citizenship Practicum* (Kornelsen), *Expanding Voice and Vision in Literacy Education* (Magro), *ADHD: Disorder or Gift?* (McCluskey & McCluskey), *Mentoring for Talent Development in a North American Context* (Wiebe, McCluskey, Lamoureux, & Baker), *Lost Prizes: Identifying and Developing the Talents of Marginalized Populations* (McCluskey, Treffinger, Baker, & Wiebe), and *Innovation in Education* (Yamin, McCluskey, & Lubart).

Immediately after Paris, several presenters from the University of Winnipeg had to hurry back to Manitoba, Canada to participate in the 2nd annual *Lost Prizes*/ICIE Seminars, which took place on the UW campus from July 16-19. Dorothy Sisk (Lamar University, Beaumont, Texas) and Fred Hines (amiskwaciy Academy, Edmonton, Alberta) joined with several University faculty (Spencer Clements, Kevin Lamoureux, Ken McCluskey, and Deborah Schnitzer) to deliver keynote addresses on the general theme of *Creative Leadership*

in Education. There were also 12 strong breakout sessions. When all was said and done, the Seminars of 2014 attracted a full house of 200 participants, and the intertwined, conference-connected Post-Baccalaureate Diploma in Education courses ran at full capacity (i.e., just over 400 registrants).

As part of our mission to recognize outstanding practitioners, programs, and students, we also presented several awards at this year's Seminars. Dr. Lloyd Axworthy, former Minister of Foreign Affairs for Canada and Past President and Vice-Chancellor of the University of Winnipeg, received ICIE's Award for Leadership and Excellence in Higher Education for his worldwide contribution and service in the areas of community outreach, global citizenship, and talent development with marginalized populations. And UW Instructor Mike Bergsgaard was the recipient of ICIE's International Publication Award for his book, *A Zen Companion In a Just and Effective Classroom*, which has had a pronounced impact on scholars and scholarship worldwide. As well, *Lost Prizes* Innovative Program Awards were presented to amiskwaciy Academy (for creating a school environment where Aboriginal cultural values are respected and celebrated in the daily curriculum), and to Elmwood High School (for supporting at-risk students through a student success mentoring initiative). Principals Fred Hines and Mike Babb accepted the awards on behalf of their respective institutions. And perhaps most importantly, four UW Education students, Jennifer Desjarlais, Kelly Livingstone, Jennifer MacHutchon, and Jonathan Traverse received *Lost Prizes* or Access Awards and Scholarships for academic achievement and community service.

In closing, we'd also like to announce that the International Journal for Talent Development and Creativity will soon have its own website, with a large number of functions and features, including a search engine, online submission for authors, online subscription, and access to all abstracts and archived articles. We'll have more about this new development in the next issue.

Encouraging the Artistry of Teaching and Learning: Working toward Social Justice and Creativity for All

Karen Magro
The University of Winnipeg, Canada

Welcome to our 3rd issue of the International Journal for Talent Development and Creativity. A main intent of this journal is to give voice to broadening conceptualizations of creativity and talent in educational contexts today. In this issue, we have an interesting balance of research studies involving a range of learners in varied educational settings, conceptual papers that build and further extend theoretical models of talent, at-risk learners, giftedness, and creativity, and literature reviews. The contributors to this issue have addressed the importance of providing a learning environment where imagination and innovation can be nurtured among students, teachers, and administrative personnel.

This spring, I had a valuable opportunity to work with Brazilian teachers in Sao Paulo, Brazil. My experience further highlighted how important it is to give equal opportunity to all children and youth who would benefit from an enriched educational climate and a caring community. The large population of young people in Brazil gives cities like Sao Paulo a dynamic energy and optimism. Interestingly, street art is a common site in Brazilian cities like Sao Paulo and Rio de Janeiro. Graffiti, posters, and other wall art along streets represents the unique way that social spaces are increasingly being used to reflect important political, social, and cultural concerns. Sao Paulo is one of the leading cities in the world for the development of creativity in street art. Art in social spaces, writes educator John Somers (2001), questions our actions and motives and their moral context. "It is the function of art to disturb, in the productive sense, to provide a counter story to the dominant story, to gnaw away at the foundations of the status quo" (p. 111). Different forms of art can introduce individuals to new possibilities and new ways of seeing the world. Along similar lines, Jane McDonnell (2013) writes that art can create channels" that disrupt and reconfigure the distributions of roles, places, and occupations within a community — leading to positive change and opportunity. Art for social change is not just built on intentions; rather, it is a process that can inspire individuals, broaden perspectives, and change perceptions.

The unique mosaic of African, Indigenous, and European influence is reflected in the music, art, and literature of Brazil. The gifted Brazilian essayist, poet, novelist, anthropologist, and musicologist Mario de Andrade came from an African, Indigenous, and European ancestry. De Andrade was a key participant in the Brazilian modernist movement in the 1920s; he was able to synthesize futurism, surrealism, Brazilian indianism, popular music, Afro-Brazilian candomble, and Indigenous legends in creative ways that help define Brazilian identity and its unique cultural mosaic. Today, art museums such as the African-Brazilian Museum at Ibirapuera Park, the Sao Paulo Museum of Art, and the Pinocoteca are important sites of learning that feature classical and contemporary artists who tell the rich and compelling history of Brazil.

As I spoke with teachers, administrators, and professionals working in Sao Paulo, I learned that a greater effort is needed to address the social inequalities that continue to erode educational opportunities for youth who are coming from economically disadvantaged backgrounds. Many teachers do not feel that their work is appreciated or valued. Moreover, there is still a significant gap between the wealthy and the very poor with an increasingly fragile middle class. Education is the key

to empowering all cultures and societies to work toward removing the systemic and situational barriers that prevent individuals from realizing their goals. Brazilian educational leaders like Paulo Freire (1970) recognized the vital importance of providing educational equity so that individuals would not be swept away in the wake of changes; rather, they would be "agents of their own history" making key choices in their own lives. Education and the ability to participate fully in society are dynamically interwoven.

One area that is receiving more attention is the focus that some innovative schools are placing on teaching art for social justice. Exploring the interconnections between art, self-expression, creativity, social justice, and participation in the democratic process has been more apparent in educational research today (Boyatzis, 1998; Dewhurst, 2011; McDonnell, 2013). In recent years, there has also been a marked increase in educational programs aimed to create art for social justice. From murals and plays to photographs and poetry, students are being encouraged to question, challenges, and transform existing conditions of inequality and injustice.

In books like *Pedagogy of the Oppressed and Pedagogy of Hope* Brazilian theorist Paulo Freire (1970; 1998) spoke of the need for individuals to dismantle the myths, false assumptions, and stereotypes that may be holding them back from realizing their goals. Teaching for social justice is aimed at creating a better society where all individuals feel a sense of inclusion. Similarly, Maxime Greene (1995) emphasized that transformative teachers using literature, art, and music can re-awaken the imaginative and creative talents for all students. Ayers, Quin, and Stovall (2009) write that social justice education embraces three Rs: *Relevance, Rigorous, and Revolutionary.* They describe "three pillars" of social justice education as equity, activism, and social literacy. Social Justice Education is rooted in the experiences of learners. Marit Dewhurst (2011) asserts that educators interested in social transformation are working at a time when many schools' curricula have been increasingly focused on high stakes testing and test preparation which can indirectly erode the students' ability to creatively reflect and think in transformative ways. Self-expression, personal empowerment, positive social change, and a greater awareness and appreciation of different cultures are the outcomes of a transformative education that can balance self-directed learning endeavors with collaborative initiatives (Magro, 2012). The

applications of theoretical conceptions of nurturing creativity have meaning and direct relevance to all classrooms; yet, socio-economic and institutional barriers prevent those children who could benefit greatly from a quality education from receiving one. It is hoped that the ideas emerging from the collection of articles that form our third issue of *The International Journal for Talent Development and Creativity* can serve as a catalyst to encourage educators and education policy makers to create enriched contexts for learning for all.

Research Contributions

Our third issue includes a range of important articles that challenge our perspectives on creativity and talent development. In his article "*Dabrowski on Intelligence: Dethroning a Venerable Construct*", Sal Mendaglio emphasizes that cognitive ability measured by traditional I.Q. should not be the sole criterion used by researchers to identify "gifted" individuals. Mendaglio writes that intelligence and creativity theorists such as Robert Sternberg, Joseph Renzulli, Howard Gardner, and Peter Salovey have expanded conceptions of intelligence to included psychosocial and cognitive dimensions such as emotional intelligence, moral reasoning, persistence and productivity, task commitment, and creativity. Mendaglio emphasizes that measures of intelligence generated by standardized I.Q. tests such as the Wechsler Intelligence Scale for Children may indicate the potential for academic achievement but tests alone do not account for productivity in academic achievement. By examining Dabrowski's emphasis on "dethroning intelligence," an important academic space is made to analyse the way qualities such as motivation, persistence, and the ability for theoretical thinking impact achievement and "success" in life. A more holistic and integrated framework for understanding human intelligence can be created when these factors are taken into account. Mendaglio suggests that Dabrowski dethrones intelligence by stating: "Drives and needs dictate

what intelligence does at the lowest level of development; emotions and values dictate what it does at the highest level of development."

Similarly, Dona Matthews emphasizes that perspectives of 'giftedness,' 'creativity,' and 'talent' being innate, inherited, and fixed for a select few is changing to one of emphasizing the dynamic and vibrant processes that are involved in their development. The perspective is now on an emphasis on developmental diversity that is fluid, domain-specific, and context-sensitive. Research has shown that high-level ability develops in a context of challenging and supportive opportunities to learn in combination with motivation, a growth mindset, and persistence. The question and important goal centres on the way psychological, situational, and institutional barriers can be minimized so that the creative potential of all individuals can be realized.

In their article "*Re-discovering Creativity: Why Theory-Practice Consistency Matters*", Lee Martin and Nick Wilson examine the vital link between creativity and discovery. The authors suggest that we live in a time where the need to move beyond a narrow "market-driven" discourse on creativity is needed. Martin and Wilson suggest that by placing discovery at the heart of the definition of creativity can resolve some of the contradiction and theory-practice inconsistencies that are often associated with the standard definition of creativity.

Implications for a more inclusive approach to the development of creative potential is provided. Martin and Wilson analyse the way that cultural, political, social, and economic membership in "dominant" groups can either enhance or inhibit creative output from being recognized. A dynamic definition of creativity that emphasizes the capability to discover and realize new possibilities of emotional expression, thinking, and acting that may (or may not) gain individual, social, community, or global recognition serves to enrich our conception of creativity.

In "*Predicting Career Interests from Problem-Solving Style with High School Students*", Allison Johnson, Margo Jackson, Edwin C. Selby, and John C. Houtz examine the relationship between problem-solving style and career interests. Eighth through eleventh grade students from a Northern New Jersey suburban high school participated in this study. The problem-solving style was measured using VIEW, an assessment yielding information about six individual styles along three dimensions that included: Orientation to Change; Manner of Processing, and Ways of Deciding. Career Interest was measured using two models: The Kuder Career Search with Person Match and Holland's RIASEC model of six career-type categories. From the study, it is proposed that problem-solving style and career styles are related and that greater awareness of these connections would be help for counsellors and educators involved in career development. This research study further suggests that students need to develop skills that would better prepare them to explore, reflect upon, and choose career fields that reflect their values, skills, and interests.

Rachel Wexelbaum and John Hoover present a comprehensive literature review of gifted and creativity students identified as Lesbian, Gay, Bisexual, Transgendered, Intersex, or Queer (LBGTIQ). Educators, mentors, and counsellors often struggle to understand the challenges, barriers, and talents this diverse group of youth face and the excellent literature review of the research in this area can provide new directions for mentoring and helping these youth achieve their potential in life. Alienation, social discrimination, identity confusion, bullying and related forms of social and psychological harassment can contribute to LBGTIQ feeling anxious, depressed, and isolated. The authors provide important guidelines for helping and assisting LBBTIQ youth.

In his research article "*Gendered Word (or World): Sexism in Philippine Preschool English Language Textbooks*", Veronico Nogales Tarrayo asserts that language learning is also a cultural-learning process. Indeed, the creativity potential of children and youth can be enhanced or inhibited by the information presented in specific textbooks. In his research, Tarrayo analyses the way social roles, gender visibility, character attributes, interests, and lifestyles, social entitlement and "firstness" are presented in textbooks. Interestingly, the author found that sex-role stereotyping continues to be present in

many texts; females are far less visible than men in occupational roles and females are also represented as being "good" looking and passive; in contrast, males show aggression, dominance, and activity. The implications for language teaching and learning are included in this study.

Donna Johnson makes connections between Quantum Theory, the Pygmalion Effect, and The Butterfly Effect and conceptions of at-risk youth. In "*Reclaiming Youth and a Possible Paradigm Shift*", she asserts that trust, freedom, and autonomy within a cultural climate of fairness are vital if a shift in perception of at-risk youth is to occur. Schools, for example, can create a climate of power and control or one of compassion and interconnectedness. This climate is reflected in the types of discourse encouraged among students, the specific mission statement of the school and the accompanying rules and regulations, the teachers and their perspectives of learners and the process of learning, and so on. An important step in this process is to educate those who can nurture the students' development to include success and build resilience when outside influences are adverse.

In "*Examining Risk and Resilience through Multiple Lenses: An Integrated Approach*", Polyzoi, Atkinson, and Dupasquier suggest that a paradigm shift moving away from identifying "at-risk" youth from a deficit perspective to one that emphasizes strengths, talents, and assets will provide a more holistic and multi-faceted model for building resilience among children, youth, and adults. Their emergent model grew out of their research exploring the way specific factors such as poverty, teen parenthood, parental abuse, and child welfare involvement can impact high-school graduation rates. Uri Bronfenbrenner's (1989) ecological model of human development was a foundation for examining contextual factors such as family, school, and community resource.

Polyzoi, Atkinson, and Dupasquier suggest that specific school programs and caring teachers can provide protective factors that can help nurture qualities as resilience, self-direction, positive self-esteem and self-efficacy among youth who have experience trauma, loss, and family fragmentation. Personality qualities such as hardiness, optimism, and motivation play a vital role in determining academic and social success. Important implications for school programming and community development emerge from this study.

Sakari Tolppanen and Kirsi Tirri present the results of their study involving 1,935 gifted students (ages 16-19) in "How an Enrichment Program is Meeting the Expectations of Gifted Science Students: A Case Study from Finland." In 2011, students from 22 countries attended a science enrichment program held in many universities and research centres located throughout Finland. The majority of the students expressed academic expectations followed by social and ethical expectations by analysing the answers from a questionnaire. Content analysis was used to interpret the results. Five specialists who taught at the camps were asked to assess how well they met the students' expectations.

The results indicated that academic and social expectations were realized in different pedagogical ways, through meaningful experiential projects on topics like climate change and applied mathematics; however, some of the teaching specialists encountered challenges in meeting the students' ethical concerns about scientific research and the responsibility for climate change. This study presents valuable implications about the value of providing meaningful experiential learning opportunities for students to make authentic "real world" connections between theoretical knowledge and its application to life situations.

In "*Problem Solving Style and Creative Productivity*", Frederick McCoy, Edwin Selby, and John Houtz examine the complex interconnection between learning style, problem solving, achievement, motivation, and personality. Ideally, instructional teaching and learning strategies should not only help individuals identify their own preferred style of learning but rather, these strategies and approaches should help our students expand their styles of learning so that they can decipher and apply knowledge from multiple sources and disciplines.

The purpose of this research study was to examine the effects of problem-solving style on creative productivity. Freshmen education students participated in completing VIEW, an

assessment that yielded information about six individual styles along three dimensions that included orientation to change, manner of processing, and ways of doing. Students were assigned to working teams, based on their view scores, to create a five-to-ten minute multimedia presentation in response to one of several prompts about education, learning, and teaching. Results must be considered suggestive only and additional research on problem-solving style and creative productivity is needed.

The research study by Ali Mahdi Kazem, Abdulqawi Alzubaidi, Ahmed Hassan Hemdan Mohamed, and Joseph Renzulli apply teacher-rating scales to identify gifted students. The authors explore the factor structure of the Scales for Rating the Behavioural Characteristics of Superior Students (SRBCSS).

The participants included a large group of both male and female students from several parts of the Sultanate of Oman in grades five to ten. Factor analysis of the fourteen teacher-rating scales was conduced with the popular rotation technique "Varimax Rotation." The results of the study yielded thirteen factors and supports the factorial validity of the SRBCSS.

If we are to develop a new vision in education that centers on cultural inclusion, empathy, creativity, and critical thinking, we need to examine the role of universities in preparing our future teachers. Education faculties are challenged to reach out and work with diverse communities both locally and globally to ensure that each child has the opportunity to gain essential literacy skills.

In "*Transformative Learning through International Service Work*", the authors examine the transformative learning experiences of eleven Canadian post-secondary students who built a school with a community in Nicaragua. International service work can be a valuable way for teachers to expand their understanding of culture, the impact of educational resources in developing countries, power and privilege in educational contexts and communities.

Intercultural intelligence and cultural sensitivity are vital personality traits that be further developed through these experiences. Using grounded theory, Nicole Desjardins, Meghan Elliot, Stephanie Sokal, Sara Christle, Aaron Kornelson, Kathryn Nikkel, Kelly Lone, and Laura Sokal analyzed the lived experiences of the students. Transformative learning can be described as a deeper level learning that may result in significant changes in belief, value, attitudes, and action. Jack Mezirow (1981) identified 10 stages in this learning process; some of these stages include a disorienting dilemma, an exploration of new roles and ways of being, and an integration into society based on new knowledge and experiences. The student teachers' experiences in Nicaragua reflected some of Mezirow's stages. Important implications are presented about the dynamics of encouraging positive experiential learning opportunities that may encourage intercultural competence and transformative learning.

A personal tribute to Dr. Michael Pyryt is written by Sal Mendaglio. Dr. Pyryt will be remembered for his outstanding scholarly contributions and for his tireless work as a gifted educational researcher. He will be remembered for his kindness, brilliance, professionalism, and generosity.

I welcome your letters, research articles, literature review, tributes, and book reviews. I would like to thank all the contributors for this important third issue of *The International Journal for Talent Development and Creativity*.

Address

Dr. Karen Magro, Editor-in-Chief,
Associate Professor of Education,
University of Winnipeg,
515 Portage Avenue, Winnipeg, Manitoba, Canada R3B 2E9
e-Mail: k.magro@uwinnipeg.ca

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Dabrowski on Intelligence: Dethroning a Venerable Construct

Sal Mendaglio

University of Calgary, Calgary, Alberta, Canada

Abstract

In recent years, there have been attempts to diminish the privileged position held by the construct of intelligence. Made pre-eminent by such luminaries as Binet, Terman, and Spearman, recently traditional intelligence has been demoted to simply another variable. With the rise of multiple intelligence and emotional intelligence, traditional Intelligence Quotient (IQ) is challenged by Emotional Quotient (EQ). In gifted education, current theories of giftedness, while retaining intelligence as a criterion, add other criteria, such as productivity, as necessary to define giftedness — a dramatic shift from Terman's sole criterion of high IQ score. In contrast, Dabrowski's theory of positive disintegration dethrones the construct and relegates intelligence to a subservient role. This article discusses Dabrowski's perspective on intelligence and responds to the question: To what is intelligence subservient?

Intelligence has occupied a privileged place in psychology and education, including gifted education. There have been attempts to dislodge intelligence from its lofty position of reigning supreme over other psychological and educational constructs. While some authors have been successful in diminishing the importance of intelligence, Dabrowski (1967, 1970, 1972, 1996) in his Theory of Positive Disintegration (TPD) has dethroned it. In this article, I support this assertion by presenting the role of intelligence in TPD.

From IQ to EQ

Interest in the construct of intelligence, its nature and measurement, is as old as the field of modern psychology. Conceptions of the nature of intelligence abound and they range from those that are empirically based (e.g., Spearman, 1927) to those that are proposed to be based on a synthesis of scholarly literature (e.g., Gardner, 1983). Spearheaded by the work of Alfred Binet (Binet & Simon, 1905; cited in Nicolas, Andrieu, Croizet, & Burman, 2013) numerous instruments have been developed to measure intelligence. Among the well-known instruments in their original versions are the Stanford-Binet, Binet-Simon's Test revised by Terman (1916; Terman & Merrill, 1937), and Wechslers' Intelligence Scales that include the Wechsler Adult Intelligence Scale (WAIS, Wechsler, 1955) and the Wechsler Intelligence Scale for Children (WISC, Wechsler,1949). A recent addition is the Woodcock Johnson Test of Cognitive Ability (WJTCA; Woodcock, 1993). Such measures yield scores that are normally thought of as IQ. All of these tests have been revised since their original publication, attesting to their popularity. The use of such measures, particularly the Wechsler scales, is commonplace in school settings. When children encounter difficulties or when a program decision arises, these tests are most likely administered and their scores influence intervention and decision making.

It is important to point out that measures of intelligence do not measure academic achievement; they are an indication of potential not production. Even in our field of gifted education, regardless of authors' attempts to distance giftedness from IQ scores, a high level of intelligence, sometimes called cognitive ability, is a core element in virtually all past and current conceptions of giftedness. Furthermore, a perusal of research in gifted education indicates that cognitive ability is commonly the sole criterion used by researchers to recruit participants who are gifted (e.g., Wirthwein, Becker, Loehr, & Rost, 2011; Yakmaci-Guzel & Akarsu, 2006). One does not have to delve too deeply into

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the scholarly literature, or attend to general discourse, to find evidence of the privileged position that the construct of intelligence holds.

There have been attempts to deemphasize the importance of intelligence as it is commonly conceived. Among the more well-known attempts are found in the writings of Gardner (1983), Gladwell (2008), and Salovey and Mayer (1990). Gardner proposed a theory of multiple intelligences. Gardner argued that intelligence should be broadened beyond the logical mathematical type to include such abilities as artistic and kinesthetic. Gladwell, on the other hand, proposed that effort and opportunity are the predominant contributors to high achievement, not simply intelligence. He proposed that practice, 10,000 hours, and opportunistic factors displace intelligence as the primary contributors to prodigious productivity. In a similar vein, the work of Salovey and Mayer, pioneers of emotional intelligence, was used to place emotional quotient (EQ; Bar-On, 2000) in a pre-eminent position over IQ. In essence, this position proposes that EQ is a better predictor of success than IQ.

Intelligence and Giftedness: Diminished, not Disposed

The role of intelligence in giftedness differs in the literature in gifted education depending on whether we are dealing with theory, research, or practice. Regarding theory, the primacy of intelligence has declined in conceptions of giftedness. Historically, we see a movement from intelligence, that is, a superior level of intelligence as *the* defining characteristic of giftedness, to an emphasis on prodigious achievement as the defining criterion. In contrast to the area of theory, in the domains of research and practice, intelligence has generally maintained its pre-eminent position.

Theories of Giftedness

Our well-known and often-cited conceptions of giftedness first appeared in the literature in the 1970s. Two of the most popular conceptions are discussed here. To the sole criterion of intelligence evident in the pioneering work of Terman (1925), Marland (1972) added a number of other criteria including specific academic performance and leadership ability. Marland maintained the idea of potential, not only in his retention of intelligence (i.e., potential to achieve at a high level) but also in his statement that a student may be identified as gifted if she or he manifested potential for advanced achievement in any of the criteria listed. While Marland broadened the concept of giftedness beyond intelligence, he retained it as an independent criterion that can be used for identification of giftedness.

Renzulli (1978), on the other hand, proposed a view that intelligence alone was not sufficient: two other factors were essential, namely, task commitment and creativity. To be precise, Renzulli proposed that the interaction of above-average ability, task commitment, and creativity resulted in *gifted behaviour*—not giftedness. That is, intelligence alone, regardless of its magnitude, could not account for gifted behaviour. In retrospect, Renzulli laid the foundation for the emphasis on production rather than potential that can be seen in current conceptions of giftedness. The 1970s, then, represent two dramatic shifts from Terman's exclusive focus on giftedness as superior intelligence. Thus began the diminution of intelligence in theorizing about the nature of giftedness.

Recent theories extend the decreased importance of traditional intelligence and increased emphasis on productivity. To illustrate this trend, I briefly discuss two current theories. Sternberg (Sternberg, Jarvin, & Grigorenko, 2011) proposed a Pentagonal Theory in which five factors are essential for giftedness: excellence, rarity, value, productivity, and demonstrability. Sternberg's Theory of Giftedness does not have intelligence as a criterion. To meet the excellence criterion an individual must be superior in some dimension compared to her or his peers. A very high level of creativity, wisdom, or skill is an example of the domain of excellence. Rarity means that the dimension in which one is superior to others must be scarce. This means that the criterion cannot be met if everyone in a group is demonstrating ability at a very high level. Excellence and rarity have meaning in a social comparison context. The value criterion means that superior performance must be demonstrated in one or more areas valued by society. An individual demonstrating superior performance

as a criminal, for example, is not considered gifted since that activity is not valued by society. The criteria of productivity and demonstrability displace potential as an indication of giftedness. Without a manifestation of superior ability by producing something, an individual cannot be termed gifted.

It seems that the Pentagonal Theory is aimed at giftedness in adulthood: "In childhood, of course, it is possible to be labelled as gifted without having been productive. In fact, children are typically judged largely on potential [for productivity] rather than actual productivity" (Sternberg, Jarvin, & Grigorenko, 2011, p. 5). Lest we conclude that intelligence tests may be used to indicate potential for productivity, Sternberg went on to state: "Simply receiving high scores on an IQ test trivializes what it means to be gifted" (p. 5).

Subotnik, Olszewski-Kublius, and Worrell (2011) proposed a talent development model aimed at rectifying, among other things, the disconnect between giftedness in childhood and eminence in adulthood. Here is the conceptual foundation for their model:

Giftedness is the manifestation of performance that is clearly at the upper end of the distribution in a talent domain even relative to other high-functioning individuals in that domain. Further, giftedness can be viewed as developmental in that in the beginning stages, potential is the key variable; in later stages, achievement is the measure of giftedness; and in fully developed talents, eminence is the basis on which this label is granted. Psychosocial variables play an essential role in the manifestation of giftedness at every developmental stage. Both cognitive and psychosocial variables are malleable and need to be deliberately cultivated. (p. 3)

Similar to Sternberg's theory, Subotnik et al. emphasize a superior level of performance or productivity, when compared to other individuals, as an essential criterion for giftedness. In their developmental view of giftedness, they state explicitly that in childhood, cognitive ability as indicating potential to achieve at an extraordinary level is an acceptable criterion for giftedness. General cognitive ability is viewed as an essential factor in what is termed academic giftedness in children. This stance changes with development: "Although general ability and potential may be the hallmarks of academic giftedness in children, domain-specific ability and achievement become increasingly important as individuals develop" (p. 39). With age and particularly in adulthood, cognitive ability is no longer sufficient for giftedness. In other words, one may be gifted in childhood but not in adulthood, unless there is evidence of prodigious achievement.

Research and Practice in Gifted Education

Paradoxically, in our field, a dichotomy is more apparent in theory-research, rather than in the usual research-practice gap. The diminishing of intelligence in theories of giftedness has had little effect on research and practice in gifted education.

Researchers interested in variables related to gifted individuals and school personnel interested in selecting students for gifted education programs use intelligence in their selection of participants and students respectively. Researchers in gifted education use intelligence/cognitive ability as the selection criterion for gifted and non-gifted participants. In essence, this approach to selection of participants is similar if not identical to that used by the pioneer of the study of giftedness, Terman (1925). In the emergence of psychology of giftedness and gifted education, intelligence was paramount in the conception of giftedness. Pioneering the modern empirical study of giftedness in North America in the 1920s, Terman operationally defined giftedness in terms of intelligence as measured by the Stanford-Binet Test, as noted earlier, a measure of potential not achievement. For the purpose of his research, he used an IQ score of 140 or higher on the Stanford-Binet to identify participants as gifted.

Present-day researchers use the intelligence criterion directly through the use of test scores (e.g., Kettler, 2014; Olthouse, 2014; Peterson & Lorimer, 2011; Rubenstein, Siegle, Reis, Mccoach, & Burton, 2012; Snyder, Nietfeld, & Linnenbrink-Garcia, 2011) or indirectly through the use of enrolment in gifted-education programs as a criterion. However, intelligence test scores are commonly used as a major, if not sole criterion, for selection of

students for gifted education programs (Assouline & Luplowski-Shoplik, 2012). Ironically, then, there is a greater degree of similarity between research and practice in the field, than theory and research. Both researchers and practitioners continue to use Terman's approach to identifying gifted individuals, while current theorists proclaim intelligence as only one of several criteria needed for the construct of *giftedness*.

Theory of Positive Disintegration: Dethroning Intelligence

Dabrowski makes numerous references to intelligence in his exposition of TPD, though I have found no explicit conceptual definition in his books. It seems reasonable to assume that he shares the Wechsler's conception of intelligence because Dabrowski used the WISC and the WAIS in his research and practice (1972, 1996). Though a high level of intelligence is a prerequisite for advanced development (Dabrowski, 1970), such intelligence by no means guarantees that individuals reach the pinnacle of human development. In TPD, intelligence plays a subservient role. An examination of intellectual OE (overexcitability) and development in TPD supports this claim; further, such exploration of the theory answers the question: "To what is intelligence subservient?"

Intelligence and Intellectual Overexcitability (OE).

Dabrowski (1972) describes OE as a property of the central nervous system that produces "higher than average responsiveness to stimuli, manifested either by sensual, psychomotor, emotional (affective), imaginational, or intellectual excitability, or the combination thereof" (p. 303). When all five forms are present, individuals have the potential for accelerated or advanced development. However, when only sensual and psychomotor are present, development may not only be limited but negative outcomes may result (Mendaglio, 2012). Intellectual OE is one of the big three forms of OE because it, along with imaginational and emotional OE, is needed to attenuate the influence of the two lower forms, sparking development in individuals. Intellectual OE is designated as an essential ingredient for advanced development. Though intelligence is part of intellectual OE, Dabrowski emphasized that the two are not synonymous. Manifestations of intellectual overexcitability include a drive to ask probing questions, hunger for knowledge, theoretical thinking, respect for logic, and preoccupation with theoretical problems (Dabrowski, 1996). Intellectual OE, then, refers to *actual sophisticated* cognitive processing by an individual, not the cognitive *potential* assessed by operational definitions of intelligence commonly used in research and practice in gifted education.

Intelligence and Development.

Dabrowski relegated intelligence to a subservient role in daily functioning. Intelligence is simply a tool individuals use to achieve aims and goals. What an individual does with his or her intelligence depends on the type of development involved. Mendaglio (2012) presented the role of intelligence that is associated with *biological* (also termed *normal*), *one sided,* and *accelerated development*. Biological development represents the most common form. It is characterized by the maturational stages of human life; very little inner conflict and transformation are experienced. Disruptions of mental equilibrium are relatively few and short-lived. Intelligence serves individuals' satiation of drives, meeting needs while conforming to social conventions. One-sided development, as the name suggests, refers to development in which only some emotional and intellectual potentials develop. In this form of development, individuals may be endowed with only one or more OEs, but not all five forms.

There is both a positive and a negative version of one sided development (Dabrowski, 1996). On the positive side, individuals may demonstrate a high level of expression of one of the OEs. For example, individuals with a disproportionately high level of intellectual OE may make significant contributions in a field of study. With lower levels of the other OEs, development is considered limited because of the intense focus on one domain. Individuals who may have a disproportionately high level of emotional OE may become so identified and attached to others that they may lose their sense of self. On the negative side, psychopathy is also considered a form of one sided development. In this case, as with biological development, intelligence is in the service of the individuals' basic

drives which may create, for example, master criminals and dictators. Accelerated development requires the presence of high levels of all forms of OEs. In accelerated development, intelligence serves higher aims and values, such as altruism and authenticity. Different levels of intellectual functioning are associated with all three types of mental development. A hallmark of this form of development is individuals' taking control of their development such that they attain significant autonomy from biological instincts and drives and live their lives guided by universal moral values. In this form of development, intelligence is at the service of values such as responsibility for oneself and others.

The subservient role of intelligence can also be seen in the levels of development, which coincide with the types of development. Dabrowski proposed five levels of development: primary integration, unilevel disintegration, spontaneous multilevel disintegration, organized multilevel disintegration, and secondary integration. Dabrowski's levels indicate a progression from lower to higher moral human functioning, *though the progression is by no means linear or universal*. Similar to the types of development, the processes to which intelligence is subservient change with the level of development: in the course of development from Level I, primary integration, to Levels IV and V, the role of intelligence changes from serving lower drives and goals to higher aims and values.

Primary integration, Level I, is characterized by cognitive and emotional structures and functions that form a rigid mental organization. There is little evidence of introspection and questioning of one's life and surroundings. Cognitive and emotional structures are impulsive and automatic. Such mental organization leads to behaviour that is controlled by instincts and drives. Individuals are under the influence of the social environment leading to conformity and being concerned with social approval. In Level I, there is also a subset of individuals, presumably a small minority of the population, that are psychopathic, representing an extreme version of the use of intelligence for their egocentric ends. In primary integration, intelligence does not control primitive urges, but rather it "serves as an instrument subservient to the dictates of primitive drives" (Dabrowski, 1996, p. 78). In primary integration, intelligence is rigidly linked to primitive drives. Primary integration characterized by use of an individuals' resources, including intelligence, to satisfy biological drives and needs, represents a lack of development in Dabrowskian theorizing.

That intelligence does not reign supreme in TPD is clear in its articulation of the process of development, that is, positive disintegration. Development is triggered not by intellectual but rather by emotional factors. Dynamisms are the mechanisms of positive disintegration, consisting of destruction of lower functions and creation of higher functions. Two classes of dynamisms are essential components of the two aspects of positive disintegration: disintegrating dynamisms and developmental dynamisms. Disintegrating dynamisms are responsible for the loosening of the rigid mental organization of primary integration. Beginning with their emergence in Level II, unilevel disintegration, and continuing in Level III, spontaneous multilevel disintegration, the disintegrating dynamisms not only destroy the linkage of intelligence and drive satisfaction, they create inner conflict, or psychoneurotic conflict, deemed essential for development. The nature of disintegrating dynamisms is obvious in the terminology Dabrowski used to label them, for example, feelings of shame, feelings of guilt, astonishment with oneself, and dissatisfaction with self. Disintegrating dynamisms are negative emotional experiences and processes.

Developmental dynamisms are responsible for the replacement of lower mental structures with higher ones and culminating in the creation of personality, the apex of development in TPD. The nature of developmental dynamisms is also evident in the labels used to define them, for example, autonomy, authenticity, empathy, and responsibility. Developmental dynamisms are values that individuals at the highest levels of development in TPD use to guide their daily behaviour. The mechanisms of development, then, are emotions and values. Intelligence is an important construct in TPD, however, it is relegated to a servant role; at the most primitive level, intelligence serves drives and needs; at the most advanced level, it serves emotions and values.

Conclusion

Dabrowski does not reject the construct of intelligence; nor does he diminish its significance in human functioning. Intelligence is important. While other authors lessen the prominence of intelligence by adding other factors or variables, Dabrowski retains the construct and integrates it into his conception of human development. My understanding of Dabrowski's view of intelligence can be summed up as follows. Dabrowski does not say: Intelligence is no longer supreme because drives, needs, emotions and values are just as important in explaining development. He simply dethrones intelligence by saying: Drives and needs dictate what intelligence does at the lowest level of development; emotions and values dictate what it does at the highest levels of development. To what is intelligence subservient? The answer to that depends on the type and the level of development.

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About the Author

Sal Mendaglio, Ph.D., holds the rank of professor in the Werklund School of Education, University of Calgary (mendagli@ucalgary.ca). Sal's primary interest is the psychology of giftedness with particular emphasis on Dabrowski's theory of positive disintegration. He is a registered psychologist with many years of experience counselling gifted individuals.

Address

Prof. Dr. Sal Mendaglio,
Werklund School of Education;
University of Calgary;
Calgary, Alberta, Canada.

e-Mail: mendagli@ucalgary.ca

Gifted Education in Transition: From Elitist Enclave to Promising Opportunities for Empowerment and Inclusion

Dona Matthews
Toronto, Ontario, Canada

Abstract

Gifted education has a troubled history. It has been attacked justly as an elitist enterprise that entrenches existing inequities. At the same time, however, those who have studied giftedness, creativity, and talent development for the past several decades have learned a lot about how people's abilities develop. By applying this knowledge more broadly across the population, every child can be given what she needs to find and develop her abilities. In the move away from notions of the innate genetic superiority of a few chosen individuals, toward an appreciation of environmental and psychosocial factors interacting over time, giftedness, creativity, and talent become less mysterious and exclusive. Rather than working to entrench an inequitable status quo, then, gifted education has the potential to transform educational opportunities and affordances across racial, cultural, socioeconomic, and other kinds of diversity. Gifted education today, as it incorporates current knowledge about human development, provides an exciting opportunity for creative empowerment for diverse individuals.

Changing Perspectives on the Development of Giftedness, Creativity, and Talent

The last three decades have seen an explosion in our understanding of intelligence, creativity, and talent. Moving away from conceptualizing abilities as innate, inherited, and fixed, current perspectives emphasize the dynamic and vibrant processes involved in their development. This paradigm shift has many components.

Categorical Homogeneity to Developmental Diversity

One of the biggest shifts underway in understandings of giftedness, creativity, and talent is the move away from neat divisions between 'the gifted' and 'the not-gifted,' the 'creative' and the 'not-creative' (that is, categorical homogeneity) toward an emphasis on developmental diversity (Dai, 2010; Horowitz, Subotnik, & Matthews, 2009; Keating, 2011; Peters, Kaufman, Matthews, McBee, & McCoach, 2014; Renzulli, 2013). From this evolving perspective, giftedness, creativity, and talent are not bestowed at birth on some lucky babies, but instead are seen as dynamic, fluid, domain-specific, and context-sensitive developmental processes.

Early work that focused on exceptionally-advanced ability assumed that giftedness, creativity, and talent were rare, innate, and permanent. This work focused on attempts to measure and quantify these mysterious attributes in order to identify certain individuals as gifted, creative, and/or talented relative to others, and advocated that labelled children be provided with enriched-learning opportunities. The designated children were frequently given better teachers, more advanced scientific

and technological equipment, field trips to interesting places, or other exclusive opportunities to further develop their already-advanced abilities (Borland, 2005; Kaufman, 2013).

The fact that children from certain minorities, and those growing up in less-privileged situations, were less likely to be identified as gifted or talented and to get these enriched educational experiences has not gone unnoticed (Graham, 2009; Magro, 2013; Renzulli, 2013). It should not have been surprising, then, that many educators, as well as parents of children excluded from the special categories, considered gifted education elitist, and attacked it on that basis. Critics argued that gifted education exacerbated social, economic, and racial disparities. Quite predictably, these concerns led to political pressures to reduce or eliminate funding for gifted programs.

Over the past 25 years, research has demonstrated that high-level ability develops in a context of challenging and supportive opportunities to learn, in combination with psychosocial factors like motivation, mindset, and persistence (Keating, 2011). Elsewhere, I have written about this newer perspective as a 'mastery model' of understanding gifted development, and contrasted it with the traditional 'mystery model' (Matthews & Foster, 2006, 2009).

Those who are advanced relative to their age-peers need learning opportunities that match their abilities (the traditional focus of gifted education), but giftedness, creativity, and talent should not be seen as finite categories that apply only to a select few. There are many reasons to argue that every child be supported in finding and developing his abilities (Hymer, Whitehead, & Huxtable, 2009; Peters, et al., 2014).

Indeed, evidence-based practices in education and psychology are moving away from categorizing a select few children as "gifted", "creative", or "talented" (thereby implicitly assigning all others to the "not gifted", "not creative", and "not talented" categories). There is an increasing awareness of the need to respond to the extraordinary range of individual differences, recognizing that pathways to high-level achievement are diverse, domain-specific, and incremental.

The Role of Neural Plasticity in Giftedness, Creativity, and Talent

The more that is learned about the brain and how it develops, the bigger the role assigned to neural plasticity, the changing nature of the brain's functioning, and its ever-evolving re-organization in response to experience (Nelson, 2000, 2011). By a baby's birth, she has about one hundred billion brain cells, or neurons. As these neurons are activated by experience, they connect, making synapses, and creating neural pathways. Synapses and pathways that are used often are strengthened, and those that are not are pruned out. During the active building and pruning processes, the child's intelligence and abilities develop through his/her sensory and emotional experiences.

As a young child's environment weaves itself into his/her brain, it changes both the structure of his/her brain, and its functional pathways. What happens in the early years shapes what s/he will find interesting as time goes by, and what s/he will be able to do easily and well. As the brain changes, it alters the nature of experiences of the environment, in a never-ending loop of interaction between the brain and the experience (Horowitz, 2009; Keating, 2011).

Neural plasticity obtains across the life span, and across domains. The "use it or lose it" principle applies to cognitive functioning into old age as much as it does to physical fitness. Neuroscientists working in conjunction with many other professionals are demonstrating that the brain can do a lot to build and to repair itself. It can find alternative pathways when more typical neural pathways are blocked for one reason or another.

By demonstrating that creativity and intelligence are fluid and dynamic processes, and not fixed at birth, emerging neuroscientific findings are calling into question the mystery approach to gifted

education, and supporting the mastery approach. Abilities build upon each other as they develop, leading to further cognitive development, which in turn leads to increasing competence.

Domain Specificity

Most people are differently capable across different domains of functioning, with some areas much better developed than others (Gardner, 1983, 2007). The higher the peaks in an individual's ability profile, the greater the likelihood of large differences across domains for that individual (Matthews, 2009). A global IQ, which has often been used to identify students for gifted programming, can mask enormous differences across areas of ability. Cognitive scientist, Howard Gardner suggests breaking intelligence down into areas of real-world competence, and includes linguistic, logical-mathematical, spatial, bodily-kinesthetic, musical, intrapersonal, interpersonal, naturalistic, and existential intelligences in his theory of multiple intelligences (1998).

Another way to separate ability into domains is by academic subject area. Educational programming can be differentiated much more effectively when students' competence is assessed in this way. A child who is mathematically or musically gifted, and requiring accommodations in that area in order to continue learning, may or may not be similarly gifted in other subject areas.

Yet another perspective theorizes differences among analytical, practical, and creative intelligences. Robert Sternberg (1998) argues that any comprehensive understanding should include not only analytical intelligence (which is assessed reasonably well by intelligence testing), but also real-world expertise or practical intelligence, and creative applications of that expertise or creative intelligence. As increasingly diverse learners are supported in feeling competent, intelligent, and successful, there is greater diversity among those who become engaged in lifelong learning and achievement. The more diverse the ability profiles of engaged learners, the better it is for society as a whole (Reis, 2009; VanTassel-Baska, 2009).

Change over Time

It used to be thought that IQ was stable over time, which meant that once a child achieved above a gifted cut-off criterion (for example, 130 IQ), he was forever in the gifted category. Later performance at lower levels rendered a child underachieving-gifted, rather than calling into question the permanency of the gifted label.

This position of 'once gifted, always gifted' is proving increasingly untenable as evidence accumulates demonstrating the fluidity of ability across time. In longitudinal research, more than half of the children who scored above a gifted cut-off of 130 IQ at age seven scored below that cut-off by age twelve (Gottfried, Gottfried, & Guerin, 2009). Conversely, many who did not meet the gifted criterion on the first test administration achieved above the cutoff when re-tested five years later.

The higher the identification criterion, the greater the variability in scores from one test administration to another (Lohman, 2006). The higher the gifted cut-off used, the younger the child when first assessed, and/or the more distant the future target, the poorer our capacity to predict gifted-level outcomes. It makes far better sense to put our time and money into figuring out who has special learning needs at a given point in time, and meeting those needs, than trying to predict who might be 'gifted' now and forever (Peters, et al., 2014).

Psychosocial Development

Another dimension of change over time occurs as high-level learning needs change with social, emotional, and talent development. High achievement in every domain starts as playful exploration and becomes the hard work of intentional skill acquisition. The high achievement moves through a stage of increasing mastery, requiring persistence, perseverance, social support, and effort before it becomes more playful again, in the form of creative performance or productivity (Subotnik, 2009; Subotnik, Olszewski-Kubilius, & Worrell, 2011).

The complex process of nurturing happy productivity across the life span starts with an adult encouraging a child's interests. By

enabling access to the necessary learning opportunities, and letting the child own as much as possible of the learning experience, the adult supports the child's interests in becoming talents or gifts. If the child stays motivated, invests the necessary effort, and continues to experience the support and learning challenges he needs, eventually he may achieve at high levels in areas he finds fulfilling (Dai & Sternberg, 2004; Matthews & Foster, 2014). This approach can work to support the optimal development of all children's abilities. When practiced, it broadens the scope of gifted education dramatically, moving it from the elitist enclave to the powerful vehicle for social justice.

Another dimension of psychosocial development where current research findings impact gifted educational policies and practices concerns attitudes toward intelligence. Recent research shows that children's mindsets are critical to the development of their giftedness, creativity, and talent (Dweck, 2006, 2009). Those who hold the fixed mindset believe that some people are inherently smart and some are not; they tend to feel judged and evaluated in everything they produce. Those with a growth mindset, on the other hand, conceptualize intelligence as dynamic, developing over time with opportunities to learn.

From a growth mindset perspective, failures are perceived as learning opportunities, which leads to higher self-confidence as well as higher academic and career success. Increasingly, proponents of gifted education are recognizing the need to exemplify a growth mindset in their policies and practices.

Four more interconnected psychosocial dimensions emphasized in recent studies of high-level achievement are motivation, effort, practice, and perseverance (Ericsson, 2006; Gottfried et al., 2009; Lubinski & Benbow, 2006). Learning at a deep and meaningful level requires tremendous effort and practice over time, and success in every field requires drive, tenacity, and the willingness to overcome obstacles.

One final psychosocial factor I would like to mention here is the importance to high achievement of social and cultural contexts (Horowitz, 2009; Keating, 2009; Renzulli,

2002). A social milieu that supports giftedness, creativity, and talent development, whether it be a family, a school, a community, a nation, or an international collaboration, leads to authentic engagement of diverse learners with diverse interests. Children and adolescents need time with others who support the development of their interests, drive, and challenge level.

Canadian First Nations Perspectives

Ken McCluskey has been working with talented at-risk First Nations students in Canada for the past two decades. Observing that traditional approaches to education, very much including gifted education, were not reaching Native students, he and his colleagues have developed programming approaches that have had some inspiring successes. This work reflects the mastery model/growth mindset approach under discussion here (K. McCluskey, Baker, Bergsgaard, Glade, Lamoureux, A. McCluskey, & Wiebe, 2012).

Canadian First Nations educators I have worked with understood long before most of their non-native colleagues that IQ tests are far too limited and problematic to be much use in gifted education (Matthews, 2013). They recognized early that a score on a decontextualized test of abstract reasoning (such as IQ) cannot help teachers differentiate students' learning to match their levels of knowledge and interests. Their practice has long reflected the awareness that children vary greatly in their learning needs, and that although a given child might need advanced curriculum in one subject area at a certain point in time, that same child might need something entirely different in another area or at another point in time.

Native Canadian educators I have talked with see it as every teacher's job to ensure that students with advanced learning needs get opportunities to learn at the level that allows them to keep learning and being challenged. They see no merit in the categorical model, whereby some children are seen as inherently gifted, and others are not.

As Lannie Kanevsky (2011) told me (personal correspondence), 'One of the awkward aspects of finding out more about the "underrepresentation" of students from Aboriginal backgrounds is that the whole

concept of giftedness is not a good fit within their culture.'

Constantine Ngara (2013) has drawn connections between the educational perspectives of the Shona culture in Zimbabwe, Africa and those of Canadian Aboriginal students.

He suggests that by paying attention to individual students' abilities and interests, being flexible in responding to those abilities and interests, and providing a level of challenge that matches their abilities and interests as these changes, educators support the development of giftedness, creativity, and talent across a broad spectrum of children and abilities.

Recent research findings and recommendations with Native populations in the United States support the talent-development perspective advocated here, rather than the traditional approach to gifted education that is based on categorical distinctions based on standardized assessments of 'intelligence' (Gentry, Fugate, Wu, & Castellano, 2014).

Practical Implications of a Shift from Mystery to Mastery

In order to put this more inclusive perspective into practice, teachers need resources, training, and support that enable them to focus on students' current learning abilities, by subject area, and to provide appropriate differentiation for those with advanced learning needs (Renzulli, 2013; VanTassel-Baska, 2009). Recommendations suggest the following: (a) including gifted education principles and experiences in all teachers' preservice education; (b) requiring certification for work with gifted learners; (c) using technology (websites, restricted-access social media) to create information sources and support for teachers; and (d) supporting teachers in personally-relevant self-study (Robinson, Shore, & Enersen, 2007), as incorporated in the National Council for Accreditation of Teacher Education standards for Gifted and Talented Teacher Preparation Programs in the USA (National Association for Gifted Children, 2006).

Under the traditional model of gifted education, the first choice was often for a full-time segregated classroom, where a child who had been identified as gifted, creative, or talented was educated with categorically similar children. Increasingly, however, experts are advocating a broad range of options that support learners' mastery across diverse learners and domains. These options include acceleration, extracurricular and in-school enrichment, technologically-assisted learning, and full-time special classes for those who are highly advanced across domains, as appropriate to the child's learning needs at a given point in time (Kanevsky, 2011; Peters, et al., 2014; Reis, 2009).

Because of the emerging perspective's flexible responsivity to individual differences, and its closer connections with general education, it encompasses racial, economic, gender, and cultural diversity in ways that historic approaches did not. When educational options are targeted to special learning needs, giftedness, creativity, and talent can be found in every school in every district, regardless of socioeconomic status, race, language, or culture. This approach is not only better at meeting the learning needs of highly advanced students, but also encourages high-level learning much more broadly across the population.

In her introduction to the first issue of The International Journal for Talent Development and Creativity, Karen Magro asked, 'How can psychological, situational, and institutional barriers be minimized so that the creative potential of all individuals can be realized?' (2013, p. 9). I think the changing perspectives on gifted education offer a promising possibility for moving closer to that important goal.

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About the Author

Dona Matthews, Ph.D., has written dozens of articles, blogs, and book chapters on gifted development and education. She is co-author of Beyond Intelligence: Secrets for Raising Happily Productive Kids; The Development of Giftedness and Talent Across the Life Span; Being Smart about Gifted Education; and The International Companion to Gifted Education. She was Executive Director, Millennium Dialogue on Early Child Development, University of Toronto, and founding Director, Hunter College Center for Gifted Studies and Education, City University of New York. She currently lives and works in Toronto, where she is a psycho-educational consultant and contributes to The Creativity Post.

e-Mail: donamatthews@gmail.com
www.beyondintelligence.net

Re-discovering Creativity:
Why Theory-Practice Consistency Matters

Lee Martin

Hayden Green Institute of Innovation and Entrepreneurship
University of Nottingham, United Kingdom

Nick Wilson

Department of Culture, Media and Creative Industries
King's College, London, United Kingdom

Abstract

In an age of rapid change we are increasingly forced to rely on our creativity to find responses to challenges that no one would have dreamed of facing. Ironically, these challenges can often be the result of the change brought about by the ingenuity and creativity of others. Creativity, it seems, is both the problem and the solution. In this work we seek to explore this dynamic context, examining the extent to which current theories of creativity are in alignment (or not) with practice. We identify a theory-practice inconsistency with respect to creativity definitions which prioritizes value judgments (and those who make them) over and above the ubiquity of human creative potential. Drawing on the philosophy of critical realism, we propose a resolution based on a new definition of creativity that has *discovery* at its core. The paper discusses why this matters for educationalists and students alike, highlighting the possibility of a more inclusive account of the universality of human creative potential.

Introduction

Discovery is central to education. The act of finding or learning something for the first time (i.e. discovering) is implicit in most, if not all educational programs. As regards what is being discovered, education in its most general sense is a form of learning in which the (already existing) knowledge, skills, and habits of a group of people are transferred from one generation to the next through teaching, training, or research. It is assumed that those transferring their knowledge, skills, and habits have strong grounds on which to base the choice of what exactly gets transferred. However, this presents some especially distinctive challenges for the creativity educator. Creativity, after all, is *only* creativity if it is novel and valuable. The pedagogic focus necessarily shifts from an interest in achieving certain pre-defined *ends* i.e., knowledge imparted, training bestowed, research disseminated, to developing emergent *means* for exploring what kinds of processes are best suited to enabling new knowledge, new skills and new habits, and reflecting on just what works, for whom, and under what circumstances.

It is apparent then that the relationship between discovery in education and creativity is an important one. But what role does discovery actually play in creativity? On first glance, this may seem a straightforward question. Creativity, it is generally argued, leads to discoveries. It is the creative capabilities (along with other capabilities) of Einstein or Darwin, for example, which led to their important scientific discoveries. However, whilst some creativity theorists have recognized there is a tension between these two terms (e.g., Tweney, 1996) the exact nature of the relationship between creativity and discovery has been little discussed. For most, discovery and creativity are held to refer to quite different things: mainstream definitions of creativity (e.g. Runco and Jaeger 2012) refer to the production of something new and valuable, whereas discovery tends to refer to finding something

that already existed. Research into creativity therefore has regarded discoveries in terms of outcomes rather than as an input. This is perfectly logical given the standard definition of creativity. However, recent developments in philosophy have suggested this relationship between creativity and discovery is not so clear-cut.

In this paper, we would like to offer an alternative to the existing understanding of the relationship between creativity and discovery by suggesting that discovery, rather than being an outcome, is in fact a fundamental defining feature of the creative process. Indeed, we will suggest that placing discovery at the heart of the definition of creativity can resolve some of the long-standing but largely ignored problems, tensions, contradictions, and theory-practice inconsistencies associated with the standard definition of creativity. To achieve this we will explore the role existing definitions have played in the development of creativity theory and examine the tensions within these definitions. Building on Martin's idea (2009), we introduce a critical-realist definition of creativity that places discovery at the heart of the creative process. We then explore how this definition might help us to better understand creativity in an artistic and an educational context. Particular emphasis is given to the implications for a more inclusive approach to the development of creative potential.

Creativity theory – the prevailing wisdom

In the context of higher education at least, we are increasingly being urged to develop the creativity of those who join our courses (e.g., Snyder, 2003). Achieving this requires an understanding of creativity and how to develop it. Whilst great strides have been made in our understanding of creativity and the creative process over the last five decades, it is surprising that our definition of creativity has advanced little since Stein (1974) offered a pragmatic definition to help researchers with issues of validity in their research. His basic argument was that given creativity can occur in a number of contexts, that it is difficult to separate everyday novelty from creative novelty, and it is hard to judge whether something is creative before it has been accepted as such by a community of knowledgable observers, we should subsequently limit our study of creativity to those that have been judged as producing such an output by such a group of knowledgeable people. Importantly, this definition was offered as a placeholder until research had confirmed the criteria necessary to separate creativity from other human capabilities.

If we fast forward a decade to Amabile's (1983) seminal work on the social psychology of creativity, these definitional issues still remained, despite enormous progress in our understanding. She claimed creativity can be studied through its outputs, and proposed an equally pragmatic definition:

> A (novel) product or response is creative to the extent that appropriate observers independently agree it is creative. Appropriate observers are those familiar with the domain in which the product was created and the response articulated. Thus creativity can be regarded as the quality of products or responses judged to be creative by appropriate observers, and it can also be regarded as the process by which something so judged is produced[1]. (Amabile, 1983, p. 33)

This defines creativity through its outcome, but Amabile also argued that the definition should be considered temporary, at least until more criteria for creativity have been identified. There is no doubt that creativity research has advanced using this definition. Important contributions have been made to our understanding of the characteristics of creative people and the elements of the creative

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[1] Whilst this text is focused on the product of the definition, she also recognizes the thing produced must be novel.

process, as well as how creative potential can turn into performance. However, this definition has not been the subject of substantial critique since it was proposed. Some, like system theorists, extend this definition by suggesting that creativity cannot be defined without reference to an audience of knowledgable judges. For example, Csikszentmihalyi (1999) made the argument that creativity must be considered a systemic relationship between a person, a domain, and a field. In other words, unless a person has produced something that is accepted by an appropriate audience, it cannot be considered creativity. In a recent review of creativity definitions conducted by Runco and Jaeger (2012) it was suggested that the standard definition of creativity requires just two criteria: originality and effectiveness, with effectiveness being defined by the value assigned to the product within a given field. This value, however, can only be assessed by the reaction the product has in an audience, and hence the pragmatic definition suggested by Stein (1974) has changed little despite advances in our understanding of the creative process.

Theoretical challenges – novelty and value

This state of the art in our understanding of creativity would be perfectly acceptable if there were no contradictions or issues within such definitions. However, and especially within education, there are some significant challenges with defining creativity in this way. First, academic theories of creativity can be accused of being based on data that contains a wide-spread selection bias (e.g., Runco, 2006) as only those whose creativity gets recognized can be considered as valid objects of investigation. This is problematic because we know there are many famous instances of creative people unrecognized in their time that have later been recognized as having important contributions (e.g., Mendel's work into genetics or Van Gogh's work).

We also know that some social groups can be politically, socially, or economically disadvantaged and membership of such disadvantaged groups can prevent their creative outputs becoming recognized. Despite tests of creativity revealing little, if any, gender differences in performance (e.g., Baer and Kauffman, 2008) when it comes to the recognition of female creative work (and the associated distribution of economic resources that go along with such recognition) women are still under-represented in creative populations. Clearly, political, economical, or social factors must be playing a part here. For example, within the advertising industry despite women being well represented within the sector, Campaign (2013) reported that within the Institute of Practitioners in Advertising (IPA) member agencies, seventy-five per cent of the roles that require specific creative skills (e.g., art direction) were reported to be held by men. The problem with this type of selection bias of performance in work is that the type of processes that we class as creative can be restricted to the processes identified within those groups who get recognition (in this example - male creative processes) and there may be wider means to achieve creative outputs that we are not measuring (i.e., female creative processes). Subsequently, we cannot claim to know enough about these alternative practices in order to develop them appropriately within the classroom.

In our attempts to develop the capability to produce something original, we run into the second problem of standard definitions of creativity - the problem of novelty. Previous philosophical examination of novelty has revealed significant issues that have been left unresolved. There are two important and widely agreed components to address. The first is: Where does novelty come from? The second is: How do we assess whether something is creative novelty as opposed to mundane novelty? In respect for where novelty comes from we might begin by asking: How is novelty possible at all? Barron (1968) claims that the 'divinity explanation', which involves creating something out of nothing, or having divine inspiration come to us, is not feasible for human creativity. He argues the human act of creation always involves making something old into something new but he does not go further and ask what is old and what is new when discussing the criteria for novelty. There have been a couple of attempts to explain this from within the domain of cognitive science. For example, Perkins (1988) argues 'ex nihilo' creation (out of nowhere or nothing) must be possible as we see it happening around us. However, his argument ends with stating because new things happen '*ex nihilo*' novelty must be possible. Missing is a non-contradictory commentary on how it is possible.

Similarly, Boden (2004) argues that we believe creative novelty is real because we experience it in practice, although theoretically and conceptually it seems impossible. Boden's solution is to claim that genuine creativity has to be in some way previously impossible (with prior impossibility being her criteria of genuine '*ex nihilo'* novelty). She proposes that a new idea must have been incapable of being produced before it happened, that it quite simply could not have occurred. She explains this by claiming that a merely novel idea is one that is produced by the same set of generative rules as are other, familiar ideas. A radically original idea, in her definition a truly creative one, is one that could not be, and it would be considered surprising or even shocking to those who recognize it. She calls the first exploring a conceptual space and the second going beyond the conceptual space (Boden, 2004, p. 51), but this does not offer a complete solution to the '*ex nihilo'* paradox (how can something appear from nothing?) as it contains a logical contradiction. If an idea genuinely could not have been produced it would correctly be deemed impossible. If it subsequently does happen, then it could not have been considered impossible in the first place.

Notwithstanding the difficulties already discussed with regard to where novelty comes from, there are also philosophical issues in differentiating the types of creativity produced, ranging from mundane acts of creativity that largely go unnoticed, to cases of creativity held up by (parts of) society as iconic. Here the issue of originality appears to be especially important. Runco (2006, p. 21) observes that originality is widely agreed to be fundamental to defining creativity, and as such, original behaviour is deemed to have value. Barron (1968, p. 25) also claimed that the original can be defined in relation to the common and, therefore, the degree of originality must be specified statistically in terms of incidence of occurrence. That is to say, an original response will be uncommon in the group within which it is studied. However, this alone does not provide a sustainable definition of creativity. Epstein, writing indirectly about creativity, had this to say about novelty:

> The behaviour of organisms has many firsts, so many in fact, that it's not clear that there are any seconds. We continually do new things, some profound, some trivial. We 'solve problems' which by definition means we're doing new things in situations we've never faced before. We write poems and improvise on the piano and devise scientific theories. We speak new utterances all the time…….When you look closely enough, behaviour that appears to be repeated proves to be novel in some fashion…..Even if you managed to repeat the same response precisely, it would still be novel in the sense that each occurrence is the product of a changed organism. (1991, p. 362)

In this, Epstein reveals the predicament at the heart of all creativity research: if all things can be considered novel by some criteria, and novelty alone is synonymous with creativity, then everything is by default, also creative. This is a position taken by Hans Joas (1996) who argued, albeit by a different method, that all human action has within it a moment of creativity. Clearly, there are some things that we would like to classify as more important forms of creativity; the problem is philosophically, how to differentiate these novel moments from all other novel moments has not yet been satisfactorily explained within the creativity literature. The standard definition provides the pragmatic answer to this problem by arguing we can label something creative and novel by classifyng it as adaptive to its environment. The term 'adaptive' is used to signify that something has a value or a purpose within a context (e.g., Runco, 2006). However, without having criteria for adaptive novelty, researchers have been forced to define it through how we come to know it, that is, through its recognition. Boden (2004) highlights the consequences of this for understanding creativity when she claims:

> Because creativity by definition involves not only novelty but value, and because values are highly variable, it follows that many arguments about creativity are rooted in disagreements about value (p. 10).

If all things are novel and creativity is that which is valued and novel, logic dictates that the *only* thing that separates creativity from all other behaviour is perceived value. This, we suggest, is

highly problematic. For if creativity continues to be thought of in terms of novelty and value then our entire approach not just to defining the concept *in theory* but also to responding to it *in practice*, becomes dependent upon the recognition or judgment of others. Creativity is collapsed into the recognition of value and we, as educators of creative potential, must attempt to label our students' behaviour as creative or otherwise from inside the established value systems within which we operate, whilst being expected to understand all the possibilities creativity might give rise to. The risk is we will miss behaviour that is important through the blindness our particular perspectives might bring.

It is here that we can pinpoint the theory-practice inconsistency that lies at the heart of creativity research. Creativity in practice has all too often been reduced to what the prevailing definition of creativity tells us it is in theory, that is, an assessment of value by a certain group of legitimized people. In essence, what we have here is a truth in practice combined with a falsity in theory, or what has been referred to elsewhere as a TINA formation (Bhaskar 1993). The TINA formation takes its name from the theory–practice inconsistency made (in)famous by the former United Kingdom Prime Minister Margaret Thatcher, namely the view that "There Is No Alternative" (TINA) to the free market and economic liberalism - a false belief held as an explanation of a truth in practice (see Bhaskar, 1993; Norrie, 2010, pp. 106-110). We will find a TINA formation wherever there is a split between our theory and practice, or more proverbially between our "talk and our walk." (see also Wilson, 2014a).

The obvious question arises: Does creativity have to be defined this way? Have there been no advances over the last fifty years that might enable us to develop wider (and more inclusive) criteria for understanding the nature of creativity and how we might develop it without succumbing to TINA? We propose that there *is* an alternative to this state of affairs if, that is, we are prepared to look again at the role of discovery in the creative process. Undertaking this task requires learning from recent developments in the philosophy of science, and in particular the critical realist philosophy of Roy Bhaskar (1978; 1993; 1998a; 1998b). Critical realism's ontological framework and treatment of causality provides some breakthrough meta-theoretical insights that allow us to think differently about the origins of novelty and subsequently about the role of discovery in the creative process.

Towards a resolution - introducing critical realist meta-theory

Critical realism has been used successfully to inform research within other fields of social science (e.g., Ackroyd & Thompson, 1999), and in education (e.g., Barnett,2013; Maton, 2014; Sarra, 2012; Scott, 2009; Shipway, 2013) but has yet to see widespread application in the study of creativity. To that end a brief sketch of the principles of critical realism will follow before these principles are applied to the study of creativity. As we have already indicated, this will allow us to make the case for discovery having a much larger and more central role to play in the definition of creativity than is currently accepted.

Any philosophical treatment of novelty (and hence creativity) must address the thorny issue of causality. A widely held notion of causality underpins a great deal of social science, especially that rooted in positivism and empiricism, and it derives from the British Philosopher David Hume (1711-1776), for whom causality was synonymous with regularity between events. If event x and event y are regularly conjoined, it is presumed that one causes the other. Bhaskar's (1998b) most influential contribution to philosophy of science has been in exploring why Hume's notion of the nature of causality cannot be accepted blindly. He argued that because correlations and causation can be identified through experimental activity there must be underlying causal mechanisms (or powers) enabling these events to be measured.

However, he recognized that given these correlations require experimental activity in order to be identified and they are not found consistently within the social sciences, it must be concluded that the causal mechanisms that enable these correlations must also be considered separate from the events they generate. This simple insight has profound consequences for our understanding of social

ontology. If causal powers operate continuously but do not always produce effects, then the social world must be stratified into at least three domains: the *real*, the *actual*, and the *empirical*. Any explanation of how something can emerge in the social world can then be explained in terms of these three domains.

The domain of the real contains all that is operating within the world as well as things that are yet to emerge (Bhaskar, 1978; 2008). Bhaskar (2008) refers to causal powers that are already operating in the world as exercised powers. His critical contribution was to argue that the existence of an exercised causal power does not mean that it will be acting. For example, we might have developed our cognitive abilities to the extent that we can do combinational thinking (this would be an exercised power) but we do not have to use these abilities all the time.

The second type of causal power Bhaskar (2008) identified within the domain of the real is one that is un-exercised. Such powers are not yet fully developed but could be once certain conditions are met. Taking combinational thinking again, at birth, this is an un-exercised power because to develop the full causal powers of combinational thinking requires interaction with other causal powers (such as nutrition, education, and so on) for it to develop. In this example, the emergence of a new causal power would, in this instance, involve an un-exercised power becoming an exercised power.

Bhaskar's (2008) next insight into causality was that if causal powers are separated from their effects then a second state for a causal power would be when it is exercised (in existence) and actualized (acting, producing effects). There are many examples we could use to demonstrate this: a match contains the exercised power to combust, but this will only be actualized should it be struck; or, metal has always contained the exercised power to conduct electricity but this could only become actualized when the properties of electricity were discovered and brought into being. The actual domain is where such phenomena exist in their exercised and actualized form, whether we are aware of this or not.

The final domain Bhaskar (2008) identified is the domain of the empirical. This domain consists of the exercised and actualized causal powers that are available to be seen, to be measured, or to be made sense of (this is the domain that most empirical research of creativity is focused on, of course). Where Bhaskar's (2008) work differs from other philosophies of science is that he suggests it is wrong to claim that causes always result in empirical events. We may need empirical events in order to identify a causal power but a causal power can exist without an empirical event. Archer (1998) argues that other philosophies of science collapse these ontological categories into either what is observable, or what is contained within our discursive practices. The opportunity this stratification of causal powers offers is that it provides a new ontological framework for theorizing about the creative process and to tackle some of the issues raised concerning how we define creativity.

A critical realist definition of creativity

When the consequences of Bhakar's (2008) conceptions of causal powers are explored we can now argue that there are different types of discovery made possible through applying these conceptions of causal powers. Held within exercised causal powers there exists the potential for new causal powers to come into being. These un-exercised causal powers can be discovered and brought into being through human action or, they can be brought into being through processes that do not require human intervention, such as evolutionary processes. This movement of un-exercised causal powers into exercised ones can explain how things that are new to history emerge.

The movement of an exercised causal power into an actualized causal power (for example, the causal power of metal to conduct electricity) offers a further type of novelty to be understood. This offers a route for explaining a different type of creativity: knowledge about a thing's un-actualized properties. In this type of shift from one causal state to another, it is common to talk of discovery, for example, the exercised property of metal to conduct electricity already existed, its effect was discovered through, amongst other things, the processes of science.

The consequences of these insights into the discovery of different causal powers have important consequences for defining creativity and also offers a resolution to the '*ex nihilo*' problem previously outlined. For critical realism, when a new thing is brought into being through human creativity there must also have been a discovery of the possibilities held within the pre-existing and either un-exercised or un-actualized causal powers of the world (see Martin, 2009). The existence of something new, adaptive, and valuable is predicated on a world that enables the emergence of new things through human action and creativity.

In other words, a creative idea is the mental representation of the new possibilities contained within the existing causal powers of the world. When this new creative idea is made sense of, the creator is, in essence, discovering these possibilities. This discovery can be temporally prior to the bringing into being of something new, or not. Something may be brought into being and made sense of, it may be theorized and brought into being, or this process may happen simultaneously or indeed, develop iteratively. Regardless of the temporal sequence, what critical realism offers creativity theory is the insight that discovery is, in fact, a defining component of the creative process. It is an input to the process rather than an output.

Utilizing these insights, and drawing upon the existing literature on creativity, the following definition of creativity can be offered:
Human creativity is the capability to discover and to bring into being, new possibilities.

It is proposed this definition underpins all forms of creativity and it places discovery as a central defining feature, whilst maintaining the focus on new things. The power of such creativity to affect change in the world is, indeed, dependent upon an audience that accepts the discovery, and so the definition can be extended to include the role that personal and societal recognition plays (Amabile, 1996; Csikszentmihalyi, 1996) in the uptake of creativity:

> Human creativity may (or may not) gain individual, group, organizational, community or global recognition and this process of recognition can be influenced by many factors including psychological, economic, political and power processes. (Martin, 2009 p. 308)

Discussion

Before discussing the implications arising from this work, let us re-cap on what has been argued so far. We began by drawing attention to the ongoing theoretical problems with the standard definition of creativity, and emphasizing particular difficulties associated with theorizations of both novelty and value. We then showed how this has very real implications for practice, revealing what we take to be a TINA formation comprised of a falsity in theory (creativity continues to be loosely defined in terms of novelty and value) and a truth in practice (creativity is all too often reduced to value judgments made by a legitimized minority). We then introduced critical realism as providing an innovative social ontology for re-thinking creativity, outlining a realist definition of creativity as the capability to discover and to bring into being new possibilities, which may or may not be recognized.

In our own reflexive efforts to achieve theory-practice consistency in this paper we now seek to explore further the relevance of this theoretical reconciliation of discovery and creativity in terms of what people actually do in practice. A number of questions require further elaboration here. First, how does this definition sit with society's prevailing discourses, theories and practices of creativity? Second, what are the implications for our understanding of the types of creativity actually being produced (e.g., the extent to which they are 'value neutral')? Third, what practices associated with the process of discovery can educators employ to help students develop their creative potential?

Creativity is arguably more important to humanity than ever before. According to Archer (2012, p. 1) "for the first time in human history the imperative to be reflexive[2] is becoming categorical for all, although manifesting itself in only the most developed parts of the world." It is no longer possible to rely on 'old' ways of doing things; "habits and habitus are no longer reliable guides" (Archer, 2012, p. 1). Whilst accounting for such a shift in society would take us well beyond the scope of this work, it is worth referencing what Archer sees as the "mutually reinforcing changes in cultural and social structures" (Archer, 2012, pp. 3-4) that have arisen primarily since the launch of the World Wide Web and the expansion of multi-national corporations alongside deregulation of finance markets. She describes a situation of 'contextual incongruity' "where past guidelines become more and more incongruous with the novel situational variety encountered." (Archer, 2012, p. 6). The upshot is that "increasingly, each subject has to make his or her own way through the world without established guidelines" (Archer, 2012, p. 6; see also Barnett, 2000a & 2000b; on the 'super-complexity' facing education).

Within this context our discussion of creativity as the discovery of possibilities appears to take on a particular salience. Two observations can be made in passing. First, in defining creativity as a universal human *capability*, we are also drawing attention to the possibility of our learning to do it better. All of us possess the capacity for creativity (i.e., making discoveries about the possibilities of the world); whether we become good at this and turn our capacity into a skilled capability in any given context (e.g., art, science) is contingent upon a host of other capacities, capabilities, and life chances. However, according to the logic of the reflexive imperative then such capability development is more important than ever.

Second, reflecting on the reasons for this shift towards what Archer (2012) terms 'the morphogenetic society', we might pause to note the dominance of just a handful of global multinational media corporations (including the likes of Google, Facebook, Netflix) not just in economic terms (many of their young billionaire founder-directors making the Rich List), but in terms of their influence over what gets recognized as 'creativity' today. Here the dominant market-driven discourse of creativity seems to be in terms of either productivity or problem-solving. The instrumntalised 'use' of creativity is enduringly appealing; but if it is the only discourse it also becomes problematic because it reinforces dominant value systems that may hinder the recognition of alternatives. The concern is that 'the space of possibles' (Bourdieu, 1991) will become limited as the range of stances people see as viable and legitimate (see Maton, 2014, p. 7) are reduced. Looking to the future, a vibrant understanding of creativity founded on theory-practice consistency (inclusivity and universality), rather than inconsistency (value judgments by the few), is of paramount importance.

We turn now to the second question: What are the implications for our understanding of the types of creativity actually being produced? In effect, what we have suggested is that discovery is a universal feature of *all* creative practice. There is, of course, a perfect test for our thesis. You should not be able to think of a single instance of creativity that does not presuppose a discovery of some kind. Whilst we may wish to accept that discovery is a part of scientific creativity, we may be less willing to accept it is part of say, the artistic process. However, we contend that this will also be the case. Stephen King (2000), in his book '*On writing*' boldly states that the writing process is one of discovery, whereby the writer discovers effective plots and believable characters. An artist can be described as discovering a new way to capture something and to communicate to us about the human

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[2] Reflexivity is defined as "the regular exercise of the mental ability, shared by all normal people, to consider themselves in relation to their (social) contexts and vice versa" (Archer, 2012, p. 1).

condition. A musician will discover new ways of combining notes that can be perceived as melodies and an actress/actor can discover new ways to express emotions, feelings, or concepts. In each of these circumstances there is a discovery involving the properties held within existing causal powers at different levels within the social system (material, psychological, aesthetic, audience, and so on).

We would also argue that this definition of creativity helps to reconcile one of the major challenges facing those involved in the performance of classical music (and other performing arts); namely, the relationship between a given composed musical work and its contemporary performance. For commentators and musicians alike the question of how a musical work can be 'old' and 'new' at the same time has been a subject of hot debate (see Wilson, 2014b). Though there is a tendency to label musicians as 'creative', assuming their work necessarily involves creativity, the practice of re-creating a musical work several hundred years after its composition offers particular challenges in this respect. By understanding creativity in terms of the discovery of possibilities we can now re-conceptualize a musical work as containing within it exercised but un-actualized possibilities, waiting to be discovered. The skilled musician is then creative to the extent that they discover these possibilities and bring them into being within a unique performance. This logic also helps us to understand the role of 'creative constraints' (see Stokes, 2006) in art more generally.

The wider implications for our understanding of the value of creativity can be seen within the creative musician who must necessarily balance their creativity with a commitment to perform the piece of music they are advertised as performing. They cannot get 'too creative' or they would end up playing a different piece altogether. Our definition of creativity in terms of discovery helps to explain how and why this is the case, in terms of exercising and actualizing otherwise un-actualized possibilities. By extension, just as the musician must address the context of their creativity, paying attention to the demands of any given musical work and (to some extent at least) the views of others (e.g., the original intentions of the composer as indicated through musical scores), so must we learn to develop our creative potential such that it enables discovery, but also balances interests and duties to ourselves and to others.

This adds weight to the arguments for an ethical dimension to creativity. In *Creativity, Wisdom, and Trusteeship* (2008) by Anna Craft, Howard Gardner, and Guy Claxton, the authors highlight how the ends to which creativity is put are not generally seen as significant, adding that the apparent universalization of creativity (Jeffrey and Craft 2001) and educational policy-making across the world underlines this position. The authors call into question this un-problematized 'value neutral' position on creativity as it applies to education in particular; indeed they go on to suggest that creativity ought to be conceived of in relation to other human virtues, and in particular to wisdom (c.f. Sternberg, 2003b). The definition of creativity put forward in this paper, stressing the discovery of possibilities is, on one reading, value neutral. There are many possibilities, good and bad, after all, waiting to be discovered. However, we suggest that by virtue of its moving towards theory/practice consistency this conception of creativity also paves the way for a more ethical, wise, and value positive reading of creativity, where a genuine and society-based assessment of creativity is possible.

Finally, we would like to turn our attention to the kinds of practices educators could employ to help students develop their creative potential. It is widely recognized that complex cognitive skills, such as those required in the creative process, require a good deal of practice to perfect, and as educators, we need to be sure we are offering appropriate practice opportunities within the classroom. By focusing on discovery we are able to set up tasks that have pre-defined discoveries to be made (in science, for example). These discoveries may not be new to history but they can be new to the person learning about the processes of discovery. This means we can take students through a process whereby they learn the capabilities necessary to make simple discoveries and gradually to build upon these skills until they are capable of making discoveries themselves in search spaces that have unknown outcomes.

Of course, we are not advocating that creativity training be limited to processes of discovery. This is just one of the many capabilities needed to be creative. The importance of this new definition, however, is that discovery and discovery processes offer a route to theory-practice consistency which should improve learning. Indeed, we already know quite a bit about discovery processes (e.g., Simon, 1980) but this knowledge is rarely applied in the context of developing creativity. Elsewhere, Anna Craft's (2006) work on 'possibility thinking'[3], which asks 'what if' and 'as if' questions, can usefully be drawn upon. In keeping with our own focus on possibilities and call for inclusivity, attention is brought to the need for an inclusive learning environment that prioritizes children's ideas and experiences, dialogue among children and children and teachers, and an ethos of respect.

Over and above other well-versed aspects of creative learning highlighted in the literature as important (e.g., modelling expertise, authenticity of activity/task, locus of control, and genuine risk-taking - see Craft, 2006, pp. 19-28), we would suggest that our discovery perspective on creativity encourages particularly careful consideration of 'awareness'; awareness of the self and of others. The existence of possibilities is one thing; being aware of them quite another, after all. Possibilities are discovered only because the individual (sometimes working in a group) becomes aware of them at a given moment in time (the apocryphal story of the apple falling as Newton makes the discovery of gravity is called to mind here). The more we practice being alive to possibility, the better we will become at noticing when possibilities arise. Whether we do anything with possibilities (i.e., whether they become exercised and then actualized) depends on the context surrounding the move from idea to action. There is a tendency to consider ideas in abstraction, and therefore in isolation; but of course our awareness of any idea in any moment is itself dependent upon our embodied experience in that moment. If we are worrying about something else, we are distracted by having a headache or other pain in the body, or are emotionally disturbed in some way, then we may not notice the possibility. Creativity requires present-moment awareness.[4]

The discovery of possibilities, though ultimately an individual moment of conceptualization, is not exclusively an individual process. As we know from studies of art and science, creativity oftentimes involves collaboration. To this end creativity education also revolves around our relational consciousness or awareness of others (and the other), or what Wilson has termed 'social creativity' (Wilson, 2010). Specifically, social creativity

> …calls us to re-think the relationship between creativity and the economy through re-focusing on the collective and relational nature of creative practice, where divergent thinking (Koestler, 1964, [1975]), transdisciplinarity (Cox, 2005), co-ownership (see Bellers, 1695), heterogeneous knowledge production (Nowotny et al., 2001), boundary spanning, technology-brokering (Hargardon, 2003), collaboration, dialogue and reflexivity (Göranzon et al., 2006) are all important features. (p. 373)

In conclusion, it is useful to draw attention to social creativity's emphasis on the crossing of boundaries that otherwise isolate ideas and people, as this clearly represents an important foundational step in creating a suitable environment for fostering a genuinely-inclusive creativity education for all. Given our argument that we move away from a position in which creativity is unwittingly circumscribed as the judgment of the few, it is worth emphasizing once again some practical steps that could be taken in the context of creativity education to foster theory-practice consistency. These actions include enabling interdisciplinarity, supporting collective critical

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[3] See Anna Craft's 'Possibility Thinking' (CREET), available online at:
http://www.open.ac.uk/creet/main/sites/www.open.ac.uk.creet.main/files/06%20Possibility%20Thinking.pdf.
[4] It is interesting to note the rise in interest in mindfulness (see Kabat-Zinn, 2004), which cultivates this present-moment awareness, very often in the context of stress reduction and other health-related programs.

reflection, facilitating engagement, developing communicative tolerance, and applying alternative methods (see Barnett, 2000b, p. 104; Wilson, 2010, pp. 376-377). Of course, how precisely we affect these in school, college, and university contexts, how we as educationalists now 'walk the talk', well, that is up to us to discover – isn't it?

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About the Authors

Lee Martin lectures at the Hayden Green Institute of Innovation and Entrepreneurship, University of Nottingham. He is Chair of the organizational psychology special interest group within the British Academy of Management, and is director of the University of Nottingham MSc in Entrepreneurship. His research has explored creativity in the workplace, education and the arts.

Nick Wilson is Senior Lecturer in Cultural & Creative Industries at the Department of Culture, Media & Creative Industries (CMCI), King's College London. His work explores how people "do" art and integrate creative practice(s) into their lives. His work in arts based learning & education draws on experience as a professional singer, everyday artist and composer, artist manager, and entrepreneurship educator. His book *The Art of Re-enchantment: Making Early Music in the Modern Age* (published by OUP in 2014) is the most comprehensive study of the British early music movement to date. Nick is currently engaged in an action research and artistic project titled *53 Million Artists* that seeks to positively impact everyday participation in creative practice and art and is also working on a realist theory of art and aesthetics.

Addresses

Dr. Lee Martin;
Hayden Green Institute for Innovation and Entrepreneurship;
Nottingham University Business School; Jubilee Campus, Nottingham, NG8 1BB
e-Mail: lee.martin@nottingham.ac.uk

Dr. Nick Wilson;
Culture, Media & Creative Industries (CMCI);
Room 10D, Chesham Building, Strand campus; King's College, London WC2L 2LR;
e-Mail: nick.wilson@kcl.ac.uk

Predicting Career Interests from Problem-Solving Style with High School Students

Allison Johnson

Morris County and Bergen County, New Jersey, USA

Margo A. Jackson; Edwin C. Selby; John C. Houtz

Faculty of the Graduate School of Education, Fordham University, New York, USA

Abstract

The goal of this study was to examine the relationship between problem-solving style as measured by *VIEW: An Assessment of Problem-solving Style* and career interests or preferences in high school students as measured by the *Kuder Career Search with Person Match*. Three-hundred forty-two eighth through eleventh grade junior and senior high school students from a suburban high school participated in this study. *VIEW* yields information about six individual problem-solving styles along three dimensions: Orientation to Change (Explorer vs. Developer), Manner of Processing (External vs. Internal), and Ways of Deciding (People-Oriented vs. Task-oriented). The Kuder Career Search with Person Match provides scores according to 16 career interest categories as well as Holland's RIASEC (Realistic, Investigative, Artistic, Social, Enterprising, and Conventional) model of categories of personality/career types. With respect to the Orientation to Change dimension, Explorers displayed a preference for the Kuder Arts/Communication (Artistic) Career Cluster. Externals displayed a preference for the Kuder Sales/Management (Enterprising) Career Cluster. With respect to the Ways of Deciding Dimension, those who had a People-Oriented decision-making style had a greater preference for the Kuder Arts/Communication (Artistic) Cluster and the Kuder Social/Personal Services (Social) Cluster while those who had a Task-Oriented decision-making style had a greater preference for the Kuder Outdoor/Mechanical (Realistic) Cluster and the Kuder Science/Technology (Investigative) Career.

Keywords: Career Interests; Problem Solving Style; VIEW; Kuder Search.

Introduction

Career development is a major field in counselling and guidance (Bailing & Stadt, 1973; Brown, Brooks, & Associates, 1990; Crites, 1978; Drummond & Ryan, 1995; Dudley & Tiedeman, 1977; Ginsberg, Ginsberg, Axelrad, & Herma, 1951; Kidd, 2006; Osipow, 1968; Parsons, 1909; Peterson, Krumboltz, & Garmon, 2005; Pietrofesa & Splete, 1975; Roe, 1956; Super, 1957). In this field, one of the key research directions in understanding how individuals develop interests in careers, choose careers, and succeed in careers has been to look at individuals' personality characteristics and interests (Ackerman & Heggestad, 1997; Betz, Borgan, & Harmon, 2006; Gasser, Larsen, & Bogan, 2004; Kieffer, Schinks, & Curtiss (2004); Nauta, 2007; Rogers, Creed, & Glendon, 2008; Small, 1953; Tokar, Fischer, & Subich, 1998). Individuals who are characterized by certain personality characteristics or interests appear to gravitate towards certain careers and do well, while other individuals with different characteristics or interests choose yet different careers.

Perhaps no one has pursued the personality/career relationship more than John Holland (Barrick, Mount, & Gupta, 2003; Gottfredson, Jones, & Holland, 1993; Holland, 1959, 1985, 1996, 1997; Patrick, Tuning, Grasha, Lucas, & Perry, 2005; Rayman & Atanasoff, 1999; Spokane, & Cruza-Guet, 2005). Holland's theory identifies and describes six personality/career types: Realistic, Investigative, Artistic, Social, Enterprising, and Conventional (RIASEC) (Holland, 1997; Weinrach & Strebalus, 1990). Individuals with a Realistic type prefer working with their hands and body, with tools, machines. They are more practical by nature and more physically and mechanically inclined.

They may prefer careers as carpenters, farmers, interior designers, physical therapists, police officers, film makers, automobile mechanics.

The Investigative type individuals have preferences for working with information and theory, being more intellectual and analytical. These types might be found more often in scientific and technical occupations, such as mathematician, psychologist, computer scientist, lawyer. The Artistic type is regarded as more creative, non-conforming, original. Poets, writers, musicians, painters, might be of this type. The Social types are the "helpers," so to speak. They would more likely be caretakers of some kind, social workers, counsellors, teachers, nutritionists, community organizers.

The Enterprising individuals are the "persuaders," found in careers involving selling in one form or another. They enjoy competition; they are status-seekers, leaders. Their careers might include publicist, politician, trainer, insurance broker, journalist, marketer. Finally, the Conventional type values attention to detail, order, and organization. The careers typical of this type include certified accountant, bookkeeper, financier, office manager, proofreader, computer programmer, clerk.

There are volumes of theory, research, and instrumentation beyond the scope of this study describing, explaining, and assessing personality characteristics. In addition, there also are multiple efforts to assess cognitive and information processing styles (Jonassen and Grabowski, 1993). However, in the area of creativity and problem solving, there have been only a few efforts to measure individual differences and relate them to occupational interests or preferences. Michael Kirton's Adaption-Innovation Inventory (KAI) (1994) has been one.

Adaptors prefer to work toward solutions that "fit" the constraints of the situation, using accepted rules and staying within provided or assumed structures. On the other hand, Innovators prefer to change or even ignore guidelines and given constraints, structures, or rules in favour of their own instincts and perceptions.

A new instrument that looks at creative problem-solving style is *VIEW: An Assessment of Problem-solving Style*. VIEW assesses one's style across three dimensions, Orientation to Change (OC), Manner of Processing (MP), and Ways of Deciding (WD. VIEW is based on a more recent approach to style definition and assessment which asks the question "How are you creative?" rather than "How creative are you?" (Isaksen, Dorval, & Treffinger, 2010; Treffinger, Isaksen, & Dorval, 2006; Treffinger, Selby, & Isaksen, 2007; Treffinger, Selby, Isaksen, & Crumel, 2007). This approach has been called the "level-style" distinction and appears to offer greater flexibility in understanding how an individual can or will best function in different problem contexts (Isaksen & Dorval, 1993).

Real-life problems are typically not clear in their definition. Effective methods to work on such problems may not be well known and also not obvious would be what constitutes the best solution. The overall environment or context surrounding the problem and problem solver can vary in many ways.

Thus, a focus on how a problem solver thinks, how he or she perceives, works on, and/or judges problems and their contexts offers a richer variety of hypotheses to test than considering only an individual's "amount" of knowledge or skill. Based on the personal characteristics that fit with each dimension of VIEW style, certain predictions can be made regarding people's career preferences.

For example, on the dimension of Orientation to Change, individuals may have preferences as Explorer or Developer. Explorers may prefer to work on problems where there are few guidelines, less structure, or influence by authorities. On the other hand, Developers are "enabled" by structure and authority. They may be more likely to persist and follow through on tasks, bend but not break rules, work within the "givens" of a problem. Explorers may be more likely to be flexible with activities, deadlines, and rules. Explorers may be more interested in "big-picture" ideas than details. Given these differences, one might hypothesize that Explorers might be more interested in or suited for careers where workers have greater

flexibility and autonomy, such as in Arts/Communication.

Individuals with styles of External or Internal Manner of Processing are likely to prefer more or less initial social interactivity or environmental "busy-ness," respectively. Externals may be energized by interactions with others, whereas Internals will need their own, quiet reflective time before engaging. With these preference differences, one might suggest that Externals would gravitate toward more Social/Personal service occupations.

On the third VIEW dimension, Ways of Deciding, individual styles are labelled People-Oriented or Task-Oriented. People-Oriented Deciders "set priorities based more on personal and caring judgments" whereas Task-Oriented Deciders prefer "well-reasoned conclusions and impersonal judgments." People-Oriented Deciders may try to avoid conflicts and maintain harmony in relationships but Task-Oriented Deciders may focus more on facts and logic even if decisions may have negative impacts on others. Based on these differences, one might hypothesize that People-Oriented Deciders would be found in more "people-oriented" careers, such as in Arts/Communication or in Social/Personal Services. Task-Oriented Deciders might be found in Science/Technical careers. The purpose of the present study was to investigate the relationship between VIEW problem-styles and career interests.

Methodology
Participants

A total of 342 junior/senior high school students from a small suburban school in Northern New Jersey participated in the study. Students from the eighth, ninth, tenth, and eleventh grades were included. The grade level breakdown included 27.8% 8th grade students, 23.7% 9th grade students, 25.4% 10th grade students and 23.1% 11th grade students. Students ranged in age from 12-18 years old with the average age being 14.79 years old. The percentage of females who participated in the study was 45.6% and the percentage of males who participated in the study was 54.4%. The sample was from a low-to middle-class socioeconomic background. The ethnic backgrounds included 13.7% Caucasian, 36.5% Asian, 36.5% Hispanic, 3.8% African American, and 9.5% other.

Instruments

VIEW: As Assessment of Problem-Solving Style

VIEW: An Assessment of Problem Solving Style is a 34-item, 7-point Likert scale self-report questionnaire that assesses three dimensions of problem-solving style (Selby, Treffinger, Isaksen, & Lauer, 2004). The first dimension is Orientation to Change. This scale describes the person's perceived preferences in two general styles for managing change and solving problems: the "Explorer" and the "Developer." The Orientation to Change dimension scores range from 18-126, with a hypothetical mean of 72.

The second scale is Manner of Processing, which describes the person's preference for working externally (i.e., with other people throughout the process) or internally (i.e., thinking and working alone before sharing ideas with others) when managing change and solving problems. These scores range from 8 to 56, with a hypothetical mean of 32. The third scale is Ways of Deciding, which describes the major emphasis the person 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. These scores also range from 8 to 56, with a hypothetical mean of 32.

Overall, more than 30,000 individuals ranging in age from 12 to 80 have taken *VIEW*. Reliabilities for each of the three scales are in the mid- to high .80s. Validity evidence is extensive, including exploratory and confirmatory factor analyses, correlations with other style and personality measures, and studies illustrating significant differences in choices, beliefs, and preferences by individuals of different *VIEW* styles (Selby, Treffinger, & Isaksen, 2007; Schraw, 2007).

The Kuder Career Search with Person Match

The *Kuder Career Search with Person Match* is an interest assessment that reports directly on the inventory-taker's similarity with groups of employed people in six-well known career clusters: Outdoor/Mechanical, Science/Technical, Arts/Communication, Social/Personal Services, Sales/Management, and Business Operations (Kuder & Zytowski, 1991). The assessment is applicable for individuals and in group settings, and is applicable for ages from middle school to adult.

The preference record portion is composed of 180 activities that students and adults probably have some familiarity with. Items are presented in the form of 60 forced-choice triads. Survey takers are required to mark all three items, selecting the most, next most, and least preferred, in effect, rank-ordering them. The Kuder Career Clusters form the central content of the summary report given to each taker. The use of career clusters rather than occupational titles is responsive to Holland's (1996) concept of how a set of activities can fit into a variety of occupations and is based on Holland's (1997) idea of the Big Six Factors (RIASEC). There are 16 Activity Preferences that are based on the sixteen USOE States' Career Clusters. These sixteen preferences can then be categorized or transformed into one of the six Kuder Career Clusters: Outdoor/Mechanical (Realistic), Science/Technical (Investigative), Arts/Communication (Artistic), Social/Personal Services (Social), Sales/Management (Enterprising), and Business Operations (Conventional). Reliability and validity information for the Kuder are extensive (Kuder, 1975, 1977; Kuder & Zytowski, 1991; Zytowski, 2001a, 2001b).

Procedure

The students participated during three of their English class sessions. Some of the students participated during the morning periods of the school day, while others participated during the afternoon periods of the school day. Any student that was absent during a testing day either made up the assessment during the following session or took it individually in the guidance department with the first author. Upon completion of both assessments achievement data (i.e., achievement test scores, standardized test scores, and grade point averages) and demographic data were collected.

Ethical Considerations

Since all of the participants in this study were going to be minors, permission for participation in the study was gained from the adolescents in addition to their parents. Also, permission was obtained from both the superintendent of the school district as well as the principal of the school prior to conducting the study. The study was also reviewed by Fordham University's Internal Review Board for human subjects research before data was collected.

Informed consent forms were used that clearly informed all participants of the nature and purpose of the study, and their right to withdraw from the study at any point without penalty. Additionally, confidentiality was ensured for all involved, including the staff, the parents, and the school district, as well as the adolescents.

Results

Descriptive Statistics

Descriptive statistics were computed for all variables, including means, standard deviations, ranges, standard errors, and intercorrelations among the Six Kuder Career Clusters and the dimensions of *VIEW: An Assessment of Problem-solving Style* (See Table 1). Students' average scores on each of the three dimensions of Orientation to Change, Manner of Processing, and Ways of Deciding were all consistent with the reported means in the VIEW's Technical Manual. Cronbach's Coefficient Alpha was computed and the results were the following: .77 for Orientation to Change (18 items), .72 for Manner of Processing (8 items), and .72 for Ways of Deciding (8 items).

Table 1: Descriptive statistics for all variables.

Variable	N	Range	Min	Max	M	SD	SE
Grade Point Average	247	3.83	.59	4.42	3.10	.77	.05
Age	342	6	12	18	14.79	1.31	.07
Orientation to Change	342	85	28	113	73.93	13.36	.72
Manner of Processing	342	47	8	55	30.82	8.09	.44
Ways of Deciding	342	43	10	53	31.93	7.51	.41
Outdoor/Mechanical	342	98	1	99	43.67	26.95	1.46
Science/Technical	342	98	1	99	53.56	28.77	1.56
Arts/Communication	342	98	1	99	52.39	28.80	1.56
Social/Personal Services	342	98	1	99	44.32	27.98	1.51
Sales Management	342	98	1	99	56.46	28.61	1.55
Business Operations	342	96	1	97	43.79	8.05	1.52

According to the Kuder Technical Manual Version 1.2, females tend to score higher on the art and human services categories while males tend to score higher on the mechanical categories. In addition, those who are younger in age tend to score higher on the art and science categories while those who are older score higher on the sales category. The trends found within the participants' scores seemed to be consistent with those reported in the technical manual. Students' average scores on each of the Six Kuder Career Clusters were also consistent with the reported means in the *Kuder Career Search with Person Match Technical Manual*.

Pearson correlations were computed between each of the three dimensions measured by *VIEW: An Assessment of Problem-solving Style* and the Six Kuder Career Clusters. Results of the correlations can be seen in Table 2. The correlation coefficients suggested the following:

1. With respect to Orientation to Change (OC), a significant relationship was found between the participants' score on Orientation to Change and the Kuder Sales/Management (Enterprising) Career Cluster;
2. Explorers displayed a greater preference for the Sales/Management career cluster than the Developers;
3. With respect to Manner of Processing (MP), a significant relationship was found between the participants' score on Manner of Processing and the Kuder Sales/Management (Enterprising) career cluster; and
4. Externals displayed a greater preference for the Sales/Management career cluster than the Internals.

Table 2: Correlations and Intercorrelations between VIEW and the Six Kuder Career Clusters.

Variable	1	2	3	4	5	6	7	8	9
Orientation to Change	-	.067	.079	-.002	.029	-.078	.084	-.172**	.069
Manner of Processing	-	-	.072	.021	.046	.029	.073	-.198**	026
Ways of Deciding	-	-	-	.183**	.243**	-.304**	-.245**	.120*	-.148**
Outdoor/Mechanical	-	-	-	-	.634**	-.599**	-.619**	-.048	-.395**
Science/Technical	-	-	-	-	-	-.585**	-.644**	-.193**	-.384**
Arts/Communication	-	-	-	-	-	-	.534**	-.157**	.108*
Social/Personal Services	-	-	-	-	-	-	-	-.492**	.192**
Sales/Management	-	-	-	-	-	-	-	-	-.081
Business Operations	-	-	-	-	-	-	-	-	-

$* p < .05; ** p < .01; *** p < .001$

With respect to Ways of Deciding (WD), significant relationships were found between the participants' score on Ways of Deciding and the Kuder Career Clusters. Task-oriented decision-making participants displayed a greater preference for the Kuder Outdoor/Mechanical (Realistic) Career Cluster, the Science/Technology (Investigative) Career Cluster, and the Sales/Management (Enterprising) Career Cluster. The Person-oriented decision-making participants displayed a greater

preference for the Kuder Arts/Communication (Artistic) Career Cluster, the Social/Personal Services (Social) Career Cluster, and the Kuder Business Operations (Conventional) Career Cluster.

Style Preferences and Vocational Interests

To examine style differences and career preferences, participants were grouped according to the hypothetical means in the distribution for each of the three dimensions. For the Orientation to Change variable, the participants' scores were coded as a 1.00 if they fell below the score of 72 and as a 2.00 if they were equal to or above the score of 72. Those who were scored as a 1.00 were placed into the Explorer group, and those who were scored as a 2.00 were placed into the Developer group. The descriptive statistics for the coded Orientation to Change and the Six Kuder Career Clusters can be found in Table 3.

Table 3: Descriptive statistics for orientation to change dimension coded and the six Kuder Career Clusters.

Variable	Orientation to Change	*N*	*M*	*SD*	*SE*
1. Outdoor/Mechanical	Explorer	138	41.79	28.05	2.34
	Developer	204	44.94	26.17	1.83
2. Science/Technical	Explorer	138	51.31	27.95	2.38
	Developer	204	55.07	29.29	2.05
3. Arts/Communication	Explorer	138	57.04	27.57	2.35
	Developer	204	49.24	29.26	2.05
4. Social/Personal Services	Explorer	138	43.78	26.56	2.26
	Developer	204	44.68	28.96	2.03
5. Sales/Management	Explorer	138	59.38	27.96	2.38
	Developer	204	54.49	28.93	2.03
6. Business Operations	Explorer	138	44.73	27.69	2.36
	Developer	204	43.15	28.34	1.98

For the Manner of Processing variable, the participants' scores were coded in a similar manner according to whether they fell in relation to the hypothetical mean of the distribution. The participants' scores were coded as a 1.00 if they fell below the score of 32 and as a 2.00 if they were equal to or above the score of 32. Those who were scored as a 1.00 were placed into the External group, and those who were scored as a 2.00 were placed into the Internal group. The descriptive statistics for this dimension can be found in Table 4.

Table 4: Descriptive statistics for manner of processing dimension coded and the six Kuder Career Clusters.

Variable	Manner of Processing	*N*	*M*	*SD*	*SE*
1. Outdoor/Mechanical	External	184	42.73	26.18	1.93
	Internal	158	44.76	27.85	2.22
2. Science/Technical	External	184	52.29	27.58	2.03
	Internal	158	55.03	30.12	2.34
3. Arts/Communication	External	184	52.26	27.93	2.06
	Internal	158	52.54	29.88	2.38
4. Social/Personal Services	External	184	43.53	27.86	2.05
	Internal	158	45.23	28.18	2.24
7. Sales/Management	External	184	60.33	27.53	2.03
	Internal	158	51.96	29.26	2.33
8. Business Operations	External	184	42.90	27.81	2.05
	Internal	158	44.83	28.39	2.26

Lastly, for the Ways of Deciding variable, the same process was completed in relation to where the participants' scores fell in relation to the hypothetical mean of the distribution. The participants' scores were coded as a 1.00 if they fell below the score of 32 and as a 2.00 if they were equal to or above the score of 32. Those who were scored as a 1.00 were placed into the Person-

oriented decision-making group, while those who were scored as a 2.00 were placed into the Task-oriented decision-making group. The descriptive statistics for this dimension can be found in Table 5.

Table 5: Descriptive statistics for ways of deciding dimension coded and the six Kuder Career Clusters.

Variable	Ways of Deciding	N	M	SD	SE
1. Outdoor/Mechanical	Person	166	39.94	26.53	2.06
	Task	176	47.19	26.93	2.03
2. Science/Technical	Person	166	49.11	29.28	2.27
	Task	176	57.75	27.72	2.09
3. Arts/Communication	Person	166	58.87	28.46	2.21
	Task	176	46.27	27.85	2.10
4. Social/Personal Services	Person	166	49.34	27.72	2.15
	Task	176	39.57	27.46	2.07
5. Sales/Management	Person	166	53.22	29.23	2.27
	Task	176	59.52	27.74	2.10
6. Business Operations	Person	166	46.83	27.38	2.13
	Task	176	40.93	28.45	2.14

Multivariate Analyses of Variance

Multivariate analyses of variance were computed with the Six Kuder Career Clusters as dependent variables and the three VIEW-coded groups, respectively, as the independent variables. To test Hypotheses 1 and 2, the Orientation to Change dimension was evaluated. The results indicated that a significant difference was found between the coded Orientation to Change dimension groups on the Six Kuder Career Clusters, $F(6, 335) = 2.35$; Wilk's lambda = 2.35, $p < .05$, partial eta squared = .04. To test hypotheses 3 and 4, the Manner of Processing dimension was evaluated.

The results indicated that no statistically-significant differences were found between the coded Manner of Processing dimension groups on the Six Kuder Career Clusters. Figure 3. The results indicated that a significant difference was found between the coded Ways of Deciding dimension groups on the Six Kuder Career Clusters, $F(6, 335) = 3.71$; Wilk's lambda = 3.71, $p < .001$, partial eta squared = .06.

Univariate Analyses

To further analyze the effects found within the multivariate analyses of variance, multiple univariate analyses were conducted. Table 6 shows differences between the Explorers and the Developers on the Six Kuder Career Clusters. Results of the univariate analyses indicated that a statistically significant difference was found with the Kuder Arts/Communication (Artistic) Career Cluster, $F(1, 342) = 6.12$, $p < .01$.

Table 7 shows differences between the Externals and the Internals on the Six Kuder Career Clusters. Results of the univariate analyses indicated that a statistically significant difference was found with the Kuder Sales/Management (Enterprising) Career Cluster, $F(1, 342) = 7.41$, $p < .01$.

Table 8 shows differences between the Person-oriented decision-makers and the Task-oriented decision-makers on the Six Kuder Career Clusters. Differences were found with the Kuder Outdoor/Mechanical (Realistic) Career Cluster, $F(1, 342) = 6.28$, $p < .01$, with the Kuder Science/Technology (Investigative) Career Cluster, $F(1, 342) = 7.86$, $p < .01$, with the Kuder Arts/Communication (Artistic) Career Cluster, $F(1, 342) = 17.10$, $p < .001$, with the Kuder Social/Personal Services (Social) Career Cluster, $F(1, 342) = 10.71$, $p < .001$, with the Kuder Sales/Management (Enterprising) Career Cluster, $F(1, 342) = 4.18$, $p < .05$, and with the Kuder Business Operations (Conventional) Career Cluster, $F(1, 342) = 3.81$, $p < .05$. These significant differences are consistent with the correlational analyses above.

Table 6: Univariate analyses for the orientation to change dimension coded with the six Kuder Career Clusters.

Variable	SS	df	MS	F	Partial	Eta	Squared
Power							
Outdoor/Mechanical	817.46	1	817.46	1.13	.00		.19
Science/Technology	1164.95	1	1164.95	1.41	.00		.22
Arts/Communication	5003.00	1	5003.00	6.12*	.02		.69
Social/Personal Services	65.77	1	65.77	.08	.00		.06
Sales/Management	1971.45	1	1971.45	2.42	.01		.08
Business Operations	205.47	1	205.47	.261	.00		.08

* $p < .05$; ** $p < .01$; *** $p < .001$

Table 7: Univariate analyses for the manner of processing dimension coded with the six Kuder Career Clusters.

Variable	SS	df	MS	F	Partial Eta Squared	Power
Outdoor/Mechanical	348.85	1	348.85	.48	.00	.11
Science/Technology	639.87	1	639.87	.77	.00	.14
Arts/Communication	6.77	1	6.77	.01	.00	.05
Social/Personal Services	244.29	1	244.29	.31	.00	.09
Sales/Management	5954.53	1	5954.53	7.41**	.02	.78
Business Operations	317.42	1	317.42	.40	.00	.10

* $p < .05$; ** $p < .01$; *** $p < .00$

Table 8: Univariate analyses for the ways of deciding dimension coded with the six Kuder Career Clusters.

Variable	SS	df	MS	F	Partial Eta Squared	Power
Outdoor/Mechanical	4487.45	1	4487.45	6.28**	.02	.71
Science/Technology	6379.40	1	6379.40	7.86**	.02	.80
Arts/Communication	13551.0 1	1	13551.01	17.10***	.05	.99
Social/Personal Services	8153.43	1	8153.43	10.71***	.03	.90
Sales/Management	3390.42	1	3390.42	4.18*	.01	.53
Business Operations	2972.87	1	2972.87	3.81*	.01	.50

* $p < .05$; ** $p < .01$; *** $p < .00$

Supplemental Analyses

Supplemental analyses were computed to determine if factors such as gender, age, academic achievement, ethnicity, and grade level were to be considered. With respect to academic achievement (grade point average and standardized test scores) there was a correlation between academic achievement for the eleventh graders (High School Proficiency Assessment Math) and the Manner of Processing Dimension, $r = .382$, n = 79, $p < .01$, as well as with the Ways of Deciding Dimension, $r = .225$, n = 79, $p < .05$. It was found that the eleventh grade students with an Internal and a Task-oriented decision-making style scored higher on the High School Proficiency Mathematics standardized test. There was a correlation between academic achievement for the eighth, ninth, and tenth grade students (New Jersey Assessment of Skills and Knowledge Language Arts) and the Manner of Processing Dimension, $r = .177$, n = 232, $p < .01$. Those students with an Internal style scored higher on the New Jersey Assessment of Skills and Knowledge Language Arts standardized test.

With respect to students' grade-point average, the following relationships were found to be statistically significant: grade-point average with High School Proficiency Assessment Mathematics, $r = .629$, n = 78, $p < .01$; grade-point average with High School Proficiency Assessment Language Arts, $r = .384$, n = 78, $p < .01$; grade-point average with New Jersey Assessment of Skills and Knowledge Mathematics, $r = .523$, n = 144, $p < .01$; grade-point average with New Jersey Assessment of Skills and Knowledge Language Arts, $r = .414$, n = 144, $p < .01$; and grade-point average with the Orientation to Change dimension, $r = .194$, n = 247, $p < .01$. These relationships can be interpreted as those students with higher grade-point averages (academic achievement) scored

higher on the standardized tests in both the language arts and the mathematics sections. In addition, those students with a Developer preference had higher grade- point averages.

With respect to gender differences, there was a statistically significant relationship between gender and grade-point average, $r = -.218$, n = 247, $p < .01$; females had higher grade- point averages than the males. A statistically significant relationship was found between grade- point average and age, $r = -.143$, n = 247, $p < .05$ and between grade-point average and grade level, $r = -.126$, n = 247, $p < .05$; as the students increase in age and grade level, there grade- point averages decreased. Lastly, a statistically significant relationship was found between gender and the Ways of Deciding dimension, $r = .189$, n = 342, $p < .01$. Males displayed a greater preference for the Task-oriented decision-making style while females displayed a greater preference for the Person-oriented decision-making style. There was a statistically significant difference in the Ways of Deciding dimension for gender (M= 30.38, females; M= 33.23, males), $t (340) = -3.557$, $p < .001$.

With respect to ethnicity differences, no statistically-significant differences were found. The descriptive statistics for comparison of the ethnicity groups for the three dimensions of *VIEW* can be found in Table 9. With respect to age and grade level differences, no statistically-significant correlations were found between age or grade level and the Six Kuder Career Categories and the three *VIEW* dimensions. After conducting a one-way analysis of variance on all Kuder Career Categories, the only statistically-significant difference was found with the Science and Technology Kuder Career Category, $F (3, 338) = 2.625$, $p < .05$. However, *post hoc* means comparisons showed no significant differences among the groups. Statistical power was only 64% for this difference. With respect to *VIEW* and age or grade differences, no statistically-significant differences were found.

Table 9: Descriptive statistics for comparison of ethnicity groups for three dimensions of VIEW.

Variable	N	M	SD	SE
Orientation to Change				
Asian	125	75.06	13.05	1.17
African American	13	68.08	15.78	4.38
Caucasian	47	72.38	13.80	2.01
Hispanic	125	74.01	12.93	1.16
Other	32	73.88	14.53	2.57
Manner of Processing				
Asian	125	32.06	7.97	.71
African American	13	31.15	8.14	2.26
Caucasian	47	29.96	8.21	1.20
Hispanic	125	29.90	8.20	.73
Other	32	30.69	7.81	1.38
Ways of Deciding				
Asian	125	32.13	7.81	.70
African American	13	30.15	4.90	1.36
Caucasian	47	33.53	8.13	1.19
Hispanic	125	31.65	7.02	.63
Other	32	30.63	8.05	1.42

Discussion

As described above, there is a substantial body of research on the connection between personality type and career interest. Certain personality characteristics or "types" have been correlated with early interest in and later choice, success, and/or well-being in certain careers. Various measures of personality and cognitive characteristics and styles have demonstrated these relationships. The implications of the results of all of these studies have been used to help individuals gain an awareness of their potential interests in and suitability for specific careers in vocational development and school- guidance programs.

With respect to the connection between one's problem-solving style, as measured by *VIEW: An Assessment of Problem-solving Style,* and one's career interest, as measured by the *Kuder Career Search with Person Match*, a number of significant relationships appear.

In the present study, Explorers had a greater preference for the Arts/Communication (Artistic) Career Cluster when compared to the Developers. This was predicted above, given the characteristics described as typical of Explorers during problem solving. But no statistically-significant differences were found for the other five Kuder Career Clusters.

With respect to the Manner of Processing dimension, Externals had a greater preference for the Kuder Sales/Management (Enterprising) Career Cluster when compared to the Internals. The Social cluster did not reveal a difference. However, given that Externals "take energy" from interaction with others, it may not be surprising that Externals preferred the Enterprising (Sales/Management) cluster, where individuals of that Holland type enjoy competitive environments and are described as "persuaders," leaders, sellers.

With respect to the Ways of Deciding dimension, it was found that the Person-oriented decision-makers had a greater preference for the Kuder Arts/Communication (Artistic). Career Cluster and the Kuder Social/Personal (Social) Career Cluster when compared to the Task oriented decision-makers, and it was found that the Task-oriented decision-makers had a greater preference for the Kuder Science/Technology (Investigative) Career Cluster. These results are consistent with the original predictions.

The Task-Oriented Deciders also had higher scores on the Kuder Outdoor/Mechanical (Realistic) Career Cluster and the Kuder Sales/Management (Enterprising) Career Cluster when compared to the People-Oriented decision-makers. The People-Oriented decision-makers had a greater preference for the Kuder Business Operations (Conventional) Career Cluster when compared to the Task-oriented decision-makers. Task-Oriented Deciders preferred more "doer-oriented" and "persuader-oriented" careers while People-Oriented Deciders appears to prefer the more "organizer oriented" careers.

Cautionary Factors

However, these last two comparisons, while statistically significant, achieved power levels barely above 50%. All other significant comparisons across all three VIEW dimensions achieved power levels of .69 - .99. Another cautionary factor is the coding method used in the analyses. While dividing styles by the hypothetical means of each dimension adheres to VIEW theory, it does allow for individuals with only small or moderate preferences to be grouped with individuals with stronger and more extreme scores towards the ends of each scale. Clearly, individuals with scores very near the hypothetical means may be considered as having little or no preference for a vocational category. Or, alternatively, one may hypothesize that individuals with small or only moderate preferences might change their preferences with increasing age, knowledge, or experience.

The correlations reflect similar results. With Orientation to Change, a small but significant negative correlation with the Sales/Management cluster suggests that Explorers have preferences in this category. A similar, small and negative correlation between Manner of Processing and Sales/Management suggests that Externals have preferences there. The Ways of Deciding dimension was significantly related to all career clusters. While People-Oriented Deciders appeared to prefer the Arts, Social/Personal Services, and Business Operations clusters, the Task-Oriented Deciders preferred the Outdoor/Mechanical, Science/Technology, and Sales/Management clusters.

An additional comment is warranted with respect to the Ways of Deciding relationships to Kuder and Holland scores. With this one VIEW dimension, it is worth noting that all six career cluster scores showed significant differences. Perhaps the VIEW and the Holland theories support

each result. On the other hand, perhaps the "clean sweep," so to speak, is also a function of the VIEW dimension, itself. Ways of Deciding is a measure of "deciding," after all, and answering the Kuder requires individuals to prioritize among several choices on each and every item. Any way you think about it, the individual is making decisions. That effort, itself, may be a reason that style differences were reflected in all six clusters. This hypothesis is deserving of additional research.

Supplementary Findings and Further Research Needed

The supplemental findings concerning gender, age, ethnic background, and academic achievement do not appear to invalidate the relationships between problem-solving style and vocational interests, but they do warrant future attention as research on style and career interests continues. Each of these demographic and achievement factors has a long history in educational research and the more we learn about their influence the better able we will be to plan and deliver effective instructional experiences to all learners. Overall, VIEW data from its current database of over 30,000 continue to not show gender differences, but there is insufficient data on differences, if any, among racial or ethnic groups. While some data in school settings suggest achievement is positively correlated with Developer, Internal, and Task-Oriented styles, certainly more research is needed to fully examine the effects of style and context, including different types of problem tasks and different types of achievement.

Conclusion

Several of the original predictions of VIEW styles and Holland's six career types were supported by the present data. In the case of Ways of Deciding, additional differences were also observed that appear consistent with VIEW theory. In conclusion, it may be proposed that problem-solving style and career interests are related and that increasing knowledge of each can be helpful to those involved in career development.

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Note:

About the Authors

Dr. Allison M. Johnson earned her doctorate in Educational Psychology and her Master's degree in Counseling and Personnel Services from Fordham University. Dr. Johnson currently works as a school counselor in a high school in Morris County, NJ and also is licensed privately in Bergen County, NJ (Dr. Johnson Counseling Services, LLC). She specializes in therapies for children, adolescents and adults and focuses on helping adolescents and young adults with issues related to relationships, coping/stress management, transition, body image, self-esteem, self-injury, and career development/exploration.

Margo A. Jackson, Ph.D. is Associate Professor and Chairperson of the Division of Psychological and Educational Services in the Graduate School of Education of Fordham University. Dr. Jackson received her PhD from Stanford University and served on the faculties of both Stanford and San Jose State University before returning to New York and Fordham. She has been training director in both university and community counselling centres, writes extensively in the areas of career development, multicultural counselling, and ethics and social responsibility. Her research includes both quantitative and qualitative methodologies. Her most recent school projects involve building higher education aspirations and opportunity for urban minority youth.

Edwin C. Selby, Ph.D., **a** retired music and theatre teacher, Dr. Edwin Selby is a Senior Associate at the Centre for Creative Learning in Sarasota, FL and an Adjunct Professor at Fordham University's Graduate School of Education. He lectures, offers workshops, and writes on creativity, style, and talent development. He is the principal author of *VIEW: An assessment of problem solving style*, and co-author of books on creativity, talent development, and problem solving style. He served as President of the Board of Directors of the Sussex County Teen Arts Festival and currently serves as board President at the Sussex County Charter School for Technology.

John C. Houtz, Ph.D., is Bene Merenti Professor of Educational Psychology in the Graduate School of Education of Fordham University, New York City. He earned his doctorate at Purdue University in 1973 under the direction of John Feldhusen. Dr. Houtz also is Research Fellow for the Centre for Creative Learning, Inc., a licensed psychologist, and has served two terms each as department chair and associate dean. He has taught and written extensively on creativity and problem solving, research methods, measurement, and statistic, and mentored more than three dozen doctoral candidates as well as undergraduate and Masters research projects in his 42-year career at Fordham.

Addresses

Dr. Allison Johnson;
Dr. Johnson Counseling Services, LLC;
19 Spear Road;
Ramsey, New Jersey, USA.

Dr. Margo Jackson; Dr. Edwin Selby; and Dr. John Houtz;
Graduate School of Education;
Fordham University;
New York, New York, USA.

e-Mail: jhoutz@Fordham.edu

Gendered Word (or World): Sexism in Philippine Preschool English Language Textbooks

Veronico Nogales Tarrayo

Department of English, Faculty of Arts and Letters, University of Santo Tomas

Abstract

Adhering to the notion that language learning is necessarily a culture-learning process, this paper explores the issue of sexism in six Philippine preschool English language textbooks. The study adopts the qualitative-quantitative approach in examining the following categories: gender visibility (illustrations), "firstness," occupational-role representations, character attributes, and interests and lifestyles. Data reveal that the textbooks seem to feature both genders; still, the males appeared more frequently than females in the illustrations of the textbooks. In terms of "firstness," males appear before females more often; this could imply that the textbooks seem to favour males, thus, appearing to be sexist. Also, females are far less visible than men in occupational roles. The occupational roles for females are less diverse and are restricted to stereotypical types of occupation/profession while male occupations show a wider range, thus, providing them with more options than females. Moreover, about the same number of character attributes is allocated to both genders. Females are usually attributed with their "good" looks and passivity; by contrast, males show aggression, dominance, and activity. In the textbooks analysed, the number of interests and lifestyles of females is higher than those of males. However, the females are more particularly represented in indoor activities, i.e., household chores. This paper likewise discusses the implications of the findings for language teaching and learning.

Introduction

There was a time when learning to play sex roles was so much a part of growing up that no one regarded it as a problem. There were culturally approved and prescribed ways for boys and girls to think, to act, and to feel (Myers, 2005). As children passed from babyhood to childhood to adolescence and finally to adulthood, they learned to play these prescribed roles as well as everything else that was considered necessary for a successful adjustment to the pattern of life for their age levels. By the time they reached childhood, they knew exactly the pattern of life that would be for them – the girls would be a good wife and a mother, the boys would be a responsible husband and a father.

People are classified in different ways, yet the easiest and oldest way is to categorize them into man or woman. For the longest time, stereotypes have developed about genders, such as approved appearance (e.g., body build, facial features, and clothes), patterns of behaviour, speech and ways to express feelings and emotions, means to earn a living, and many other qualities. Once formed, these stereotypes act as standards by which each individual is judged by members of the social group to be gender appropriate or inappropriate. Since the time of Adam, man has enjoyed an elevated position in the home, in the workplace, and in society while the woman has been viewed as a mere housekeeper, proud of her man's success outside the home. The woman's place is the home; the man's place is the board room.

As true to all stereotypes, sex-role stereotypes were not built overnight. As new facts were added to the stereotypes based on what members of the social group believed to be true about the differences of the sexes, beliefs about approved patterns of behaviour for the two sexes covered more

and more aspects of their lives. For instance, in the area of appearance, there are approved patterns for grooming, hairstyles, and clothing for the two sexes. Clothes that symbolize abilities to do things are regarded as appropriate for males and those that symbolize dependency − inability to walk long distances because of high heels, or engage in hard work because of fragile clothes − are approved for females. From earliest babyhood, play materials and play activities are different for the two sexes. There are boys' toys and girls' toys, boys' books and girls' books, boys' games and girls' games, and the like.

Even when children of both sexes are educated in the same schools, certain school subjects are regarded as more appropriate for one sex than for the other. Hurlock (2001) cites in her book *Developmental Psychology* that boys are encouraged to concentrate on the sciences and mathematics while girls are expected to be more knowledgeable on languages and the arts. In the area of emotions, it is assumed that girls are more emotional than boys; boys, on the other hand, are more emotionally composed. Boys are also more associated with unpleasant emotions like anger and fear while girls are stereotyped to have pleasant emotions like affection and joy. Hurlock (2001) adds that the typical feminine personality is often geared toward passivity, dependency, and compliance. In contrast, the typical masculine personality pattern is that which shows aggression, dominance, and activity.

Gender stereotypes are not only seen in the actions and expectations of parents, teachers, and peers in the society but are also magnified in language, literature, and fiction. According to Macaulay (1996):

> Such stereotypes are often reinforced in fiction. Since little information about the prosodic features is contained in the normal writing system, novelists frequently try to indicate the tone of voice by descriptive verbs and adjectives to introduce dialogues. An examination of several novels revealed an interesting difference between the expression of men's and women's speech. (p. 436)

Table 1: Descriptive introductions used in dialogues of men and women in novels.

Men	Women
said firmly	said quietly
said bluntly	asked innocently
said coldly	echoed obediently
said smugly	said loyally
urged	offered humbly
burst forth	whispered
demanded aggressively	asked mildly
said challengingly	agreed placidly
cried furiously	smiled complacently
grumbled	fumbled on
exclaimed contemptuously	implored
cried portentously	pleaded

English, like any other language used by a particular culture, is telltale evidence of the values and beliefs of that culture.

Sexism in English is perceived in its vocabulary and its grammar. Here are some examples:

- Generic masculine pronoun (Every student has to submit *his* project.);
- Word connotations (*call boy*, call actors before they go on the stage versus *call girl*, a prostitute; *woman* with sexual connotations as in "She's his woman");
- Masculine-derived expressions like "manning the space shuttle," "manning the phones," "sportsmanship," "penmanship," and "doing a man-sized job";
- Masculine word first (Mr. and Mrs., boys and girls, his and hers, guys and dolls, he or she);
- Compelling women to define themselves as "Miss" or "Mrs."; and
- Using negative words for sexually expressive women but not for sexually expressive men (bitch, harlot, tart, whore, slut versus stud or male prostitute).

In the traditional language classroom, students have been oriented to use masculine nouns and pronouns in cases when the gender of a subject is unclear or unidentifiable, or when a group they refer is composed of both males and females. However, in the past decades, a great change has taken place in the lives of women. This upheaval liberated the woman who has been chained to the kitchen sink for years. It sent her out of the home where she was a mere housewife and babysitter. She still attends to her domestic chores, but she now has a career to balance her old responsibilities. Many working mothers double as government officials, journalists, social development workers, engineers, and the like. Nowadays, more and more women take on roles previously perceived for men only. This reality influenced how writers, teachers, and students have reconsidered ways in expressing gender identities and relationships. According to The Writing Center of the University of North Carolina (2012), "writers today must think more carefully about the ways they express gender in order to convey their ideas clearly and accurately to their readers" (para 1). Thus, this allows for the use of more "creative" (emphasis, mine), gender-sensitive or gender-neutral expressions, such as *person* or *individual* (man), *first-year student* (freshman), *people* or *humanity* (mankind), *artificial* or *machine-made* (man-made), *postal worker* or *mail carrier* (mail man), and *chair* or *chairperson* (chairman).

Research on linguistic sexism and gender-role stereotyping has shown that there is a strong gender bias in textbooks (Malik & Ayaz, 2010; Bahiyah Abdul Hamid, Mohd. Subakir, Kesumawati Abu Bakar, Yuen Chee Keong & Azhar Jaludin, 2008; Saeed Paivandi, 2008; Liew, 2007; Blumberg, 2007; Otlowski, 2003). In an attempt to address the issue of how school textbooks instill sexism and sex-role stereotyping at a young age, Bahiyah et al. (2008) found that females are still depicted as playing a supporting role to males. Males are depicted as more active than females, and females are associated with stereotypical gentle roles; thus, the gender representations do not mirror the changing realities of the Malaysian society at present.

In 2003, Otlowski explored gender bias as reflected in English as a Foreign Language (EFL) textbooks in Japan to emphasize the importance of textbook selection for EFL students with regard to gender representation in a specific culture. In most cases, he found that in EFL textbooks, women are stereotyped as mothers and homemakers. The study also found that the conversations and illustrations in the textbooks do not mirror the current roles of women in their society, thus, still depicting the stereotypes of man and woman. Sexism seems to be found in English grammar as well. Macaulay and Brice (1997), for instance, analyzed a grammar reference book and discovered that females appeared slightly more often as direct objects (43%) than as subjects (41%) while males appeared much more often as subjects (84%); hence, gender bias and stereotyping appears to be prevalent in syntax textbooks.

Adhering to the notion that language learning is necessarily a culture-learning process, this paper explores the issue of sexism in six preschool English language textbooks published in the Philippines. The study seeks to provide answers to the following questions:
1. How is sexism portrayed in the local preschool English language textbooks based on the following categories: gender visibility (illustrations), "firstness," occupational-role representations, character attributes, and interests and lifestyles?; and
2. What are the implications of these findings about sexism in textbooks on language teaching and learning?

Theoretical Framework

Apparently, language sets the stage for the development of self-conscious behavior and thought. Through language, people conceptualize their ideas and feelings about the world around them. Language allows humans to make sense of objects, events, and other people in the environment; thus, language is a mechanism through which people perceive the world (Sapir, 1949 as cited in Montgomery, 1995).

How does language promote certain points of view or versions of reality? According to Halliday (1994), people represent the world through language by choosing words that represent people, things, or concepts. Words are never neutral; they always represent the world in a certain way, and for this reason, language always, to some degree, promote a particular *ideology*.

As children read, they are exposed to the cultural symbols contained in the textbooks. This proves that language learning is necessarily a culture-learning process. Children's books are a microcosm of ideologies, values, and beliefs from the dominant culture, including gender ideologies and scripts. Learning to read forms part of the socialization process and of a mechanism through which culture is transmitted from one generation to another. Although language plays a critical role in the socialization of children, it can also be "a primary factor through which gender biases are explicitly and implicitly perpetuated" (McClure, 1992, p. 39). In support of this belief, Kabira and Masinjila (1997 as cited in Sydney, 2004) argues:

> …writers of textbooks create a human world in which children learn about what people do and how they relate to one another. It is this second part of humanizing effect of textbooks that if not handled carefully could lead to the discrimination of some categories of learners and in this case a discrimination that is based on gender role stereotyping (p. 13).

As early as age four, children begin to understand gender as a basic component of the self. Literature affirms that many masculine and feminine characteristics are not biologically programmed at all; they are acquired. For instance, the gender schema theory explains that youngsters develop a sense of femaleness and maleness based on gender stereotypes and adapt and adjust their behaviour around them (Bem, 1981; Eagly & Wood, 1999). Thus, children's books may be a source of gender stereotypes that children use to organize gendered behaviour.

Method

The study used the qualitative-quantitative approach in examining the sexism issues and concerns depicted in six locally published preschool English language textbooks (i.e., nursery, kindergarten, and preparatory) in 2011 by two publishing houses. Since the study dealt with the delicate issue of sexism in textbooks and based on an agreement, the anonymity of the two publishing houses was assured. Bahaya et al. (2008) stressed that textbooks play a critical role in the formation of cultural and social values as far as gender relation is concerned; therefore, it is important for the researcher to investigate the textbooks used for the preschool level. A detailed content analysis was done to identify and examine the contents and the language used to show the occurrences of sexism and sex-role stereotyping in the corpora. The following categories were covered in the analysis: gender visibility (illustrations), "firstness," occupational-role representations, character attributes, and interests and lifestyles. Two independent coders were asked to code one-third of the study corpora.

Results and Discussion

The first aspect of sexism examined in the textbook is gender visibility, and the study conducted an analysis of the gender representation in terms of the number of female/male characters. For instance, when females do not appear more often than males in the text (as well as in the illustrations that reinforce the text), the implied message is that women seem to be not that important enough to be included.

Table 2: Number of female/male characters illustrated in the textbooks.

Gender	Number of Characters	%
Female	935	49.16
Male	967	50.84
Total	**1,902**	**100.00**

The total number of female and male characters is 1,902; 935 of whom are female (49.16%) and 967 are male (50.84). The textbooks, thus, seem to feature both genders, with a slight margin or difference of 1.68%. Still, the males appeared more frequently than females in the illustrations of the textbooks.

Another aspect of sexism investigated in the textbooks is termed "firstness" or masculine-word first, such as *boys and* girls, *his and* hers, *guys and* dolls, and *he or* she. Hartman and Judd (1978) examined the order of mentioning of two nouns paired for sex, such as *Mr.* and *Mrs.*, *brother* and

sister, and *husband* and *wife*, and discovered that the masculine word always comes first. They argue that "such automatic ordering reinforces the second-place status of women…" (p. 390). In addition, when a male and a female are mentioned, the male is almost always put first (There is no real reason to say "John and Mary" when "Mary and John" would convey the same message.).

To further explore this issue, the present study analysed the instances in the textbooks in which two genders are mentioned together in tandem and checked which appears first.

Table 3: Gender "firstness" in the textbooks.

Gender	Number of Characters	%
Female	35	42.68
Male	47	57.32
Total	**82**	**100.00**

In terms of "firstness," males appear before females more often (M:F=47:35), with a difference of 14.64%. This could imply that the textbooks seem to favour males, thus, appearing to be sexist.

The following are examples of the "firstness" issue: Dialogue: [Enzo and Bel are talking to each other, telling something about themselves.]

Hello! My name is Enzo Cruz. I am five years old. I study at Divine Light Academy. I am in Kinder, section Hope.

I am glad to meet you. I am Bel Perez. I am five years old. I study at Joy Learning Centre. I am in Kinder, section Faith.

A poem – "I Love Them All"
Father, strong and tall,
Mother, sweet and prayerful,
Brother, bright and helpful,
Sister, caring and beautiful,
Baby, cute and playful
My happy family,
I love them all.

 (A grammar lesson)
Remember
Father, mother, brother, sister, and baby are names of persons. Names of persons are nouns.
Sample sentences for the lesson on pronouns:
Father, mother, and I go to the mall.
The janitor (picture of a male) and the street sweeper (picture of a female) keep places clean.

A chant: "Tomorrow, Tomorrow" (for the lesson on future tense of actions words)
Boys:　When I grow up,
　　　　I will work hard.
　　　　I will be good
　　　　Just like my dad.

Girls:　When I grow up,
　　　　I will be charming
　　　　I will be pretty.
　　　　I will be caring.

Boys:　When I grow old,
　　　　I will have grandbabies.

We will play in the yard.
I will tell them stories.

Girls: When I grow old,
         I will have grandbabies.
         I will teach them to darn
         And bake them some cookies.

Table 4: Occupational-role representations of females and males in the textbooks.

Female	Male
teacher, nurse, street sweeper, housekeeper, school principal, librarian, storekeeper, office worker, dressmaker, pharmacist, market vendor, beautician, baker, policewoman	driver, teacher, baker, barber, doctor, policeman, fireman, dentist, priest, janitor, mailman, school principal, nurse, carpenter, plumber, security guard, garbage collector, market vendor, shoemaker, farmer, writer, politician, office worker, butcher, fishermen
Total: 14	**Total: 25**

Another reflection of sexism in textbooks is the portrayal of males and females in occupational roles. Females are far less visible than men in occupational roles. In the textbooks analysed, the number of occupations allocated for males is higher than those of females (F:M =14:25). The occupational roles for females are less diverse and are restricted to stereotypical types of occupation/profession while male occupations show a wider range, thus, providing them with more options than females. Likewise, the males seem to be associated with more-paying and high-status jobs than females. Occupations for females are often restricted to service jobs, such as housekeeper, office worker, dressmaker, market vendor, beautician, and nurse, occasionally including a token professional job, such as school principal or policewoman.

Nair (2009), in his content analysis of gender representation in Malaysian children's literature, found that male characters are more likely to be portrayed as belonging to positions associated with the upper-class society, like kings and princes. Males are more frequently appropriated with prominent positions of authority and power than female characters.

Table 5: Character attributes of females and males in the textbooks.

Female	Male
kind, pretty, happy, sad, tall, short, beautiful, quiet, graceful, slim, stout, neat, lovely/lovable, polite, cheerful, charming, caring	busy, handsome, sad, mad, tall, short, stout, thin, young, cute, friendly, neat/tidy, strong, good
Total: 17	**Total: 14**

About the same number of character attributes is allocated to both genders (F:M = 17:14). Females are usually attributed with their "good" looks and passivity, such as pretty, beautiful, lovely/lovable, charming, graceful, quiet, polite, and caring. Although males are characterized as handsome and cute, by contrast, they show aggression, dominance, and activity, with attributions like busy, mad, and strong.

Ernst (1995) in his book *Gender issues in books for children and young adults* describe girls and females as sweet, naïve, conforming, and dependent.

In the textbooks analysed, the number of interests and lifestyles of females is higher than those of males (F:M = 16:12). However, the females are more particularly represented in indoor activities, i.e., household chores. Women cook, bake, clean, polish, mend, sew, and wash. If men are assigned household tasks at all, they consist, without exception, of painting, gardening, repairing malfunctioning appliances or automobiles, or taking out the garbage. This confirms Walters's (1985) findings on gender roles in the media. He found that men are likely to be advertising a car or a brand company whereas women are mainly shown as housewives and mothers. Men are likely to be shown outdoors in a suit and in business settings while women are seen wearing aprons in household settings.

Table 6: Interests and lifestyles of females and males in the textbooks.

Female	Male
play in the community, help in the community, sing, read, go to the school library, write in school, listen in school, dance, pray, wash clothes, cook/bake, sweep the floor, brushing her hair, arranges the tables and chairs, reads stories to children, sew/darn dresses	play basketball, jog, swim, clean in the community, drive a motorcycle/car, go to the school library, read in school, colour, write, water the plants, watch TV (a basketball game), saw a wood, go to office
Total: 16	**Total: 12**

Conclusion

According to Fromkin and Rodman (1993, as cited in Bahiyah et al., 2008), "language reflects sexism in the society. Language itself is not sexist… but it can connote sexist attitudes as well as attitudes about social taboos and racism" (p. 306) Therefore, it is clear that language is not neutral; it is moulded and influenced by cultural norms and perceptions of people about how the world should be seen.

The local preschool English language textbooks analysed in the study revealed linguistic features and symbols that are sexist. Gender bias mirrored males as more dominant than females, i.e., the males appeared more frequently than females in the illustrations of the textbooks; in terms of "firstness," males appear before females more often; females are far less visible than men in occupational roles, and males seem to be associated with more-paying and high-status jobs than females; and females are usually attributed with their "good" looks and passivity while males are attributed with strength and aggression.

Pedagogical implications arise from the study. One is the crucial role of the teacher in preventing gender discrimination from sneaking into the classroom. Although the analysed textbooks revealed gender biases, the teacher could deal with such issues more appropriately in the classroom. For example, when constructing sentences for illustrations of a lesson, they should review their own writings (and pictures) for the sexual attitudes they depict. In textbook writing, these questions may be considered:
- Are remarks, especially those demeaning to sex as a class, avoided?;
- Are both men and women shown in a variety of roles, e.g., are men shown with children doing dishes, cooking a meal, and the like?;
- Are women depicted as strong and active, not just pretty and affectionate?; and
- Are sex-linked or sexist terms, such as *poetess*, *janitress, lady lawyer*, and *policewoman* avoided?

Studies on sexism in textbooks can help language teachers in choosing their teaching materials. Although linguistic contents is a prime consideration, the potential effects of explicit and implicit sexism in textbooks should not be underestimated, for it can influence the development of learners. Finally, since one goal of teaching English is to help learners gain personal control over language in

the eventual fulfillment of their potentials, then the teacher should always be sensitive and cautious of sexism and gender bias in the learning environment.

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About the author

Veronico N. Tarrayo is pursuing his Ph.D. in English Language Studies degree at the University of Santo Tomas (UST). He is teaching at the UST Faculty of Arts and Letters. His subject and research interests include the Teaching of English as a Second Language (TESL), discourse analysis, rhetoric, intercultural communication, and women's literature.

e-Mail: sirnico_tarrayo@yahoo.com

Reclaiming Youth and a Possible Paradigm Shift

Donna L. Johnson
University of Winnipeg, Winnipeg, Manitoba, Canada

Abstract

Within a systemic view of the ontological world, we can view the effects of choices, thoughts and behaviours. Using the Socratic method of inductive reasoning and illustrating the interrelatedness we have with others such as at-risk youth, and inviting new thoughts regarding commonly held societal views and beliefs regarding those relationships, we can make connections between seemingly unconnected things that can have the power to influence our views of the world. Blending the science of quantum physics and the science of compassion, we can attend to the multitude of connections between people and the effects of their interactions. When doing so, we can view the connectedness to all things including those that are seemingly not a part of us. In viewing people in this way, one gains a substantial attribute of connectedness and impact on our interactions.

Introduction

Connections with others and our relationships with them are the backbone of an alignment with ourselves. Each person fuels our beliefs about our world. We learn and take on our beliefs from many people, from family, to everyday people we encounter, and most we take on when very young and unaware of the later impact. The beliefs that we have about ourselves shape who we are. They are the fabric of our world, and our interactions with others are the fallout. They are the internal workings of our lives, the program if you will. How deeply does this go?

In this paper, I will attempt to make connections between many things that are seemingly not connected and yet they are; for if those connections can be made, it will be a small step for us to connect with others who seem to be so different from ourselves. I will show, how, through connections unseen, the importance of viewing our world with compassion. For in doing so, we are all enhanced. We can all make a difference in our lives and in the lives of others. For what we do for others, we do for ourselves. The science of quantum physics connects us to the unseen threads between people and the compassion that is necessary in viewing our world. In doing so, I will strive to illustrate the importance of the invaluable connections that are needed towards some of our most vulnerable, our troubled and at-risk youth. Some youth lash out at the world in various ways while others turn inwards, forging a pit of despair. What can we do? We can examine our beliefs about ourselves and our world and how they impact our relationships with those around us. Then, we can examine how those beliefs contribute to our views of those we encounter on an everyday basis, and the role that compassion plays in expanding our worldview.

Connections within People

The relationships we have with others can reveal the relationships we have with ourselves. If there is a part of us that we reject in some way, there is a possibility that part will be represented by someone we meet and do not like. Others become mirrors for us and can reflect back to us who we are. This includes reflections of our beliefs. Braden (1997) has written extensively on the mirrors of relationship and how each forges a path for us towards understanding ourselves more fully.

Further, Lipton (2005) has described the intricate nature and the internal threads of our very DNA as being connected to the power of our unconscious and conscious minds and linked to include quantum knowledge in multidimensional layers. Those layers include who we are as multilayered beings. The qualities of us include much more than simple matter and

mere biology. We are a combination of thoughts, feelings, beliefs, viewpoints and layers of multicellular and interconnecting energy fields. Each one of these elements can have an affect on the others. In a simple biological format, each cell connects with many other adjacent cells in an entangled network of connections. Yet, if we apply quantum physics to this equation, the system expands to include a flow of information in all directions, creating a holistic complexity. These are elements of quantum physics and have been written about and studied for decades by many theorists including Einstein.

In contrast, in classical Newtonian physics, the paradigm exists where there is the understanding that one thing acts upon another leading to the following equation: A -> B-> C, which is a linear graphic and perspective. There is so much more according to Einstein's theories of quantum physics.

Einstein revealed that we do not live in a universe with discrete, physical objects separated by dead space. The Universe is *one indivisible, dynamic whole* in which energy and matter are so deeply entangled it is impossible to consider them as independent elements (Lipton, 2005, p. 102). This is a quantum view of the connectedness that we are a part of.

A quantum view introduces multidimensionality, where an expansion of understanding is necessary as it includes our thoughts and beliefs and their affects upon others and ourselves. Our beliefs about our world and ourselves present themselves to us and to others every day. One thing affecting another in a myriad of ways has the capacity to have an effect upon the outcome, in many ways and over time. The simple act of helping another can have far reaching effects not only for the other person but also for ourselves. For as we are connected, the effects move in many directions, including in ours. Therefore, what we do for others we do for ourselves.

Evidence of Connections
The Pygmalion Effect. The Pygmalion Effect (Rosenthal & Jacobson, 1968; Rosenthal, 1985, 1991, 1994) is another means by which to view the interactions between others. "When we expect certain behaviours of others, we are likely to act in ways that make the expected behaviour

more likely to occur" (Rosenthal and Babad, 1985, p. 36). This means that our beliefs and expectations about others can come across with the effect of either helping or hindering. There is a feeling that is sent in verbal and non-verbal cues regarding the expectation towards others (Woolfolk & Brooks, 1985). White & Locke (2000) reflected that this "effect operates subconsciously and is therefore out of conscious control" (p. 390). These are reflections of the beliefs that permeate our being and can have an effect on others.

Emoto (2003, 2004a, 2004b, 2005, 2006a, 2006b, 2010) stated that he photographed many images of water that had been acted upon by various intentional emotions such as 'Love and Gratitude' and words like 'Thank you' and 'Fool'. Each revealed clear images of the effects on the water. The positive emotions and words were described as beautiful and exquisite. Negative words and emotions created malformed crystals.

Emoto (2004a) described "the spirit of words" (p. xxvi) as a Japanese belief with the effect of the words' vibration having either a positive or negative effect. If simple water can be changed when negative or positive words are used, there is now evidence of effects that we actually have control of. With the human body being composed of about 75% water (Hwai-Ping, S., & Huggins, R., 1979), the possibilities are enormous. Therefore, promoting compassion and gratitude with intention, through verbal and non-verbal means towards others, has the capacity to form bonds of connection between them.

Quantum Theory
This Pygmalion effect is very real as how people view others has an effect upon what or who is viewed and our expectations; verbal or nonverbal effects have an effect upon others. The verbal effects are easier to quantify. Can we utilize quantum physics theory to explain the energy that we "send" out to others via an invisible entanglement web? The Copenhagen Interpretation described quantum theory in terms of wave and particle functions and behaviour and has been studied since the 1920s, most notably by Bohr and Heisenberg. Stapp (1972) discussed this at length in terms of quantum theory. Orion & Laitman (2010) explained

clearly the particle-wave-duality of energy where energy can be both a particle and a wave. What is novel though is their interpretation, that the observer of the experiment has an effect on the outcome denoted as the "Participatory Anthropic Principle . . . . there is no way to separate between the experiment and the observer, which gives an air of 'You see what you decide to see' to the whole physical reality" (p. 91). This effect on a quantum level includes the smallest particles of energy. Physicists have documented this phenomenon again and again. If the smallest particle can be affected by viewing it, we, as a collaboration of billions of particles can be affected by how we are viewed; therefore, every one of the particles is important.

The Butterfly Effect. The butterfly effect is another piece of evidence, which can be understood to be "that tiny changes in initial conditions can lead to big changes in a later outcome" (Braden, 2000, p. 104). This evidence suggests a connection between the small steps we take and the effects that take place later on. Yet, the effects can be understood to be in a multitude of quantum directions. Physicists have described the possibilities to include parallel universes (Ryan, 2006; Schwartz, Stapp & Beauregard, 2005) whereby each choice, decision, thought and feeling continues in quantum directions with their accompanying effects. We may not fully be aware of the effects, yet this is the premise of the butterfly

effect. A person's intention, according to these theories, can have far reaching consequences. If this is so, we may have the capacity to experience and witness the effects years later. The old adage, "what goes around, comes around" surfaces here. What we put out to the universe comes back to us in so many ways. Usually we forget a choice or decision we have made unless it is significant. Yet, all have a trajectory or movement. For example, in the movie, Gladiator (2000), Maximus played by Russell Crowe, utters the words, "What we do in life, echoes in eternity." This illustrates the echoes of our choices, thoughts and behaviours for an ontological and multidimensional viewpoint.

For if we decide that we like someone, or wish to help them in some way, our thoughts and behaviors towards them will move further in that direction, creating a positive momentum for change and a relationship of connectedness, that, multidimensionally, forges feelings of well-being and compassion for both giver and receiver in many directions that we are either foreign to or unaware of. That is a basic primer of quantum theory. We reap what we sow and gain the benefits of doing for others because we are all connected. The law of cause and effect applies here. The connections and changes that can occur are staggering. We can all make a difference. This is a belief that can alter our interactions with others and have an affect on those who want to change.

Systemic Views

Smith (1990) discussed this further in terms of physics and the dynamics of the map of effects. Perhaps it would be useful to view it in terms of a system, even though we might not be fully aware of the full array of possibilities within that system. Perhaps it is a multidimensional system that Einstein and others have attempted to describe in various experiments; the quantum connections that are invisible to many, and yet have been experienced in many ways. Perhaps there is a time delay that hasn't been fully measured or understood in terms of the visible effects of changes. Perhaps then, there is an element of faith that needs to be a part of making changes or affecting the system itself. But that is my conjecture. Einstein's insight that "the significant problems we face cannot be solved at the same level of thinking we were at when we created them" (Lueddeke, 1999, p. 240) leads me to believe that if things are to change, we need to understand more fully how to make changes in ourselves, which will have the capacity to change the world around us, for we are the only ones that can do the changing.

Our Beliefs

Why is this important in terms of beliefs? We can change them. It is the internal structure of the very fabric of who we are – which is much greater than we have ever imagined including any positive and negative emotions having the capacity to affect our bodies. If, in a drop of water, as Emoto (2003, 2004a, 2004b, 2005, 2006a, 2006b, 2010) found there can be change when positive

thoughts and emotions are processed, the shifts that can affect our entire bodies when we change our negative thoughts and beliefs within us to positive ones, can be transformative.

We are quantum beings ourselves, which leads to the need to re-view how we see ourselves and treat others. For example, if we believe ourselves to be in survival mode, we will clamour to get what we need for ourselves, stepping over others, forgetting that it is our beliefs that forge the shoes with which we do so. And with this belief there would be the absolute need to fight for what we need instead of the understanding that it is the belief in ourselves that we took on internally that moves us to behave in such a manner. We need to understand ourselves to be beings who exist beyond the flesh, and look to the innermost parts of who we are – creators of our lives and connected to others.

In viewing ourselves in this empowering way, we may come to the realization that if we have taken on beliefs about ourselves, we have the capacity to change those beliefs, to get to the core of all regarding self-worth.

System of Social Interactions

Beliefs abound surrounding this core worthiness system. Our system of social interactions seemingly revolves around enticing people to like us – if not, we reshape ourselves to become more pleasing and likeable. Underlying this is the fear, sadness and anger that follow – for remodeling ourselves into something we are not confuses ourselves and others and we do this unconsciously, forgetting the core belief that beguiled us to begin this journey of redefinition.

Our beliefs according to Lipton (2005) become a part of us, integrated and entangled into our circuitry so that we become triggered by old patterns, decisions and beliefs with the accompanying emotions. We rarely understand where they come from. Intellectually, we can understand them at a surface level only. Yet, the biological basis and the quantum make-up, remain.

Can this change? Of course. We are creators. If the answer was no, neuroplasticity would be invalid and change would be at its most simplistic level. Can we help ourselves? Yes, we can view ourselves differently and by doing so we can recreate ourselves.

Survival Mode

What has this to do with children and youth at-risk? Perhaps they have grown up with challenging histories, some of whom have beliefs about themselves and others that have contributed to their present state. We need to be clear about whom we are on a societal level to assist in creating change. For when we change ourselves in the inner world, we change the way we respond to others. When youth grow up in a belief system of not feeling good enough, or not worthy of enough compassion, food, attention or care, the needs will still be there; but they will be fulfilled in other ways, by taking what they need in any manner, to fill the bucket of emptiness.

Lipton (2005) shared this way of thinking in terms of children's growth. In discussing brainwave patterning, he has written:

> Between birth and two years of age, the human brain *predominantly* operates at the lowest EEG frequency, 0.5 to 4 cycles per second (Hz), known as *Delta* waves. Though *Delta* is their predominant wave activity, babies can exhibit periodic short bursts of higher EEG activity. A child begins to spend more time at a higher level of EEG activity characterized as *Theta* (4-8 Hz) between two and six years of age. . . . This gives us an important clue as to how children, whose brains are mostly operating at these same frequencies between birth and six years of age, can download the incredible volume of information they need to thrive in their environment. . . . Young children carefully observe their environment and download the worldly wisdom offered by parents directly into their subconscious memory. As a result, their parents' behaviour and beliefs become their own. (p. 163)

From this information, we can see that those around them can profoundly affect children when they are young.

Systems in Schools

What societal beliefs do we carry and persist about youth, their social interactions and how do we get what we want or need in the world? These are beliefs regarding how to move within the world. There are many texts that have been written over the decades about how to be successful which have as their underlying themes a map for success, for example, Robbins (1986; 1991). The derivatives of those tenets are within the educational systems and surround the internal culture of schools.

The beliefs of administration and teachers have the capacity to lay the groundwork and foster or hinder the development of the internal climate of schools. McCluskey (2000) discussed the importance of the relationship within schools among teachers, administrators and students, which included the elements of trust, freedom and autonomy as being of utmost importance. Within that model, movement forward can be expected. This is a paradigm shift from a power and control model, to one that includes compassion for others, with the inherent connectedness that has been previously discussed in this article.

As well, in learning, one may try out new innovations and find a need to make adjustments along the way, as change has its own process. The culture that accepts it with adults, can promote it with students. The social cost of power and control can be debilitating, for if one is required to be other than who they are and relinquish or hide their talents and gifts that they have come to the world to share, one becomes a slave to the manner in which the organization works.

A New Paradigm

There is a new way, a softer, gentler way of teaching, utilizing creativity, and the innate curiosity of people to understand their world more fully. A culture that fosters a search for innovation has the capacity to create the building blocks of change. As all ways of knowing and understanding our world are important and valid.

How do we begin? We can start by listening to each other, sharing ideas and creating a climate of support in trying new things, taking a risk in making mistakes and learning from them. Nary has there been any innovation that didn't have its first few attempts described as speed bumps. Perseverance and persistence in trying something new or in viewing something in a new way can begin with one person who finds another and work together to create change. A belief in change needs to be present, and a belief and willingness to stumble and retry without judgment is of utmost importance. Within this culture of fairness and an egalitarian format, it is possible to change, with the added inclusiveness of diversity and culture.

Reclaiming Our Youth

Returning to reclaiming our at-risk youth – perhaps they could be viewed as the canaries in the cave – as a litmus test of what can happen when outside influences impact their lives in ways that need to be understood with compassion. For if there is a sense of separateness that people in society perceive between themselves and others such as at-risk youth, the element of judgment comes into play, which reinforces those feelings of difference. Perhaps these youth can be the indicators of how far astray we have gone from connectedness to separateness. One needs to remember that we all come from the same stuff. "Buddhism holds the basic premise that, at the most fundamental level, there is no qualitative difference between the material basis of the body of a sentient being, such as a human and that of, say, a piece of rock . . . . [and that] the atoms in our body once belonged to stars far away, in time and space" (The Dalai Lama, 2005, p. 97). We are connected in so many ways. The first step is to educate those who can nurture the development of students to include success within a framework of knowledge, with the capacity to enliven a system that has historically had as its model, a factory ideal of conformity and sameness.

If, as observers, we can have an effect on what is observed and if our intentions and beliefs are in an entangled state within us, then our beliefs can affect what we observe. Further, if our beliefs and

intentions about people can have an affect on them, we need to be cognizant of what we put forth. For if we believe we are born of the same "stuff" as others, then others are born of the same "stuff" as us, and Euclid's axiom of "things that are equal to the same thing are also equal to one another" (McCoy, 2002) applies. If we are connected in multidimensional ways, we are all family. "All things are interconnected in the "families" of galaxies, stars, planets, nations, and people" (Edwards, 2004, p. 15).

Therefore, the principles of simple mathematics such as the geometry of Euclid and the quantum physics of the Pygmalion and Butterfly effects apply here to our philosophy of viewing others as connected to ourselves. If we examine the beliefs that we carry within and recognize that some of those beliefs may be doing a disservice to others, such that we judge others to be not a part of ourselves, we can make the decision to make changes in how we conduct our relationships and in doing so, recognize that it is the belief in separation that created that disservice. When we do this, we may bring the intention of connecting with another part of ourselves as well as to those around us of any age, with compassion, instead of separateness.

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About the Author

Donna Johnson is a former elementary school teacher from the Lord Selkirk School Division in Manitoba with 27 years of experience. She graduated with a B. Ed. (1981) and a M. Ed. (1996) degree from the University of Manitoba and most recently graduated from the University of Winnipeg with a Masters Degree in Marriage and Family Therapy (MMFT) in 2009, which provided the credentials to open her private practice, Soul Work Therapies, in Winnipeg. As well, she holds an Advanced Diploma in Art Therapy from the Vancouver Art Therapy Institute (2006). At present she is an instructor at Aurora Family Therapy Centre, which is affiliated with the University of Winnipeg, and has done so since 2012. Donna incorporates a holistic quality into her work, bringing a belief system of conscious compassion towards all those she interacts with.

Address

Donna Johnson
Aurora Family Therapy Centre;
The University of Winnipeg;
Sparling Hall, 2nd Floor;
515 Portage Avenue;
Winnipeg, MB R3B 2E9, Canada.

e-Mail: aurora@uwinnipeg.ca

Gifted and LGBTIQ[1]:
A Comprehensive Research Review

Rachel Wexelbaum
Learning Resources Services, St. Cloud State University, USA

John Hoover
School of Education, St. Cloud State University, USA

Abstract

During the 2013-2014 academic year, we served on a faculty learning community exploring issues facing students identifying as Lesbian, Gay, Bisexual, Transgendered, Intersex, or Queer (LGBTIQ). Through collected testimonies from LGBTIQ friends and colleagues, we noted a nexus between LGBTIQ status and creativity. Many LGBTIQ colleagues had received gifted education in K-12 or were otherwise identified with athletic excellence, intellectual giftedness, or superlative performance in the fine arts. We then consulted the research literature about gifted LGBTIQ individuals to provide guidance to colleagues and parents involved in gifted and talented education. Gifted educators and advocates are uniquely positioned to help students synthesize balanced, healthy gifted, talented, creative (GTC) LGBTIQ identities. Initially, we discuss how GTC identity intersects with co-identification as LGBTIQ. Subsequently, we show how school climate affects the academic performance and socioemotional development of GTC and LGBTIQ students, with an emphasis on issues of particular interest to gifted educators. In the final section, we summarize findings, propose a research agenda, and offer specific recommendations for dealing with sexual orientation/gender identity issues facing GTC students. A theme running through the review relates to helping children and young adults develop healthy self-identities by teaching them how to use their gifts and talents to integrate in a society frequently hostile to LGBTIQ and occasionally to young people identified as GTC. In the spirit of forthrightness in addressing identity, author Wexelbaum identifies as a GTC cisgender[i] lesbian (who received gifted and talented services from elementary through high school) and author Hoover identifies as a cisgender heterosexual male.

Keywords: LGBTIQ; gay; lesbian; transgendered; gifted; talented youth; bias [in education].

An Exploration of Emergent Identities

Gifted, Talented and Creative Identities

In the United States, students receive a label of "gifted" from teachers, counsellors, or school psychologists. The formal designation usually depends on committees functioning similarly to the interdisciplinary teams that operate on the other end of the ability spectrum. While a federal definition of gifted exists (National Association for Gifted Children, 2008; U.S. Department of Education, 1972), education officials have not formalized a standard national agreement or assessment of "gifted" traits or skills (Kaufman, 2012; National Association for Gifted Children, 2008). Perhaps this is for the best, as GTC students are as diverse as the general student population. It is important for readers to note that when an attribute correlates with a population designated (gifted, LGBTIQ) this does not mean that every member of that group evidences the trait in question—we make no such suppositions as they would constitute a form of stereotyping—even when the characteristic in question is positive.

The imposed label and separate educational experience may lead non-gifted peers to target gifted students as "misfits", "nerds," or some other "abnormal" category (American Sociological Association, n.d.; Berlin, 2009; Gailbraith, 1985; Hoover, Larson & Baker, 2013; Hoskinson, 2001; Levy & Plucker, 2003; Peterson & Ray, 2006). Currently, the degree to which peers target GTC students for bullying exists as a mixed picture, with many qualitative accounts of harassment, but little empirical validation of such harassment (see Hoover, et al. for a complete review). Different academic and behavioural expectations for gifted students also may affect their feelings of otherness

(Berlin, 2009; Fiedler, 1999; Frable, Blackstone, & Scherbaum, 1990; Gailbraith, 1985; Lee, 1999). Mainstream teachers may mistakenly believe that, because GTC students are "smarter than average", they should also exhibit more compliant behaviour or conventional beliefs in the classroom. In reality, most GTC students think outside the box and most will challenge what a teacher or peer presents as "the facts" if they have read, experienced, or discovered something different. For example, we know of a GTC student who openly questioned the school tradition of reciting the Pledge of Allegiance, and opted out of standing for the pledge based on her disagreement with American policies. In some schools, educators will view such acts as "insubordination", which may lead to detention or suspension. GTC students also may see "the big picture" of something long before their peers, and will attempt to manipulate the classroom in order to execute their vision. In one case, a gifted kindergarten boy wished to turn the school jungle gym into a fire engine and give everyone a fire fighting job; he evidenced physically aggressive behaviour toward peers refusing to perform their role.

Educators and researchers have acknowledged identity issues associated with GTC children and young adults. Those labeled as gifted often experience feelings of loneliness and isolation, and may choose solitude over socialization (Ablard, 1997; Janos, Fung, & Robinson, 1985; Shechtman & Silektor, 2012; Woodward & Kalyan-Masih, 1990). For those who desire social contact, gifted students may reject their label to fit in with non-gifted peers (Ablard, 1997) while some completely reject the non-gifted for the support and camaraderie of their gifted classmates and teachers (Shectman & Silektor, 2012).

LGBTIQ Identities

Young people begin to explore their sexual orientation as early as middle school and frequently self-identify as lesbian, gay, or bisexual during this period (Floyd & Bakeman, 2006; Grov, Bimbi, et al., 2006; Pearson, Muller & Wilkinson, 2007). According to scientific studies, transgender and intersex students often report knowing their true gender identity in early childhood (Diamond, 2002; Diamond, 2012; Gagné, Tewksbury & McGaughey, 1997). Authority figures often tell children that they are "too young to know for sure" about their sexual orientation or gender identity; authorities usually impose a gender identity upon children and adolescents based on their physical and biological characteristics (Diamond, 2002; Westbrook & Schilt, 2014).

LGBTIQ students must function in school environments where they would like people to accept their true identities. Nonetheless, teachers and parents frequently inform them—directly and indirectly—of the intolerability of their true identities (Cohn, 2003; Eriksson & Friend, 2006; Greytak, Kosciw & Diaz, 2009; Hutcheson, 2012; Kosciw & Greytak, 2011; Peterson & Ritschar, 1998). For this reason, LGBTIQ students often hide their sexual orientation or true gender identity to conform with heterosexual, cisgender peers, or will reject peers perceived as non-accepting for the support and camaraderie of more accepting students and teachers (Stewart, 2006).

Evidence about Dual Gifted and LGBTIQ Identities

Researchers have different formulas to calculate the percentage of LGBTIQ students among the general school population. We assume that *at least* 5% of students will self-identify as LGBTIQ by their middle-school years. This proportion will exist as a lower threshold for LGBTIQ students identified as GTC. Gifted/talented educators often struggle to understand this diverse group of youngsters and the challenges they face.

Students with intellectual gifts are more likely to identify as LGBTIQ than their non-gifted peers (Hegarty, 2011; Stern, n.d.; Treat, 2006; Wilcove, 1998). Due to their questioning, exploratory nature, GTC individuals appear less likely to conform to social norms and more likely to accept ambiguity and diversity than do their peers (Cowan, 1988; Hoskinson, 2001). Writers often claim that GTC students—females in particular--exhibit more androgynous appearances and behaviours than their non-GTC peers (Piirto, 2004; Sheely, 2000; Treat, 2006; Wilcove, 1998).

Gifted and talented students frequently claim that sexual activity often served as a gateway to connecting with others (Sheely, 2000; Tolan, 1997), a common issue in early adolescence made infinitely more complex by

society's stigma against LGBTIQ status. GTC students who find it difficult to relate to their peers —particularly the highly gifted—may fall in love with someone of the same sex with whom they share common interests and the same worldview (Hegarty, 2011; Sheely, 2000; Tolan, 1997). For these reasons, as many as 10% of GTC students may identify as gay, lesbian, bisexual, or queer (Tolan, 1997).

Some evidence exists that LGBTIQ status may correlate positively with measures of general intelligence, with "out" students scoring higher on traditional metrics than do their cisgender and/or heterosexual peers (Hegarty, 2011). While bullying often militates against their academic performance (Vega, 2013), a study of 10,000 LGBT 13-17 year olds showed that, compared to their heterosexual peers, academic achievement and success were not concerns. When asked "What is the most difficult problem facing you in your life these days?", heterosexual students identified "Trouble with classes/exams/grades" as their number one problem, while for LGBT students, this response did not appear anywhere in their list of top ten problems (Human Rights Campaign, n.d.). Gay males manifest higher college GPAs than do their straight peers (Jacobs, 2009) and as adults display higher household incomes and more frequently earn advanced degrees than do straight males (Jacobs, 2009; Letellier, 2005; Prudential, 2013).

Researchers have noted that LGBTIQ students may more likely become reflective, critical thinkers as they negotiate the social injustices they face at home and school (Cowan, 1988; Friedman-Nimz, 2001; Whittenburg, 2002). Even within gay-straight alliances, LGBTIQ students usually take the lead in questioning and addressing the treatment of marginalized populations—students of colour, non-Christian students, and disabled students—within their own school space (Mayo, 2013). They more likely display curiosity about new people and places, as well as determination to solve problems (Pace, 2007; Treat, 2006). It seems likely that many LGBTIQ students—gifted or otherwise—who have few opportunities to socialize and date may focus their energies more on academics, creativity and activism (Hutcheson, 2012; Lovance, 1998; Peterson & Ritschar, 1998; Peterson & Rischar, 2000; Treat,

2006; Whittenburg, 2002). In fact, it has become common for colleges and universities to have special "learning community" dormitories focusing on combined themes of LGBT issues and social justice to attract and encourage emerging LGBT student leaders.

Some LGBTIQ students, wishing to deflect attention from their sexual orientation or gender identity, attempt to gain acceptance via academic overachievement (Lovance, 1998; Peterson & Rischar, 1998; Whittenburg, 2002). Students struggling to conform to heteronormative standards may also display high achievement in order to seek adult acceptance (Hutcheson, 2012; Lovance, 1998; Whittenburg, 2002). LGBTIQ students often find comfort and support in creative activities such as art, writing, music, and drama; they are most likely to excel in these areas (Hutcheson, 2012; Jacobs, 2009; Kim & Wan, 2010; Treat, 2006) and participate in creative extracurricular activities regardless of their treatment at school (Human Rights Campaign, n.d.; Jacobs, 2009; Peason, Muller & Wilkinson, 2007; Peterson & Rischar, 2000).

For the reasons noted above, the weight of evidence suggests that LGBTIQ students are overrepresented in programs serving GTC individuals. At the same time, teachers should avoid stereotyping about "gay creativity" or "gays in the arts". These limiting, narrow stereotypes may do a disservice to LGBTIQ individuals as they strive to find acceptance in many spheres. For this reason, MENSA, STEM organizations such as the National Organization of Gay and Lesbian Scientists and Technical Professionals and Engineer Girl, and emerging athletics organizations such as You Can Play and Br{ache the Silence have increased their outreach efforts to middle and high school LGBTIQ students who may have talents in areas other than the arts.

Gifted students also exhibit other intersectional identities, such as gifted learning disabled student (LD Online, 2010; Neihart, 2003), gifted student of colour (Davis, 2013; King, Kozleski, et al, 2009), gifted student on the autism spectrum (Assouline, Nicpon, et al, 2008; Neihart, 2000), and gifted student diagnosed with depression (Jackson & Peterson, 2003) or mood disorders such as bipolar disorder or schizophrenia (Missett, 2013). Students in

these groups could also be lesbian, gay, bisexual, transgender, intersex, or queer.

Safety and Academic Performance

Gifted LGBTIQ students live in a "double closet", particularly students of colour (Henfield, Washington & Owens, 2010; Moore III, Ford & Milner, 2005) and those living in rural areas (Hutcheson, 2012). Gifted LGBTIQ students in school environments perceived as "unsafe" (i.e., unaccepting of one or more of their identities) will suffer academic performance decrements (Stewart, 2006).

Hoover, Larson, and Baker (2013) thoroughly reviewed the relationship between bullying, school safety issues and GTC status. They reported that bullying probably makes up one of the methods through which society communicates social expectations in the following domains:

- Anti-intellectual attitudes, combined with high expectations for social interactions and sports (Davis, 2006; Reis, 2004; Wallace, 1999-2000);
- The view that certain gifted and talented characteristics may not constitute traditional expectations for femininity, thus reducing the number of females demonstrating talents in science and mathematics (Rakow, 2011; Reis, 2004); and
- The social interpretation that certain pursuits (also associated with GTC status) are not masculine; for example, demonstrations of gifts in literacy and the fine arts (Davis, 2006).

Hoover, Larson, and Baker proposed that the strength of school's anti-intellectual climate and the degree to which local culture accepts traditional views of gendered behaviour predicts the degree to which bullying will affect (a) overall rates of GTC identification, (b) rates of GTC identification by gender, and (c) student satisfaction with GTC-related labels, (d) the amount and intensity of bullying experienced by identified youngsters, and (d) manifestations of perceived quality of life among gifted individuals.

LGBTIQ students experience about twice the risk for bullying as their non-identified counterparts (Human Rights Campaign, 2006).

Students with non-typical gender behaviour also suffer bullying at higher rates (Greytak, Kosciw, & Diaz, 2009). As bullied LGBTIQ students seek escape, their reluctance to attend unfriendly classes commonly results in lower-than-expected academic performance (Greytak, Kosciw, & Diaz, 2009).

If they fail to experience domestic safety, gifted LGBTIQ students may also run away from home, thus affecting their attendance; up to 40 per cent of all homeless youth identify as LGBTIQ ("Lawmakers introduce LGBT-inclusive runaway, homeless youth act", 2013). While gifted students express awareness of what drugs and alcohol can do to them, LGBTIQ students suffering from depression due to persistent bullying are more likely than their heterosexual peers to experiment with alcohol or other drugs (Human Rights Campaign, n.d.; Stewart, 2006); such experimentation most often negatively affects academic performance (Baker, & Hoover, 2013). Some gifted LGBTIQ students may also experience lowered grades due to disruptive behavioural issues if, instead of flight, they fight back verbally or physically (Kerr & Cohn, 2001). Students taking comfort in art, for example, may lash out at those attempting to take away or damage their work.

Gifted and LGBTIQ students, whether victims of bullying or not, often experience isolation. They may self-isolate due to different interests or fear of rejection. Often this self-isolation exists concurrently with a façade of disdain or hostility toward those students whom they perceive as people who may harm them emotionally (Kerr & Cohn, 2001; Wallace, 1999-2000).

Gifted LGBTIQ students may choose to mask one identity over another (Pace, 2007; Stewart, 2006). Gay and lesbian students in the process of coming out and looking for intimate relationships may be afraid of looking "too smart" in front of potential queer friends. Transgender children will often overcompensate via manifesting stereotypical masculine or feminine identity patterns (Sullivan, 2009). For example, an M-to-F transgender student may emphasize heteronormative female traits, including fear of math and science, or not speaking up in class (Rakow, 2011; Reis, 2004). Gifted LGBTIQ students of colour face the

additional challenge of "looking white" in front of other peers of colour for excelling in academic pursuits (Davis, 2006; Henfield, Washington & Owens, 2010).

Teacher Attitudes

Students with at least one supportive teacher—or at least one teacher with whom they share a common bond-- more likely remain engaged in school (Klem & Connell, 2004). Whether they realize it or not, teachers come to the classroom well equipped with prejudices. For the sake of approval, students may consciously attempt to conform to the heteronormative models and values they see in educators (Rakow, 2011). Students who cannot, or will not, do so are often seen as threats to authority (Wallace, 1999-2000). Heteronorms not only affect how students express their gender, but also how they express their intelligence and talents (Davis, 2006; Kerr & Cohn, 2001; Pace, 2007; Reis, 2004).

Talented LGBTIQ individuals will sometimes lose interest in school if educators make them feel unwelcome and unsupported (Stewart, Wallace, 1999-2000). These conscious or unconscious micro-aggressions increase in frequency and intensity against outspoken, non-conforming students of colour (Lewin, 2012; Luna, 2005).

Issus of Conformity

Teachers often present heteronorms in the classroom. Whether consciously or not, through curriculum or through their own personal traits, these teachers express what types of appearances and behaviours are acceptable for boys and girls, therefore modelling how children and adolescents should think and behave when faced with those who do not conform. Recent examples of teachers rejecting non-conforming gender behaviour made national news: the first grade boy in North Carolina who was told not to bring his My Little Pony backpack to school because he would become a target for bullies (Grisham, 2014) and the middle school girl in Colorado who was expelled for shaving her head to support a friend who lost her hair due to cancer (Lofholm, 2014).

Whether they realize it or not, teachers can set the stage for bullying gender non-conforming students. They may give students certain nicknames, call them out for certain fashion choices, or "forget" to call a student by their preferred name and pronoun. Teachers often post multiple photos of themselves with their spouses and children in the classroom—sometimes filling up an entire bulletin board—potentially making students in non-traditional families feel undervalued. The disgusted glances and comments of straight male teachers—particularly physical education teachers—directed at non-athletic boys—are understood by heteronormative students as tacit approval to reject non-conforming peers.

Teachers occasionally confuse classroom management with suppression of student questioning, supporting "mere compliance" rather than reasonable orderliness or a healthy individuality. Criticism of low GPAs of teacher preparation program students nationwide *may* correlate with lack of advanced critical thinking skills or content knowledge among K-12 teachers; hence their discomfort with student challenges (National Council on Teacher Quality, 2013).

Teachers sometimes view student critiques of content as insubordination thus punishing legitimate inquiry (Colangelo, Assouline, & Gross, 2004). This is one domain where the value of enquiry, often characterizing the give-and-take in classrooms for the gifted and talented, may prove useful to struggling LGBTIQ individuals. It is important that teachers of GTC students understand the ubiquitous pressure to conform that students experience in general education (Fiedler, 1999; Wallace, 1999-2000; Webb, 2007). This problem may be exacerbated by the propensity of administrators to favour compliant conformists in hiring and promotion (Gelbach, 2012; Meador, n.d.; Teaching Tolerance Staff, 2013).

Gifted LGBTIQ students may face double disapproval and discouragement from their teachers (Stewart, 2006). These attitudes confuse, hurt, and anger them, especially when they see which students that their teachers may favor—the student council presidents, the cheerleaders, the football heroes—who model the fears and prejudices of those teachers. As gifted students often see themselves as a sum of their talents, identifying themselves at early ages as someone in a field as opposed to a mere person, they quickly deduce that teachers have

nothing to offer them if they provide more love and support to the homophobic athletes disdaining academics and offering fart jokes (Kerr & Cohn, 2001; Wallace, 1999-2000). While we do not condone violence to solve problems, it is not hard to deduce why the Columbine massacre took place, or why boys and girls continue to commit suicide for lack of at least one understanding, nurturing adult who can prove beyond a shadow of a doubt that the world does indeed get better.

Textbooks

Contemporary textbooks written about gifted children and adolescents often address the existence of gifted LGBTIQ students (e.g., Baum & Reis, 2004; Castellano, 2003; Davis, 2006; Rakow, 2011). At the same time, most of these textbooks place LGBTIQ identity in their chapters on "special needs" (Baum & Reis, 2004; Castellano, 2003; Rakow, 2011) or in sections dedicated to problems and counselling (Davis, 2006).

None of the textbooks about gifted children and adolescents that we reviewed integrate information about LGBTIQ identities in chapters on general social and emotional development; for this reason we do not recommend any at this time. Gifted students— whether white or of colour, disabled or otherwise—may identify themselves as lesbian, gay, bisexual, or transgender. Teachers of gifted students should help their students learn to accept their GTC identity and take pride in their accomplishments. For resources that best address LGBTIQ gifted students, please review our "Further Reading" section after our References (which we also recommend).

Conclusions and Recommendations

This segment affords three concluding sections. First, we provide a list of conclusions drawn from the review of literature. The second section, in "speaking" to teachers and advocates for students with special gifts and talents, offers a set of programmatic recommendations. Finally, a brief statement is included about a research program related to dual-identification as gifted and LGBTIQ.

Conclusions

Several conclusions can tentatively be drawn from the above comprehensive review of literature. These are provided in the numbered summary statements below. Of course, these must be tempered by the research difficulties listed below. We take these as givens until researchers provide contrary evidence.

1. While out LGBTIQ students likely experience systematic dampening effects on academic performance, the weight of extant evidence strongly supports that LGBTIQ students are overrepresented in programs serving gifted, creative and talented students.
2. Educators and parents often burden students identified as GTC with demanding academic expectations. Time spent on intense academic pursuits may decrease socialization opportunities with peers. Educators also perceive questioning on the part of gifted and talented individuals as insubordination. These three issues likely add stress to the lives of GTC individuals.
3. While few empirical studies support the conclusion that labelling leads GTC students to experience differential levels of inter- and intrapersonal difficulties, anecdotal evidence supports that members of this population do experience estrangement from peers and loneliness, especially in the presence of anti-intellectualism.
4. GTC students may suffer higher rates of peer abuse as a function of anti-intellectual school and community environments and the degree to which they diverge from local behavioural expectations, especially those associated with gender.
5. While the research evidence is mixed for the case of giftedness, the evidence strongly supports increased risk of LGBTIQ students for peer abuse (perhaps three times the local average of frequency and intensity). Similarly, educators and parents often struggle to accept students they see as violating gender-based appearance and behavioural customs.
6. Students with intellectual gifts will likely initiate the process of exploring gender and sexual identities earlier than their average performing peers. Educators and parents of talented youth should prepare to support students in these identity struggles during their elementary years; the

difficulties associated with identities and coming out will likely be complicated by the uneven development often seen in GTC individuals.

7. Some students with particular insight into the social norms for gendered behaviour may successfully hide their true sexual preferences in environments where they see physical and psychological dangers in questioning and non-cisgender behaviour.

8. The inclination of students with dual identities to question social mores likely produces difficulties for them, especially in instances where educators and administrators enforce a school climate strongly emphasizing conformity at the expense of enquiry and related higher-order thinking skills.

9. Strong conformity expectations likely correlate positively with gender-based social demands. The identity crises experienced by LGBTIQ individuals will be made more complex in rigid schools and communities.

10. The wellness of gifted, creative and talented youth who also identify with LGBTIQ status depends mostly on the attitudes and support they receive from the adults in their lives, including educators of gifted and talented students.

Recommendations for Educators

All teachers must face the reality that they will have gifted and LGBTIQ students in their classrooms. In many cases, they will have students who are both gifted and LGBTIQ. As schools lose funding for separate gifted education, and some schools eliminate separate tracking for "Honors" students, classrooms become more diverse. It is in the teacher's best interest to learn how to accept the differences of GTC and LGBTIQ students as gifts to develop, thereby encouraging all students to recognize and develop their skills and talents. It is also important for these teachers to teach their gifted students about LGBTIQ people and issues in literature, history, psychology, and health. LGBTIQ integration into the curriculum normalizes LGBTIQ identities for all students, thus creating a safer space in the classroom for gifted LGBTIQ students.

National surveys of school psychologists have shown that the majority need training on how to address the complex emotional and psychological needs of GTC students (Meyers, 2014; Robertson, Pfeiffer, & Taylor, 2011). Some teachers and school psychologists believe that the depression experienced by gifted and LGBTIQ students as a result of not integrating with their peers is also caused by—or a sign of—a lack of self-esteem (Stewart, 2006). In reality, the majority of gifted LGBTIQ students have high self-esteem due to their academic achievement or artistic excellence (Janos, Fung, & Robinson, 1985), but are more likely to suffer from depression and social isolation than non-GTC students (Bénony, Van Der Elst, et al, 2007).

Teachers or school psychologists who continuously tell these students that they are better than others without fostering their empathy or social skills further isolate them. Gifted students who receive too much of this "self-esteem boosting" may start to believe that, because they are superior, that they may function above existing human rules and laws (Kerr & Cohn, 2001). For this reason, it is essential to encourage gifted LGBTIQ students to learn how to interact successfully first with their gifted peers, then their non-gifted peers.

Many GTC students look forward to summer programs to meet and reconnect with peers from other schools who share their interests and mindsets. Not only do the students work together on academic and creative pursuits at these summer camps, but they also bond through their informal conversations about social experiences and support at their schools. These conversations help gifted students gain new skills and insights on strategies for social interaction and self-defense. They also help build students' empathy toward each other—a first step toward social integration and deciding to use their intelligence to help others and find their place in a broader society. LGBTIQ students experience the same joy, increase in self-confidence, and development of social skills and empathy in programs and groups designed to bring them together for socialization and shared interests (Friedman-Nimz, Altman, Cain, et al, 2006; Hoskinson, 2001; Pace, 2007; Reis & Renzulli, 2004; Rinn, 2006).

As more GTC students receive diagnoses of autistic spectrum disorders which impact social skills, GTC teachers may want to incorporate a regular activity within the day's programming to foster social skills and informal conversation. This could be as simple as eating lunch together and conversing over a shared personal topic. The teacher (or assigned student facilitator in more advanced groups) can set guidelines for behaviour within the conversation group, and point out appropriate or inappropriate behaviour during such conversations. Not only does this help students become more thoughtful and diplomatic in their interactions, it also provides a safe space for LGBTIQ students and others who may want to share things about themselves that they cannot among others. Most importantly, it shows those students who may be "different" that their teacher cares and provides support for them.

We offer specific suggestions for teachers, some supported by specific research and others based on our experiences. We direct these suggestions to any teachers working with GTC and LGBTIQ students:

1. Assume that a proportion of your GTC students will also identify as LGBTIQ. Educators must prepare themselves carefully and systematically to support identity development.
2. For developmental reasons, GTC teachers should assume that their students may question and explore their sexual orientation and/or gender identity earlier than do non-GTC students. Teachers of the GTC should expect asymmetrical cognitive and emotional development of GTC students, especially those struggling with identity issues.
3. Educators need to explore their own identities and tackle difficult issues related to gender and sexual orientation in order to develop themselves as the best possible allies.
4. Educators ought to exercise the opportunity to challenge assumptions about gender and sexual identities portrayed in school materials and other media.
5. Political activism and advocacy should be considered as central features of GTC programs. This will empower LGBTIQ students to exercise personal agency, taking charge of their futures via political and social activism. Unleashing the activism of gifted and talented individuals may prove one of the most effective routes to positively shifting school and community climates.
6. We recommend that youth program leaders identify and support the skills of GTC LGBTIQ students who may show comparative deficits in social cognition and behaviour.
7. Educators and school counsellors must increase awareness that gender identity and sexual orientation questions often produce periods of existential depression, as can struggles with the gifted identity. Advocates and educators must support students during these predictable existential crises.
8. Administrators ought to consider that pull-out GTC programs may provide a safe space for identity exploration. If educators remain committed to integrated services, it will help gifted students if private socialization opportunities are provided. In larger districts, this might even include gatherings of students who identify both as gifted and LGBTIQ (Hoskinson, 2001).
9. Education administrators need to explore their personal attitudes and make sure that they avoid recruiting, hiring, and promoting based on heteronorms and social conformity. School officials should exercise great care not to structure their programs *purely* around compliance and conformity.
10. Along with issues associated with intellectual gifts and LGBTIQ status, educators must make themselves aware that other identities may also affect their programs. For example, imagine the existential dilemmas faced by a gifted lesbian student who has become aware of the neuro-atypical social behaviour associated with her Asperger Syndrome diagnosis.

A Research Agenda

In light of the issues raised in the present paper, researchers need to address the issues faced by LGBTIQ and gifted "twice different" youth. Systematically addressing the challenges of GTC and LGBTIQ students and the educators and counsellors serving them is both necessary and difficult.

Cohn (2002) provided a useful list of the problems faced by researchers (pp. 50-51), insisting that the solutions to these problems would prove so difficult that for the present that researchers will probably have to rely on retrospective studies conducted with adults. Cohn argued that the lack of defensible operational definitions related to dual LGBTIQ-GTC identities make it difficult to summarize findings across studies. Second, he noted that many students avoid identification under either category. Thus, obtaining representative samples will prove very difficult. Finally, Cohn noted that no naturally-occurring comparison group exists for the study of the dual LGBTIQ-GTC identity. Despite the challenges with designing investigations in this domain, several issues deserve the attention of researchers with an interest in both gifted-talented education and in better serving youngsters struggling with gender and sexual identity.

1. Despite the difficulties with self-identification, researchers should set about estimating the proportion of LGBTIQ students served in GTC programs. If, as seems quite possible, LGBTIQ students are overrepresented, such information will assist programmers.

2. As has been mentioned previously in the pages of this journal (Hoover Larson, & Baker, 2013), researchers need to start unravelling the Gordian knot characterizing the relationship between bullying and local gender-based behavioural expectations, including the degree to which bullying impacts first academic performance and second the experiences of GCT youngsters.

3. We would like to see quantitative extension of qualitative studies suggesting that negative academic outcomes result from environments wherein educators and administrators blur the line between healthy behavioural expectations and "mere compliance."

4. Many writers have suggested that self-advocacy and political activism on the part of bullying victims and LGBTIQ students help oppressed individuals move toward wellness. We would like to see more studies addressing this empirically.

5. The field would benefit from the existence of more (and regular) case studies and ethnographies vigorously exploring the lived experiences of young people identifying as both gifted and LGBTIQ. Most particularly, we would like to learn more about *their views* of effective supports.

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Footnotes

[1] The acronym refers to students identifying as lesbian, gay, bisexual, transgender, intersex, and queer. We employ the term to include those who are questioning their sexual orientation, gender identity, or both.

[2] The term "cisgender", coined by Dutch transman Carl Buijs (alt.support.crossdressing.net usenet group, 1995; Matthews, 1999), designates individuals who accept the gender identity that corresponds with the physical body which they received at birth.

About the Authors

Dr. Rachel Wexelbaum is Associate Professor and LGBTIQ Studies Librarian at St. Cloud State University. She is committed to advancing LGBTIQ civil rights and ending all discrimination. Rachel is faculty liaison to the SCSU LGBT Resource Center, and chair of her campus faculty GLBTA Issues Committee. Rachel is senior editor and book reviewer for the Lambda Literary Foundation, LGBT Studies peer reviewer for *Resources for College Libraries*, and serves on the Harrington Park Press Advisory Board for Library & Information Resources. Rachel's anthology *Queers Online: LGBT Digital Practices in Libraries, Archives, and Museums* will be out in 2015.

Dr. John Hoover is appointed as professor of Special Education and Assistant to the Dean for Assessment in the School of Education at St. Cloud State University in Minnesota. Dr. Hoover earned his M.Sc. (1980) at the University of Illinois and was awarded the Ph.D. by Southern Illinois University in 1988. He has been at St. Cloud State, his alma mater since 2001.

Address

Dr. John Hoover,
Professor, Special Education
St. Cloud State University, School of Education
B-113-C Education Bldg., 720 4th Ave. S., St. Cloud, MN 56301-4498, U.S.A.

e-Mail: jhhoover@stcloudstate.edu

Examining Risk and Resilience through Multiple Lenses: An Integrated Approach

Eleoussa Polyzoi; Laura Atkinson; Jessica Dupasquier

The University of Winnipeg, Canada

Abstract

The current article presents a multifaceted model of risk and resilience that employs selected lenses to reveal insights from a variety of disciplines. This enhanced model, originally based on Bronfenbrenner's (1989) ecological framework, was developed to interpret the results of an ongoing study, conducted by the first two authors, of students' resilience in the face of adverse circumstances. The model that we developed allowed us to consider the following aspects: how the combination of school, family, and community supports can function as protective factors for students who face considerable adversity; the way that epigenetics can explain the powerful influence particularly of schools and families on child outcomes even as late as adolescence; how schools can mobilize social and cultural capital for students' benefit; the cascading positive effects of small gains that can ripple and expand over several years; and the way that socio-economic gradients can assess the effectiveness of policy interventions. The proposed model incorporates multiple informative perspectives including the biogenetic basis of resilience; developmental cascades; economic, social and cultural capital; and socio-economic status (SES) gradients that, taken together, address the limitations of Bronfenbrenner's original framework.

Keywords: At-risk youth; resilience; ecological model; "success despite the odds".

We wanted to find out what factors serve as buffers to adversity or protective factors for these resilient children and youth. We felt that such an understanding could better guide educators, health and social service agencies, and government officials to design policies and programs to serve students' needs more effectively. Participants in our study were drawn from five inner-city schools in western Canada. We interviewed 50 students who had faced difficulties in their lives but who had demonstrated their resilience by their positive academic performance in school. We also interviewed 20 school personnel (principals, counsellors, and teachers) for their perspectives on the success of at-risk students. This design allowed us to focus on the role that schools play in supporting students who are facing adversity. In analyzing the interviews, key themes were identified which informed an emergent ecological model of resilience.

The emergent model in the current exploration delineates how vulnerable individuals can be supported, particularly by schools, to achieve academic and life success despite the forces arrayed against them. Our study reflects a paradigm shift, one that moves away from focusing on problems and deficits to one that identifies strengths and assets. Such a shift, ultimately, helps us understand why some children are successful despite the odds and shows the way to mobilize forces to strengthen the factors that are protective.

This emergent multidisciplinary model grew out of our involvement in a larger research project that examined the impact of specific variables (e.g., poverty, teen parenthood, and child welfare involvement) on high-school graduation rates (Roos & Brownell, 2009). While this broader, population-based project used the unique Manitoba Population Health Research Data Repository, which combines information from the education, healthcare, justice system, and family services data systems on over 100,000 children from birth to 20 years old, our study was qualitative in nature, examining the "outliers" in the larger study—those youth who are vulnerable but manage to thrive. These are sometimes referred to as "dandelion" children: those who have resilient genes, which make

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them hardy and able to take root and survive almost anywhere, whether in the equivalent of a sidewalk crack or fertile ground (Boyce, 2008; Dobbs, 2009).   In contrast, "orchid" children are more fragile and sensitive. They wilt if maltreated or abandoned, but bloom spectacularly if given greenhouse care. The focus of our original study was on what serves as protection for the vulnerable students (family, school, and community) and, in particular, what role schools play in reducing risk and fostering resilience. Our concern was to go beyond risk factors and explore protective elements that mitigate the multiple negative effects of poverty and disadvantage.

Highlights of our Study

In the initial analysis of our interviews (Polyzoi et al., 2013), the degree of harshness that students had experienced in their young lives was striking. It was evident that, for many students, the protective layers within the home and family had been stripped or lost. Students had struggled with addictions, abuse, neglect, parental absence, suicide, and maternal depression. As one school counselor, Kala - this and all subsequent first names are pseudonyms assigned to interviewees- expressed it: "Students have experienced loss of protection by going into care; loss of innocence from abuse situations; loss of security due to addicted parents; loss of a childhood [due to teenage pregnancy]; loss of family members and friends who have committed suicide; loss due to medical complications brought on by diabetes, renal failure, amputations, and the list goes on and on. …they see school as their last hope..."

The apparent casualness with which students commented on their fragmented home lives, parental alcoholism, and mental health challenges was disarming. Kendra, for example, was a victim of sexual abuse at age four years. She grew up with a mother who struggled with alcoholism. In her early teen years, she moved in with a friend, where she was soon drawn into drugs and alcohol. At one point, when "things got out of control," she asked her parents if she could return home, but they refused. This landed Kendra, now 15 years old, in a series of group homes with a shifting cast of other troubled youth. The loss of family and home left Kendra clearly vulnerable. She admits, "I don't make good friends, so the ones …who have not hurt me are the ones I [value].... It takes time for me to 'let new ones in.'"

Some students, as refugees, had witnessed the atrocities of war, lost extended family, and had become separated from siblings and even parents. Many, at the time of the interview, were still struggling with the trauma of violence experienced many years earlier.

Leslie was kidnapped by drug lords from her home in a South American country when she was 15 years old. She was forcibly confined and mistreated for two years and coerced to work in the cultivation and processing of cocaine. During this time, her stepfather was murdered. When Leslie was eventually rescued and reunited with her mother, they fled the country and managed to gain entrance into Canada.

Meghan, whose mother had a violent history and whose father was a drug dealer, went to live with her grandmother at age 12 years. At age 14, she went from a detention centre to a series of group homes where her peers were other adolescents with serious life and adjustment issues, including petty crime, drug and gang involvement, and suicidal depression.

Sharon had lived almost her entire life in a West African refugee camp. Her cousin had been murdered during a period of civil unrest; their grandmother tried to save him but was shot as she fell on his attacker. The family escaped by making the long trek to a border crossing. Make-shift homes at the refugee camp were easy targets for marauding thieves. There were scarce resources and cramped conditions, lawlessness, and violence, which Sharon witnessed.

These are among the most dramatic examples, but all of the students whom we interviewed had experienced difficulty and disruption in their lives, and all of their experience was coloured by the

multiple effects of poverty and, for many of them, the effects of historical disadvantage (e.g., Aboriginal or immigrant identity). Despite these multiple risk factors, we found students were able to cope and create positive personal outcomes—a testament to their capacity to rebound in spite of setbacks. In the face of challenges, the students displayed varying levels of resilience. Some showed insight into the changes that they had been able to make in their lives. Many were optimistic about the future, willing to work hard, and showed a level of responsibility and wisdom beyond their years. For the students whom we interviewed, establishing meaningful connections with teachers and school counsellors had been critical in fostering this capacity for resilience. Schonert-Reichl argues that caring relationships are the most important protective factors that can be provided for children in order for them to reach their potential. In her research, children who had relationships with two or more caring adults did better in school than those with fewer (The Learning Partnership, 2009). It is what makes "dandelions" (robust children who survive under any condition) able to thrive and "orchids" (sensitive children who have extraordinary potential) more likely to survive and grow. When students know they are cared for, when schools provide numerous opportunities for developing skills, when students feel a sense of belonging to the learning community created within their classrooms, they are able to flourish.

Theoretical Point of Departure: Bronfenbrenner's Ecological Model

Bronfenbrenner's ecological model (1989) was our point of departure because we wanted to look at at-risk students within the context of their family, school, and community supports. Bronfenbrenner's model is schematized as a series of concentric circles representing different layers of the child's surrounding environment. Each layer is seen as having a powerful impact on the child's development. The farther away the ring is from the hub, the less direct the impact on the student. The child is at the centre of this model, nested within the various environmental influences, including the microsystem (e.g., the home, school, and community), the exosystem (e.g., the justice system, health services, school divisions, and government), and the macrosystem (e.g., the nation's broader cultural values, political philosophies, economic resources, and social conditions). Risk and protective factors, which affect a child's healthy development, may be found in any one of Bronfebrenner's subsystems.

Risk Factors

In our study, we considered previously identified risk factors, such as child abuse and neglect, family breakdown, maternal depression, parental alcoholism and poverty (Bernadini & Jenkins, 2002; Bernard-Bonnin, 2004; Brown, Cohen, & Johnson, 1998; Brownell et al., 2006; Flora & Chassin, 2005; Santos, 2007; Winslow, Wolchik, & Sander, 2004). Exposure to trauma was also included as a risk factor (Copeland, Keller, Angold, & Costello, 2007; Overstreet & Mathews, 2011).

According to Finkelhor, Turner, Ormrod, Hamby, and Kracke (2009), approximately 60% of American youth aged 2 to 17 years have been exposed to violence either as a witness or as a victim within the past year. Exposure to violent trauma is especially ubiquitous among low-income immigrant youth living in urban environments (Stein, Jaycox, Kataoka, Rhodes, & Vestal, 2003).

We also recognized that risk factors usually exist in clusters (Bernardini & Jenkins,

2002). Children who are abused or neglected tend to be in poor families, with single parents living in disadvantaged neighbourhoods fraught with violence, drug use, and crime (U.S. Department of Health and Human Services, Office of the Surgeon General, 2001). The greater the number of risk factors, the more likely the child is to experience poor school, health, and adjustment outcomes. These, in turn, may predispose the child to further trouble, making it harder for him or her to secure a positive foothold to reverse the process.

Protective Factors

To balance the formidable list of factors that predispose students to risk, we also examined protective factors, which promote healthy development and school success. Such factors include both internal student characteristics (e.g., social competency, self-efficacy, hopefulness, and intrinsic motivation) and external, context-bound factors (e.g., a caring and supportive family; a positive school climate; and a safe, crime-free community) (Downey, 2008; Kitano & Lewis, 2005; Martin

& Marsh, 2006; Morrison, Brown, D'Incau, O'Farrell, & Furlong, 2006; Stepp, Pardini, Loeber, & Morris, 2011; Wright & Masten, 2005). Internal and external factors do not exert their effects in isolation; they interact with one another. Academic resilience is thought to result from "a dynamic set of interactions between the student and resources in his or her environment that work together to interrupt a negative trajectory and support academic success" (Downey, 2008, p.56).

The following examples serve to illustrate this dynamic interaction more effectively. Social competence, an individual's ability to interact effectively with others, has a positive effect on educational attainment in at-risk youth (Elias & Haynes, 2008; Stepp et al., 2011). This trait allows the adolescent to better navigate the social pitfalls that may act as a detriment to their schooling, such as associating with delinquent peers and engaging in risky behavior (Stepp et al., 2011). Self-efficacy or sense of agency is another protective attribute (Wright & Masten, 2005). It is the belief that individuals are in control of their environment and capable of attaining desired goals. This has been linked to perseverance in education and academic resilience (Cavazos et al., 2010; Martin & Marsh, 2006).

Hopefulness, or the belief that the future holds positive possibilities, is central to one's motivation to set goals, energetically pursue them, and (like self-efficacy) believe that they are personally attainable (Helland & Winston, 2005; Worrell & Hale, 2001). Hope has been related to engagement in learning, and serves as a protective factor against dropping out of school (Van Ryzin, 2011; Worrell & Hale, 2001). High-hope people not only energetically pursue goals; they also generate *more* goals (Helland & Winston, 2005).

Linked to hope's motivational significance is the construct of intrinsic motivation, the inherent tendency to seek out challenges, to extend and exercise one's capabilities, and to explore and learn (Faye & Sharpe, 2008; Ryan & Deci, 2000). Intrinsically motivated students are more likely to continue with their education, and demonstrate better school performance (Cavazos et al. 2010; Hayenga & Corpus, 2010). The control dimension in motivation is of particular

significance to vulnerable youth because it is an important determinant of students' responses to setback, pressure, and fear of failure (Martin, Marsh, & Debus, 2001).

Internal factors influence academic success; however, the ecological context, including the institutions and communities with which the student interacts, plays an equally important role in promoting positive outcomes in the child's health, education, and well-being. For example, school climate has an impact on students' academic success. Positive interactions with teachers and staff are related to school engagement, which can mitigate risk, protect students from dropping out, and improve school achievement (Van Ryzin, 2011; Worrell & Hale, 2001) (see Figure 1).

The school's influence operates in a fashion similar to family supports where parental encouragement, positive expectations, and responsive involvement can moderate the deleterious effects of an aggressive school environment and negative peer influences (Cavazos, et al., 2010; Farrell, Henry, Mays, & Schoeny, 2011).

Both internal and external protective factors have a marked influence on resilience. However, to gain a better understanding of their effects on academic motivation and achievement, one cannot ignore a discussion of their interactions with one another. For example, we have noted that school engagement functions as a protective influence for students, as it promotes a sense of belonging (Morrison et al., 2006).

School engagement is influenced by numerous factors, both internal and external to the child. For example, students may receive strong support through caring relationships with teachers, staff, or peers within the school (Van Ryzin, 2011).

However, a child's social competence affects the development of those relationships (Stepp et al., 2011). Simultaneously, school engagement can be influenced by a child's sense of self-efficacy, motivation, and hope for the future. If a child believes he or she is competent and is motivated to learn, the student will be engaged in the classroom and elicit positive attention from teachers.

However, if the student has a less optimistic perspective or believes he or she is academically incapable, the student may elicit negative attention from school staff, less attuned to student needs, which may lead to further disengagement.
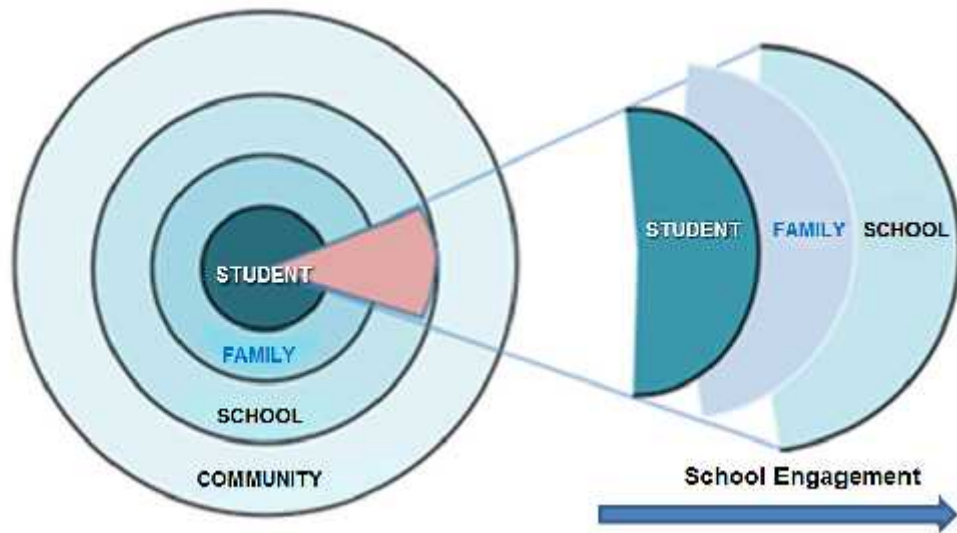
Figure 1: Bronfenbrenner's Ecological Model

The Importance of Family

Any discussion of how schools support at-risk students has to be grounded in an understanding of how families function to support the emotional development of children, from infancy to adolescence. Clearly, the family provides the most important emotional and social comforts in its network of caring relationships and material support, for growing children. Even a dysfunctional family provides an important place of belonging for the child in its expanded parental structure, which includes the proxy parenting of uncles, aunts, and grandparents. Children's early attachment to parents and other caregivers in the family have profound effects on the child's developing emotional and mental health. In fact, early interactions are said to form the architecture of the developing brain (Healthy Child Manitoba, 2012).

Effective parenting serves to both protect children from exposure to stressors and co-regulate young children's experiences until they develop the self-regulation needed for social competence and effective learning (Sapienza & Masten, 2011). The powerful effects of family on child development are underlined by an examination of the corollary effects of adverse conditions. Harvard University's Center on the Developing Child has compiled an extensive overview of the ways in which early experiences affect neurobiological processes that wire the brain for future outcomes (Shonkoff & Garner, 2012). Their findings suggest that toxic stressors such as child abuse or neglect can cause changes in the brain by altering the size and neuronal architecture of the amygdala, hippocampus, and prefrontal cortex. These changes cause functional impairments in executive functioning , which affects the child's ability to problem solve, persist on a task, to exhibit self-control, and engage in appropriate social interactions (Center on the Developing Child at Harvard University, 2011).

Understanding Resilience through Other Lenses

The initial goal of our study was to look at the characteristics of students who were enrolled in school and performing successfully despite the risk factors in their background. We felt that this perspective would provide insight into how schools are able to mediate the negative impact of early experiences that place students at risk. The development of all children is enabled by the effects of good parenting and positive family dynamics. As the child matures into adolescence and young adulthood and moves out of the immediate orbit of the family, neighborhood and community resources often provide important supports. However, the students in our study, despite their high

level of need, were rarely involved in their neighborhood or community or took advantage of available resources for sports, recreation or youth activities. The minimal community involvement that we did find had been facilitated by the school.

In the course of designing our research, carrying it out, and analyzing results, we searched the literature to build our understanding of how it is possible for students who are at extreme risk for academic failure to be encouraged to stay in school and to successfully complete secondary education. We looked at extant theories of risk and resilience; theories of the exercise of economic, social, and cultural capital; theories of how individual success is attained; and also theories about how individuals are supported in social contexts that contribute to success. In order to expand our theoretical framework, we looked for some of the mechanisms for these processes in neurobiology and epigenetics. Finally, we considered the use of socio-economic gradients as a way of measuring the impact of policy decisions that fund interventions for the largest number of students.

Neurobiology

Advances in the science of epigenetics, increasingly, are being recognized for their explanatory potential in early childhood education research (Sapienza & Masten, 2011). Epigenetics refers to the process in which normal gene expression is modified by environmental factors. This lens helps us better understand the relationship between genes and experience within the individual's environment, as it relates to resilience (Cloud, 2010). Rutter (1987) indicates that there are specific genetic variations that influence the individual's ability to resist adversity. These can serve to protect or buffer against exposure to stressful conditions. The expression of these genes is influenced by environmental factors.

Caspi et al. (2003), for example, studied the relationship between the 5-HTT gene and childhood abuse or trauma in triggering depression. When a child is *not* exposed to adversity, the gene does not express itself; only stressful experiences seem to turn the gene on. The fact that these effects have been observed and verified is evidence that interventions can be effective to improve the lot of children in difficult circumstances.

What is fascinating, however, is that "experiences that alter genetic structure can actually pass those changes on to offspring…" (The Learning Partnership, 2009, p.7). A child's genetic endowment, therefore, serves as a predisposition so that a child's eventual outcomes may be dependent on the presence of certain factors in the family or social environment that affect the expression or suppression of these genetic characteristics.

For educators, the understanding that epigenomes can be manipulated through the creation of a positive teaching and learning environment devolves significant responsibility to teachers. A positive school climate and strong, intuitive teachers can have a substantial impact not only on their student's capacity to withstand the stresses of life but on that of the student's offspring as well. Responsive changes may be encoded in the student's epigenome and passed on to their children. In this way, protection may be projected into future generations. Concepts from the field of epigenetics, thus, can serve as an important overlay to Bronfenbrenner's ecological framework, showing how changes effected in one sphere can connect to and activate nascent capacities in another.

Moving these broadened notions of vulnerability and neurobiological potential into Bronfenbrenner's model adds to the layers of interactions already present within the framework and demonstrates that an individual's genetic make-up, combined with early experiences, may be critical to understanding reasons for ultimate success. These insights lead us to examine the experiences of at-risk youth in the context of what is provided by families and communities to see how resources are provided, shared, and accessed (Sapienza & Masten, 2011). Further, they underscore the need for supportive families and, failing those, the need for supportive social and educational institutions.

Developmental Cascades

The concept of "developmental cascades" provides an ancillary lens that emphasizes the importance of interactions between numerous levels of influence over the course of a child's development. This perspective focuses on (1) cumulative consequences of these interactions, and (2) places particular importance on the child's developmental level and timing of these experiences (Masten & Cicchetti, 2010). Additionally, the attention to changes in levels of influence *across time* offers a more dynamic view of how resilience develops.

Developmental cascades are the chain reactions that result from changes and transactions between levels within the individual (e.g., psychological, biological, and behavioural), between systems (e.g., microsystems, exosystems, and macrosystems), and between generations (Masten & Cichetti, 2010). That is, a change in one factor may initiate later changes and cause spreading effects to other domains of behaviour or systems. Epigenetic processes can also contribute to developmental cascades. For example, positive maternal caregiving behaviours affect increased protective gene expression that results in lowered stress responsivity (Weaver et al., 2004). This cascade already involves an interaction between three different levels of influence (e.g., parental, genetic, and behavioural). Additionally, the child's stress responsivity has the potential to affect many more subsequent reactions.

Stress responsivity has been linked to a number of behavioural domains in children. Those with low versus high stress responsivity tend to perform better under conditions of adversity on measures of school engagement, externalizing behaviours, and pro-social behaviors (Obradovic, Bush, Stamperdahl, Adler, & Boyce, 2010). However, when adversity is not present, the reverse tends to be true: children who are highly responsive to stress thrive under positive environmental conditions. Thus, the later effects of adverse factors such as financial stress and negative parenting characteristics interact with the child's stress responsivity to continue the developmental cascade into behavioural characteristics that are important for school readiness. In the context of Bronfenbrenner's ecological model, these developmental cascades could be conceptualized as occurring across any number of subsystems.

A major benefit of identifying developmental cascades is their implication for improving developmental trajectories. By examining the chain of effects that occurs throughout development, appropriate points of intervention become more salient. For example, by changing the earliest factor in the cascade, subsequent reactions are prevented and positive cascades may be initiated. However, later links in the chain of relationships between factors may also provide opportunities for intervention if prevention is not possible. Such prospects are encouraging, as this suggests that multiple pathways to resilience exist (Masten & Obradovic, 2006). Early intervention may be most effective, but resilience can also develop with the help of later positive influences.

The notion of developmental cascades also has the ability to unify a great number of factors that influence resilience. However, little research has yet to examine cascades across systems. Methodological issues make direct study of developmental cascades difficult, as most research relies on cumbersome longitudinal studies and correlational analyses that make causative inferences difficult (for an in-depth review of the methodological difficulties involved, see Masten & Cicchetti, 2010). Despite these shortcomings, developmental cascades capture the complex and dynamic nature of resilience well, and their incorporation into Bronfenbrenner's original ecological model creates an informative picture of the development of resilience.

Economic, Social, and Cultural Capital

Investment theory, developed by Nobel Laureate Gary Becker (Becker, 1993; Becker & Tomes, 1986), provides yet another interactive overlay to Bronfenbrenner's model that explains the important supportive role that parents can play in providing opportunities for access to resources. Sociologist Pierre Bourdieu (1977) uses the term *capital* as a metaphor for the economic, social, and cultural assets of families that lead to improved educational and socioeconomic outcomes for their children. Social capital refers to how parents can provide their children access to unique opportunities and rich

resources through the use of social connections and networks of influence. Families with greater economic capital can more easily afford to have a stay-at-home parent during the child's early years, afford high-quality childcare and private schools, and offer through private lessons and cultural events first-rate learning opportunities and materials. It is the social networks and prestige provided by private schools more than the teaching and learning that takes place within them that extends students the comparative advantage. Parents also provide their children with cultural capital by transmitting the attitudes and knowledge needed to succeed in the current educational system. Schools are largely middle-class institutions, which reflect middle-class language patterns, values, and authority structures. Thus, children raised in middle-class environments possess the cultural capital that allows them to understand the curriculum and adjust more readily to school life (Lareau, 1987). Students who have the benefit of economic, social, and cultural capital will have access to resources within their environments that support health, education, and well-being and, thereby, increase their chances of future success. In our own study, we found that schools can play an important role in providing social capital through access to relationships, events, and community links and opportunities for disadvantaged or marginalized students.

Socio-Economic Gradients

Finally, the study of socio-economic gradients (Willms, 2002) maps the relationship between socio-economic status and selected health and education outcomes. SES gradients extend our understanding of the sources of social outcomes in populations and are useful for policy making and planning purposes. As an illustration, reading scores for 15-year-old youth by SES in Manitoba, as determined by the OECD *Program for International Student Assessment* (PISA), are reflected in Figure 2 (Willms, 2004). Patterns confirm that, although there is a wide range of reading scores at all levels of SES, the lower the SES, the lower the reading score will tend to be. However, the Manitoba, Canada profile of students' reading performance in relation to their SES shows that, overall, children in this province score well in reading with less differentiation among socio-economic classes than when compared to the national average. This is reflected in Figure 2 with an SES gradient for children in Manitoba that is generally flatter than in Canada as a whole. Extending this approach to nations as a unit of analysis, one finds that those countries with relatively steep SES gradients when measuring, for example, graduation rates, tend to have greater income inequality and those with gradual SES gradients tend to have less income inequality.
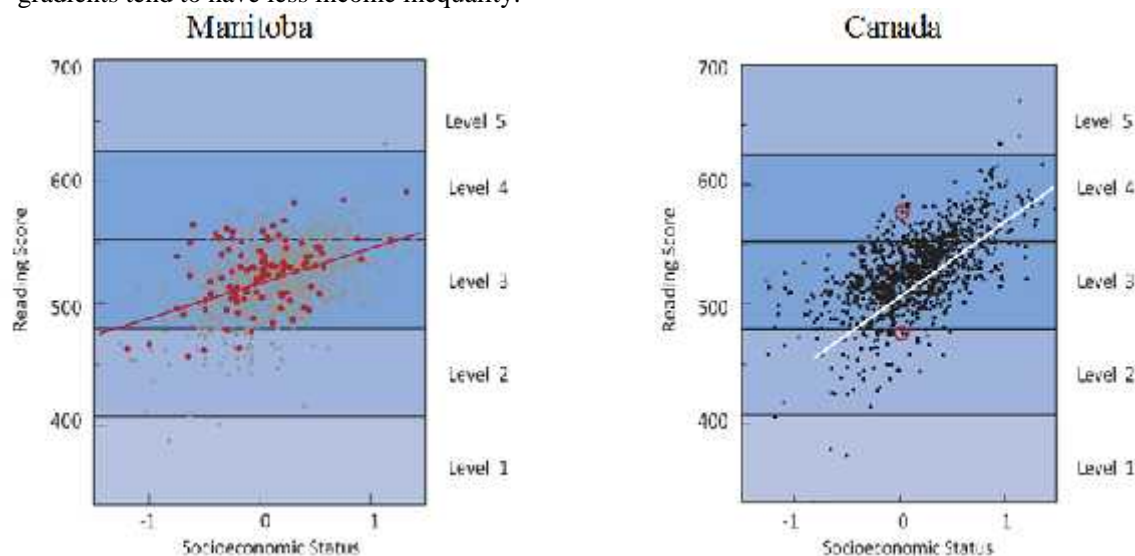
Note: Reading achievement was divided into five levels, ranging from Level 1 (very low literacy skills) to Level 5 (complex literacy skills)

Source: Willms, J. D. (2004). *Variation in literacy skills among Canadian provinces: Findings from the OECD PISA,* Ottawa, ON: Statistics Canada.

Figure 2: Reading Scores for 15-year-old Youth by SES in Manitoba, as Determined by the OECD, PISA, 2003.

Willm's position is supported by social epidemiologists, Richard Wilkinson and Kate Picket (2007), who argue that increased societal well-being in a nation must be built *not* on absolute economic growth but on greater economic equality. They contend that inequality in a society can be a highly damaging force; the greater the inequality, the worse the country tends to fare on children's math and reading scores, school dropout rates, number of teenage births, and children's well-being and mental illness (Wilkinson & Pickett, 2009).

An analysis of gradients can provide a simple test of whether social policies or specific interventions, such as school literacy programs, are successful by examining whether the consequent slope has steepened or flattened (Willms, 2002). This approach attempts to show some of the possible mechanisms in the provision and sharing of resources that may contribute to the widely noted explanatory power of socioeconomic gradients in educational and other life outcomes.

Frempong and Willms (2002) examined whether school quality can compensate for socio-economic disadvantage, by studying the effects of "good" vs. "poor" schools on the academic achievement of vulnerable children. Results from their study "suggest that if one family who has a child entering Kindergarten chooses a school with above average Math performance [based on the 1995 *National Longitudinal Survey of Children and Youth* and the *Third International Mathematics and Science Study (TIMSS)*] and the other [family of similar socio-economic background and with a kindergarten child of similar ability] chooses a school with below average performance, by the time the children enter secondary school, the child in the better school will be at least one full grade level ahead of the other child in mathematics" (Frempong & Willms, 2002, p. 298). This is clear evidence that the quality of the school can make a difference in the grade-level attainment of vulnerable children. In other words, it is possible for a "good" school to compensate for a child's socio-economic disadvantage.

Based on Willms' work (2002), program changes considered from the macrosystem of influence in Bronfenbrenner's model should not simply consist of targeting one group but be inclusive of all since vulnerable children can be found throughout the SES spectrum, although in greater proportion at the lowest SES level (Santos, 2009). It is, thus, incumbent on government to introduce policies that support interventions (a) at all levels of education, (b) that are both universal and targeted, and (c) that are based on research outcomes.

The Emergence of a Multi-Lens Model of Resilience

In reflecting on the different lenses through which risk and resilience can be studied, we return to Bronfenbrenner's ecological framework. Although the strength of this model lies in its focus on a more contextually embedded ecology of resilience, there are a number of ways it can be enhanced. First, the model does not place enough importance on the interaction between the child's genetic endowment and his or her environment and how that interplay "affects gene expression, changes neural pathways, shapes emotion, molds temperament, impacts social development, and influences the child's physical and mental health" (The Learning Partnership, 2009, p. 7). An enhanced portrayal of the child's dynamic pathway within the various spheres of influence of the model would provide a more nuanced and contemporary image of developmental change. Second, the model does not effectively address how the impact of factors changes over the course of an individual's development, from infancy, through childhood, to adulthood, nor does it reflect the impact of intergenerational trauma or health issues on the child.

While the model has been modified by Bronfenbrenner to include the chronosystem, which addresses changes to the individual or environment over time, the multi-faceted changes resulting from the interaction of the components in all of the subsystems cannot be reflected adequately in the present model. Such complex, fluctuating changes, could, however, be illustrated by representing the model three-dimensionally, with overlaid, concentric rings, allowing for dynamic interchange of any or all of the identified components at any given time (personal communication, C. Froese-Klassen, October 15, 2011). Finally, at the more distal sphere of influence, the model could be strengthened by

placing equal importance on social policy implications for interventions that move concerns of equity and justice to the forefront. Although schools are key when protective layers are stripped within the family, one needs to look at broader public policy interventions that would provide the mandate and resources for schools to adequately address issues of equity for children at-risk. This manner of mobilizing the exercise of social capital through the public policy sphere can become a reality. In this way, schools may be able to tip the balance for these vulnerable youth so that the SES gradient, using Willm's (2002) concept, is flattened and success is within reach for all students.

Our enhanced model for risk and resilience incorporates a number of important elements that provide additional explanatory power to Bronfenbrenner's model (Figure 3). Risk and protective factors form a network of influences that surround the developing child. Schools function as important protective factors in the pre-teen and adolescent years by buttressing the positive effects of family dynamics, thereby providing the groundwork for ongoing and later cognitive development. The epigenetic perspective provides an appreciation for the impact that epigenetic markers, as influenced by environmental factors, can have on students' resilience by suppressing children's harmful genes or expressing protective ones. Brain development, as affected by gene-environment interactions, lays the groundwork for subsequent learning and has a long-term impact on the child's achievement and mental health (Heckman, 2006; Weaver et al., 2004). It also explains how it is possible for schools and/or families to have the kinds of powerful effects seen on child outcomes even in adolescence (Brody et al., 2009).

The inclusion of economic, social, and cultural capital in the emergent framework shows how schools can play a significant role, similar to extended family influences, by connecting students with community resources and organizations that promote academic and life-course success. Developmental cascades show how early experiences can cause developmental changes that have wide-spread influence, affecting multiple domains of functioning (Masten & Cicchetti, 2010). Positive effects of small gains in student achievement and confidence in a school setting can multiply and ripple outward into comprehensive life-effecting outcomes in students' motivation, optimism, and hope for the future. Finally, the inclusion of the concept of socio-economic gradients provides a measure of the effectiveness of broad policy-based interventions, including the provision of nation-wide quality child care, the development of public health initiatives, and the implementation of targeted school programs, designed to achieve equity in education, health, and well-being.
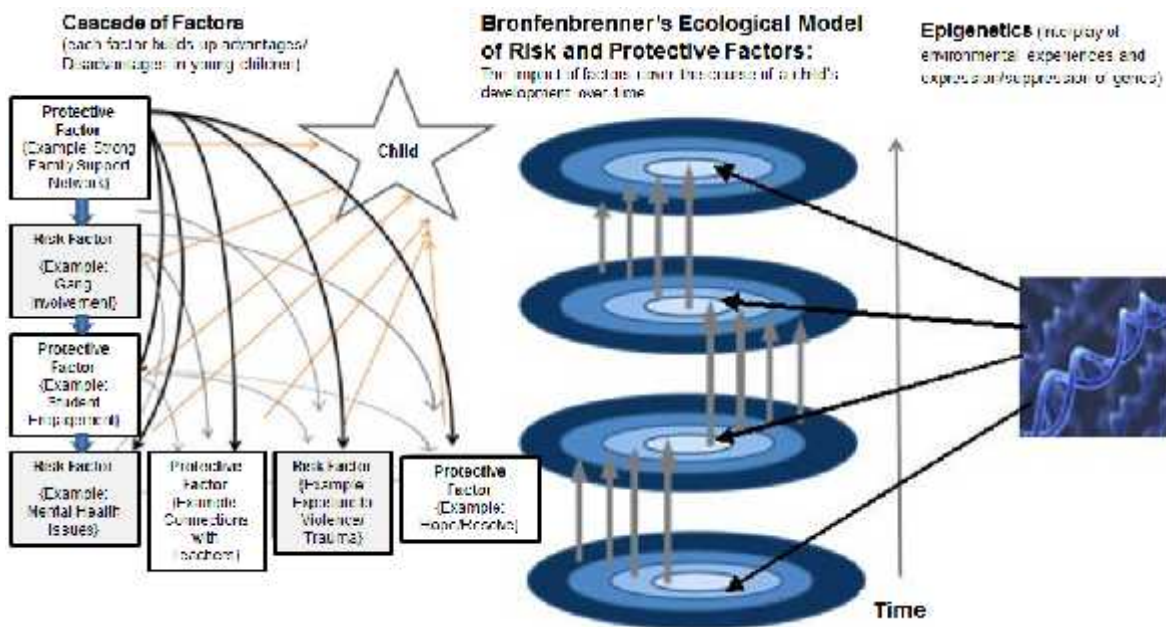
Figure 3: Enhanced Ecological Model of Risk and Resilience.

Conclusions

The use of a multi-lens perspective in the examination of resilience demonstrates a convergence of evidence for the importance of intervention strategies at different levels in promoting a resilient population. For example, McCain, Mustard, and Shanker (2007) argue for early intervention. They maintain that a high-quality, universal, early-childhood development program in Canada is not just a moral imperative; it makes economic sense. The cost of poor early-child development to Canadian society is estimated to be $120 billion per year in crime and violence and an additional $100 billion in mental health, behavioral problems, and substance abuse (McCain et al., 2007). In contrast, a high-quality, universal, early-childhood education program across Canada would cost $18 billion per year and serve 2.1 million children from birth to six years of age. Compared to other industrialized nations, Canada spends relatively little on early childhood education and care (Organisation for Economic Co-operation and Development [OECD], 2006)—only .25 percent of its Gross Domestic Product (GDP). Mustard urges that we invest at least 1.5 percent.

Using similar arguments, the RAND Corporation estimates that for every $1 invested in high-quality, early-learning programs, there is a $1.26 to $17 return (The Learning Partnership, 2009). A well-known longitudinal study on early childhood intervention conducted in Ypsilanti, Michigan, the Perry Preschool Program, demonstrates how spending on early child care can have large investment returns in crime savings, and also substantial returns in education savings, welfare savings, and taxes from job earnings (Schweinhart et al., 2005). Children enrolled in the program at the ages of three or four years old received specialized educational programing during mornings and home visits from the teacher in the afternoon. Forty years later, children enrolled in the program had higher salaries, high school graduation rates, and percentages of home ownership in comparison to a matched control group (Schweinhart et al., 2005). Moreover, the economic returns totaled $16.14 USD for every dollar invested into the program. Based on this and similar studies, some of the world's leading economists, such as Nobel Prize winning James Heckman, urge for early "investment in human capabilities" that will provide the largest returns to society (Heckman, 2008, p. 33).

Advocates like McCain et al. and Heckman make a strong case for the importance of early intervention. However, we believe that this focus should not be at the expense of society's equally important ethical obligation to address the needs of struggling pre-teens and adolescents in the school system (Babb, Saboruin, Andruchuk, & Polyzoi, 2013). In fact, schools, as "universal" institutions, are in an ideal position to provide the organizational mechanism needed to deliver effective school success programs for all students. In our study, we found where families had been unable to provide protection and safety, and where communities failed to support struggling families, schools emerged as important mediators of the effects of adversity and stress for youth. The more vulnerable the students, the more important the role assumed by the school in helping to buffer them against the challenges of difficult homes, families, and neighbourhoods (Polyzoi et al., 2013).

Our model outlines how youth, in the course of their lives, are affected by various factors, including the way that schools, as lead institutions, can enable individuals to achieve their potential. We believe that schools are a vital component of the efforts of society to ensure that these life-course achievements are within their grasp. Schools can function to create and mobilize supports for students by creating opportunities to empower them to act in their own interest and develop skills, knowledge, and connections through the school into the wider community. The establishment of a meaningful connection with a teacher or counselor can be the beginning of a process of empowerment. Early nurturing experiences help shape an individual's life trajectory and bolster his or her potential for achieving important measures of success, such as academic achievement, stable employment, positive family dynamics, healthy life styles, civic engagement, and social responsibility. In other words, education has the potential to exercise social and cultural capital on behalf of those under their charge, students who are vulnerable and whose life path, without protective factors, exposes them to significant risk of later negative outcomes in health, education and well-being.

The enhanced ecological model presented in this paper was developed to better understand the various forces impacting the development of vulnerable children and is unique in a number of ways. First, it changes the discourse by focusing on student strengths and assets versus problems and deficits. Second, it moves away from an exclusive focus on explaining vulnerability through identifying individual characteristics and recognizes the importance of building the family's capacity for accessed resources (Ungar, Brown, Liebenberg, Cheung, & Levine, 2008, p. 2). Third, it addresses the ongoing and often neglected developmental needs of adolescents during a time of critical cognitive development; the literature tends to focus on the early years. Fourth, it examines the role that schools can play in buffering students against adversity, an area for which there is a dearth of research. Fifth, it provides additional explanatory power to Bronfenbrenner's model by detailing some of the mechanisms of such influence. Sixth, it integrates other informative perspectives, including the biogenetic basis of resilience; developmental cascades; economic, social and cultural capital; and socio-economic status (SES) gradients. Finally, it links the study's findings with social policy implications for both universal and targeted intervention approaches that move concerns of equity and justice to the political forefront.

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About the Authors

Dr. Eleoussa Polyzoi is Professor of Education and Director of Developmental Studies at the University of Winnipeg. She has published extensively in the areas of risk and resilience, leadership, capacity building, and comparative education. Currently, she is involved in a large multidisciplinary project examining respiratory health, housing conditions, and school absenteeism in First Nations communities – a study funded by the Canadian government's Collaborative Health Research Projects (NSERC and CHRP) and conducted by a team of researchers from the Faculties of Education, Medicine, and Engineering. She is also the recipient of the University of Winnipeg's prestigious Erica and Arnold Rogers Award for Excellence in Research and Scholarship.

Dr. Laura Atkinson is currently teaching at the University of Winnipeg in Manitoba, Canada. She has worked as a Research and Policy Analyst for the Manitoba Teachers Society and as an Education Consultant for schools in northern Manitoba and Ontario. Her doctoral research involved an investigation of teacher adoption of innovative methods in reading and writing instruction in the Middle Years. Areas of expertise include: cognitive and language development, language and literacy curriculum and assessment, education policy, and teacher professional issues such as teacher education certification, professional development, and teacher evaluation.

Jessica Dupasquier is a recent graduate of the University of Winnipeg. She obtained her B.A. (Hons.) in Psychology in 2013, receiving the Gold Medal for achievement in her program. Currently, she works as a research assistant in both the Education and Psychology departments at the University of Winnipeg. Jessica will be attending the University of Waterloo in the fall of 2014 to begin graduate studies in Clinical Psychology where her research will focus on self-criticism as a transdiagnostic risk factor for psychological difficulties. She is also interested in the ways that self-compassion can help alleviate and increase resilience to psychological distress.

Address

Dr. Eleoussa Polyzoi;
University of Winnipeg;
515 Portage Ave.;
Winnipeg, Manitoba;
Canada R3B 2E9.

e-Mail: l.polyzoi@uwinnipeg.ca

How an Enrichment Summer Program is Meeting the Expectations of Gifted Science Students: A Case Study from Finland

Sakari Tolppanen

Department of Chemistry, University of Helsinki, Finland

Kirsi Tirri

Department of Teacher Education, University of Helsinki, Finland

Abstract

This study investigated the expectations of gifted students for a science enrichment summer program held in Finland in 2011 and how these expectations were met. The students' expectations were studied by analyzing the answers of 1,935 camp applicants. Altogether, 4,348 expectations were identified through content analysis. The data showed that the majority of the students (90%) expressed academic expectations followed by social (68%) and ethical (38%) expectations. This research also analyzed how well five specialists who taught at the camp were able to meet student expectations by implementing a given curriculum. The results indicated that the academic expectations were met in various pedagogical ways, while the social expectations were also realized; however, some of the teachers encountered challenges in realizing the ethical expectations. The implications of this study are discussed in order to benefit curriculum design and teaching in enrichment summer courses for the gifted.

Keywords: Gifted education; enrichment programs; science education; summer camp.

All over the world, gifted students need to deepen their knowledge, insights, and reasoning skills, develop their personalities, and establish networks of peer relationships. We know from previous empirical research that gifted individuals who have enjoyed special developmental programming often praise these earlier experiences as an important basis for their later careers (Tirri & Campbell, 2002; Hany & Grosch, 2007). In this paper, we present a case study of a special enrichment summer course, the Millennium Youth Camp, held in Finland, and how it has met the needs of gifted international science students. We compare the expectations of all students (N=1,935) who applied to the camp to the curriculum implemented by specialists (N=5) teaching at the camp. This investigation helps to assess how the different needs of gifted students were actually met during the camp and the kinds of enrichment this special course can provide for international students from diverse cultural backgrounds.

With regard to academic needs, researchers have suggested that education should reflect gifted students' abilities, interests, and passions (Subotnik et al., 2011) by providing a curriculum containing advanced content, which allows the students to advance at a faster pace than is usual (Colangelo, Assouline, & Gross, 2004). In addition to academic needs, gifted students also have a unique set of social needs. They need support from their families, teachers, and peers to realize their full potential (Tannenbaum, 1983). For instance, research shows that group membership has an effect on a student's educational outcomes. If the group devalues academic effort and achievement, it is possible that the gifted student will also devalue these things (Bliuc, Ellis, Goodyear, & Hendres, 2011). Furthermore, a supportive learning community helps the gifted student reach a higher level of independent learning, which can be associated with academic success and satisfaction (Bliuc et al., 2011; Pike, Schroeder, & Berry, 1997; Zhao & Kuh, 2004).

The importance of looking into the social context of the learner has long been recognized by educational psychologists (e.g., Anderman & Anderman, 2000); furthermore, it has been noted that a strong social identity results in a deep approach to learning (McInnis, 2001), which in turn can increase the level of academic performance. It is, therefore, important to look at the interpersonal and social aspects of learning rather than the "decontextualised individual" (Bliuc et al., 2011; Goodnow, 1992). In other words, an ideal learning environment supports holistic learning (Tirri, 2011b; Tirri, 2012) and acknowledges the social and emotional needs of the gifted student (Tirri & Kuusisto, 2013). These needs include the student's moral development. Excellence should therefore be combined with ethics, and future scientists should be guided to discussions of the ethical aspects of their discipline (Tirri, 2011a).

In a study conducted by Cross and Coleman (1993), gifted adolescents were asked to compare themselves socially, intellectually, and behaviorally with other students. The study showed that students identified themselves as being different academically, but not socially. Gifted students have also been found to prefer homogeneous groups over heterogeneous ones, mainly for academic reasons (Adams-Byers, Whitsell, & Moon, 2004).

National policies for gifted education vary widely from one country to another, and some policies reflect a "love/hate" relationship, especially in the United States (Colangelo & Davis, 2002). In the U.S., the most common method of supporting students of differing abilities has been ability grouping. The grouping is usually based on intelligence or aptitude testing, which is often seen as discriminatory, for example, to minority students (Benbow & Stanley, 1996). In some countries, such as Finland, educational differentiation by a teacher within an inclusive classroom has been the most common method of meeting the needs of gifted students. In recent years, enrichment possibilities in the forms of summer programs and university courses have also been available (Tirri & Kuusisto, 2013). For culturally- diverse gifted students, enrichment has been suggested as more appropriate and effective than other educational models for the gifted (Hébert, 2002; Renzulli & Reis, 1997). In this paper, we contribute fresh knowledge to this discussion by presenting ways in which a specific summer enrichment course, namely, the International Millennium Youth Camp, can contribute to the holistic development of gifted science students worldwide.

The Potential of Enrichment Programs to Meet the Needs of Gifted Students

Enrichment means providing learning experiences that are not usually found in the regular curriculum, including more in-depth material to advance the core content or more challenging teaching strategies (Clark, 2002). Gifted learners will be offered enrichment opportunities through various activities, such as independent studies, learning centers, field trips, and weekend and summer/winter study camps (Davis & Rimm, 1998). In general, enrichment programs can foster gifted youngsters academically (Rogers, 2007) and help them experience positive changes in higher-level thinking and creativity (Schenkel, 2002). The peer pressure brought to bear on gifted students, who consequently hide their giftedness, might be eased in enrichment camps, where the students, in the presence of similar peers, may feel less alienated (Rimm & Rimm-Kaufman, 2001).

Many studies have shown that educational camps foster interest in a given field, such as science (e.g., Birinci, Seyihoglu, Sezen, & Tekbiyik, 2011; Foster & Shiel-Rolle, 2011). Young people generally enjoy camp activities. Camps have been shown to have a positive effect on increasing the students' self-confidence in science education (Birinci et al., 2011). Moreover, camps help develop creative and productive thinking (Renzulli & Reis, 1997) as well as motivation (Frost, 2005). There is also some indication that the long-term effects of such camps persist over time. In a recent study (Tolppanen & Aksela, 2013), participants in a week-long enrichment program were studied a year later. The findings showed that the participants' level of self-confidence and motivation persisted over time, and the students were more inclined to notice opportunities around them. However, in a longitudinal study,

Hany & Grosch (2007) found that participants in a gifted enrichment program did not perform better in life than non-participants. Based on their results, the researchers suggested that gifted students are able to navigate successfully through life whether they attend enrichment programs or not; however, their study did not address whether non-participants had attended enrichment programs other than the one being studied. Thus, further research on longitudinal effects is still needed.

The Millennium Youth Camp

In 2004 the National LUMA (LU stands for 'luonnontieteet', natural science in Finnish, and MA for mathematics) Centre was launched in Finland to serve as a collaborative organization among universities, schools, and the business sector. The objective of the LUMA Centre is to promote the teaching and study of natural sciences, mathematics, computer science, and technology on all educational levels. One of its many activities is the Millennium Youth Camp (MYC), which is geared to 16- to 19-year-olds who are gifted in science (LUMA, 2014).

The camp has been held in the summers of 2010-2013, and each year the number of applicants has been approximately 1,000 or more. The top applicants are chosen based on their giftedness and motivation (Vartiainen & Aksela, 2012). The camp is organized by Finland's Science Education Centre LUMA in collaboration with Technology Academy Finland (TAF), Aalto University, and industry (LUMA, 2014).

The curriculum goals of the MYC

The campers are divided into theme groups based on their interests. All of these groups follow the camp's general curriculum, work on a group project, and participate in certain activities, which are both academic and social in nature. Academic activities include visiting universities and companies, attending the Millennium Prize Gala, participating in the Amazing Race of Science, and visiting a science center. The formal social activities consist of an international evening, a sauna night, a tour of Helsinki, evening entertainment, and welcome and farewell parties (for more details, see Tolppanen & Aksela, 2013). In addition to the formal program, campers have free time to interact with their teachers and one another.

They also work on a project assigned two months before the camp begins.

The MYC project

The campers begin working on an online group project assigned by a specialist in a given field. Each project varies in content, but all follow certain general principles, explained in more detail below. In the first stages of the project, the specialist teacher provides the campers with reading material to familiarize them with the topic. Then the campers begin working on their own on a project whose purpose is generally to create a solution to an existing problem. The projects are given checkpoints to ensure that the work is well underway by the time the campers arrive in Finland.

During the one-week camp, the campers continue working on their projects two to four hours a day. At the end of the camp, the participants present their work at the Millennium Youth Camp Gala to an audience of experts from universities and ambassadors from the campers' home countries.

Student experiences in MYC.

A recent multiple case study (Tirri, Kuusisto, & Aksela, 2013) explored meaningful learning and interaction in the MYC as experienced by five international students who were working together as a team to determine how ICT (Information and Communications Technology) can improve literacy in developing countries.

The results showed that the learning in MYC met the criteria of meaningful learning. The students were purposeful, constructive, and active, and they profited from challenging and authentic learning tasks that could be transferred to real-world scientific problems. The study also confirmed that MYC offers an excellent opportunity to meet like-minded friends and to be challenged both academically and socially. During the intensive one-week period, the students worked hard on their academic projects, which also improved their social and interactive skills. In addition, the projects addressed ethical issues with a strong moral emphasis on global responsibility. Thus, during MYC the students actively focused on and discussed not only science, but also moral questions. MYC thereby

seemed to cover aspects of social, emotional, and moral education that have been neglected in programs for gifted students (Tirri & Kuusisto, 2013).

Methodology

The Aim of the Study

This study investigates the expectations of gifted students for a Science Enrichment Program and how these expectations were actualized during the program by their expert teachers.

Data Collection

Student Data

The student data were collected in 2010-2011 by means of an online self-report survey. The camp was advertised directly to gifted programs and schools around the world on the Internet and through diplomatic channels. The survey was also advertised on the webpages of the organizers, as well as through their email lists. The applicants came from a variety of schools, and because the schooling system in each country varies, a cross-cultural comparison of the level of giftedness in the sample is not possible. However, given that most of the students came from specialized schools or had shown success in national and international science or math competitions, we assumed that the applicants were gifted.

The survey contained three demographic questions regarding the respondents' gender, age, and country of origin. The participants (N=1935) included 53.6 percent females (N=1037) and 46.4 percent males (N=898), and their ages varied from 16 to 19. They came from six different continents. More than half of the applicants were from Europe (N=1133 or 58.6%) and one-third from Asia (N=509, 26.3%). Fewer than 15 percent of the applications came from other continents, namely, Africa (N=123, 6.4%), North America (N=68, 3.5%), Oceania (N=75, 3.9%), and South America (N=27, 1.4%).

The students were required to choose one field of interest from the following categories: *climate change, water, renewable energy and natural resources, ICT,* and *mathematics*. In the whole sample, males and females were almost evenly represented, but within the groups, gender bias occurred, given that females were more likely to choose the climate change and water groups, while males often chose the ICT group (for details on distribution, see Table 1).

Table 1: Distribution among fields of interest.

Themes	Male (N)	Female (N)	Total (N)	Percent (%)
Climate change	153	340	493	25.5
Water	85	158	243	12.6
RE&NR*	286	273	559	28.9
ICT**	181	96	277	14.2
Applied mathematics	191	172	363	18.8

*Renewable energy & Natural resources
** Information and Communication Technology

In the main section of the survey, the applicants were asked to give a maximum of three expectations they had for the Millennium Youth Camp. This was done with open-ended questions.

Specialist data

The specialists came from universities and companies and were selected for their achievements in STEM subjects (Science, Technology, Engineering, and Mathematics). The background information on the specialists is presented in Table 2.

Table 2: Background information on MYC specialists.

Specialist (Male/Female)	Work experience (in years)	Degree	Group	Current employer
Jukka (M)	10	Ph.D. (Math)	Applied Mathematics	Aalto University
Matti (M)	15	Ph.D. (Technology)	Energy	Aalto University
Sonja (F)	30	Ph.D. (Science)	Water	University of Jyväskylä
Mikko (M)	14	M.Sc. (Technology)	ICT	Nokia
Ismo (M)	28	Ph.D. (Science)	Food Science	University of Helsinki

After the camp, the specialists were asked to complete an online survey containing questions on the implementation of the curriculum. The questions were planned by two researchers and included queries about which curriculum goals had been implemented and how and whether the specialists had additional goals not mentioned in the curriculum. The specialists were asked to give specific examples in answering the questions.

Data Analysis

The student data were analyzed with qualitative content analysis. The students' expectations were calculated by the number of expectations in five categories: academic, social, ethical, socio-ethical, and other. Socio-ethical expectations are a composite variable containing both ethical and social reasons. The inter-rater reliability of the established categories was $r = .83$ between two raters, which indicates good reliability. Qualitative examples of the students' expectations are provided from each category to demonstrate the variety of expectations within each category.

The specialists' answers were analyzed inductively without any specific theoretical framework; however, the curriculum goals and the categories established by the students' expectations guided the researchers' understanding and provided theoretical concepts for use in the analytical work. After the first reading of the specialists' answers, the researchers drew themes from the answers for further analysis. Each researcher established the themes autonomously. After the selection, the researchers checked the reliability of the themes by comparing their analyses. In mutual discussions, some of the themes were dropped and others emphasized. All disagreements were discussed until the researchers reached a common interpretation of the themes selected.

Results

Students Expectations for the Millennium Youth Camp

The data contained a total of 4,348 expectations from 1,935 applicants. Among the students, 1,749 (90%) had academic expectations, 1,312 (68%) had social expectations, and 727 (38%) had ethical expectations. Among the applicants, 560 (29%) also mentioned at least one other expectation, while one-fourth of the respondents (n=473, 24.4%) expressed socio-ethical expectations. Of the 4,348 expectations, 1,992 were expressed by male students and 2,356 by female students. These data are presented in Table 3.

Table 3: Distribution of expectations among the applicants.

Question type	Academic	Social	Ethical	Socio-ethical	Other
Male	813	598	303	(186)	278
% of male expectations	40.8%	30.0%	15.2%	-	14.0%
Female	936	714	424	(287)	282
% of female expectations	39.7%	30.3%	18.0%	-	12.0%
Total	1,749	1,312	727	473	560

The expectations were labelled *academic* if the applicants talked about their own research, their school success, their interest in science, their desire to learn more about science, or their interest in the Finnish school system. For instance, a female student from North America wrote:

> What interests me the most is science and technology. To prepare myself for a career in these fields, I must explore and become knowledgeable about the possibilities and careers open to me for my future.

The expectations were labelled *social* if the applicant wanted to meet new people, share ideas with others, or make new friends. A male student applying from Asia described this expectation in the following words:

> I want to introduce my country and know more things from teenagers of other countries. I am very communicable [sic], and I want to bring everything I will learn to my friends in order to enlarge our knowledge

The expectations were labelled *ethical* if the applicant talked about wanting to change the world, wanting to affect the people around them, or wanting to learn more in order to know how to better protect the world. A male student from Europe expressed this desire as follows:

> Even though there are many theories about global warming, I believe that humans have changed our planet drastically. I think there are a lot of things to be changed, starting with ourselves.

An example of a socio-ethical expectation was given by a female from North America:

> The environmental problems facing the world require interdisciplinary and international solutions; these problems don't stop at national borders. At the camp I would have the opportunity to interact with other people from around the world who share similar interests and be exposed to diverse perspectives that may result in new ideas for the future that I may never have considered. I would be building a global network of peers that would last beyond the time we spent together at the camp.

The remaining expectations were categorized as "other" and were related to expectations that were not directly connected with the camp. For instance, a female student from Africa wrote:

> I would love to visit Finland to get a once in a lifetime opportunity to travel overseas to experience the handover of the Millennium Technology Prize.

Gender differences in students' expectations of MYC

Gender differences were not seen to apply in academic and social expectations, but results of the Mann-Whitney U-test showed that female respondents clearly provided more ethical expectations ($n=424$, 58.3%) than males ($n=303$, 41.7%), $Z(1, n=1935)=-3.236$, $p=.001$. A gender-related difference was even more obvious in the number of socio-ethical expectations: females reported 287 reasons (60.7%) and males only 186 (39.3%), $Z(1, n=1935)=-3.554$, $p<.001$.

Age differences in students' expectations of MYC

Analysis with Kruskal-Wallis H-test revealed that the oldest respondents (19 years of age) most often reported socio-ethical expectations for MYC ($n=101$, 29.1%), $\chi^2(1, n=1935)=8.338$, $p=.040$.

Field of interest differences in students' expectations of MYC

The results showed that applicants with ICT ($n = 262$, 96.4%) and mathematical ($n = 353$, 97.2%) interests mostly had academic expectations for participating in the Millennium Youth Camp, $\chi^2(4, n = 1935) = 40.492$, $p<.001$. However, interestingly, the opinions of these two groups differed in social expectations: the mathematically-oriented respondents' interest was the lowest ($n = 232$, 63.9%), while the ICT-oriented respondents' was the highest ($n = 203$, 73.3%), $\chi^2(4, n = 1935) = 11.088$, $p = .026$ of all the groups.

However, these two groups shared a low interest ($n = 69$, 24.9% and $n = 78$, 21.5%, respectively) in ethical issues compared to the three other groups (climate change, $n = 219$, 44.4%; water, $n = 124$, 51.0%; renewable energy and natural resources, $n = 237$, 42.4%), $\chi^2(4, n = 1935) = 93.097$, $p<.001$. Applicants who were interested in climate change ($n = 154$, 31.2%) and water ($n =$

80, 32.9%) were the ones who most frequently reported socio-ethical expectations, $^2(4, n = 1935) = 65.014, p<.001$.

Specialists and the Implementation of the Curriculum Goals of MYC

The camp curriculum was planned to meet the students' expectations; therefore, the curriculum included academic, social, and ethical goals.

The academic goals were:

- To encourage the 16- to 19-year-olds to study mathematics, natural sciences, and technology;
- To introduce the students to the academic and professional opportunities that Finland has to offer in the areas of mathematics, natural sciences, and technology, as well as to help strengthen the image of Finland as a great country in which to study and work;
- To make the Millennium Technology Prize better known;
- To devise a research question with more than one right answer; and
- To devise projects that encourage students to think creatively.

Social goals in the curriculum were:

- To help the students people network with one another;
- To provide the students with opportunities to meet researchers and stakeholders in Finnish companies and organizations; and
- To provide opportunities for the students to have fun with like-minded young people and enjoy their experience in Finland.

Ethical goals in the curriculum were:

- To devise projects related to sustainable development; and
- To devise that deal with an ongoing discussion between science and society.

The five specialists were given this curriculum and asked to implement it in the projects they were directing. After the camp the specialists were asked how they realized these goals. The results are presented in Table 4.

Table 4: Curricular goals of the specialist teachers.

Specialist	Goals mentioned (N)	Academic goals	Social goals	Ethical goals	Personal goals
Jukka	6	Increase knowledge, Creative thinking, Academic and professional opportunities, Experience in STEM subjects	Peer interaction	---	Timely project
Matti	7	Increase knowledge, Creative thinking	Peer interaction, Meeting experts, Having fun	Socio-scientific discourse	Timely project
Sonja	8	Increase knowledge, Creative thinking, Academic and professional opportunities	Peer interaction, Meeting experts, Having fun	Socio-scientific discourse, Environmental issues	
Mikko	11	Increase knowledge, Creative thinking, Academic and professional opportunities, Experience in STEM subjects	Peer interaction, Meeting experts, Having fun	Socio-scientific discourse, Environmental issues	Timely project, hands-on project
Ismo	9	Increase knowledge, Academic and professional opportunities, Experience in STEM subjects	Peer interaction, Meeting experts, Having fun	Socio-scientific discourse, Environmental issues	Hands-on project

The actualized curriculum goals of the specialists

The goals of the five specialists were analyzed from their answers and classified into four main categories: academic, social, ethical, and other. The academic goals consisted of four subcategories: increase knowledge, promote creative thinking, provide academic and professional opportunities, and give experiences in STEM subjects. The social goals consisted of three subcategories; peer interaction, meeting experts, and having fun. The ethical goals expressed by the specialists fell into two subcategories: socio-scientific discourse and environmental issues. In addition to these goals, the five specialists had some goals of their own for their teaching. These goals were related to the nature of specific projects, including a suitable schedule and hands-on experience. In the following section, these goals are discussed with examples from the specialists' data to show the pedagogical ways in which the specialists met these goals in their teaching.

Academic goals

Increase in knowledge

All five specialists mentioned that the camp provided the opportunity for students to increase their knowledge in STEM subjects. Sonja mentioned that the water team gained knowledge on how urban hydrologic circulation works; Ismo, from the food science group, mentioned that the campers studied different scientific theories related to the project. Many of the specialists felt that becoming familiar with ongoing scientific research was beneficial to the students, and so they assigned scientific publications as reading materials.

Creative thinking

In the selection process, the specialists found that the students were already academically gifted, and so rather than devising projects to increase academic knowledge, four of the specialists wanted to develop projects that promoted creative thinking. Ismo, the expert from the food science group, described the power of this approach as follows:

Discussing the use of alternative protein sources fired the creativity of the campers.

Creativity was encouraged in several ways. In the ICT group, the students were given the task of building a water rover on a limited budget. The specialist for the group said that the project gave the campers the opportunity to take the project in the direction they wanted, thereby activating their creativity. In the energy group, the students designed their own solutions for integrating solar energy into a building of their choice. The other specialists also mentioned that their projects gave the students a great deal of freedom, encouraging them to come up with new solutions to existing problems.

Academic and Professional Opportunities

During the camp, all the students had the opportunity to visit two universities and at least one Finnish company, such as Nokia or UPM. Four of the five specialists mentioned these visits in their answers. Jukka, from the applied mathematics group, said that during these visits he encouraged the campers to undertake university studies in science or mathematics. Matti, from the energy group, had a slightly different approach: he did not explicitly encourage the students to study STEM subjects, but he believed that this goal was met by the opportunities afforded to network with experts and by visiting universities. Mikko, from the ICT group, believed that opportunities became apparent largely through the project the students worked on. He said:

In the project we used academic research as a foundation, and this hopefully showed the young people how academic research can be used to solve practical problems.

Experiences in STEM subjects

Three of the specialists also mentioned that they wanted to give the students a positive experience working with STEM subjects. Mikko and Ismo mentioned that, through work on the

projects, they wanted the students to get the feeling that they had achieved something worthwhile. Mikko put it in the following words:

> The project gave the campers the experience of succeeding in doing a STEM project, where they had the chance to do something new and interesting. I believe such positive experiences will motivate the young people to continue working with STEM subjects.

Social goals

Helping the students network

All of the specialists felt that the camp provided an excellent opportunity for the young people to network with each other. Three of the specialists mentioned that they encouraged networking by making the group work in pairs or groups of three. Two mentioned that the networking had started already before the camp, through the camp's online platform. The specialists also felt that giving the students the responsibility for advancing the project was a good way for them to network, since they had to solve problems together. Four of the specialists mentioned that they endeavored to devise a project in which everyone could participate. Mikko, from the ICT group, described the success of this as follows:

> Everyone had the opportunity to give their input to the project. At least I got the impression that the project inspired the young people to work together and brought them closer together. It also increased their understanding of the different skill sets that each of them had.

Meeting Experts

In addition to having a specialist teacher in each theme group to guide the students in their project work, the campers also had the opportunity to interact with other experts from universities and Finnish companies. Four of the camp specialists mentioned these encounters in their answers. Ismo, from the food science group, said:

> We did laboratory work in which the students were guided by real experts and students.

And Mikko, from the ICT group, observed:

> The campers asked the experts a lot of questions about their work and experience as researchers. The experts were role models to the young people.

Having fun

Informal activities are important for networking. The Millennium Youth Camp offered such activities through a welcome party and a farewell party, an international evening, and various non-academic competitions, such as the Amazing Race of Science. These activities provided the young people enjoyable activities with like-minded students. However, since the specialist teachers were not involved in the evening activities, it was hard for them to evaluate those programs. Mikko, from the ICT group, did point out that as the young people got to know each other better, they also worked much better on their projects. Ismo, from the food science group, felt that it was very important that the campers have opportunities to have fun together.

Ethical goals

Dealing with socio-scientific discussions

In order to understand the nature of science, students need to learn to deal with the discourse of science and society (Abd-El-Khalick, 2003). All but one of the specialists mentioned that such discussions were included in their projects. Matti, from the energy group, described the work on the projects in the following words:

> The young people had the opportunity to think of solutions for how solar energy could be used in a certain area in the city of Espoo. In their project, the young people showed how feasible solar energy actually is, even in Finland, and I felt that solar energy was a good theme for the project.

Mikko, the expert from the ICT group, explained how their project was related to sustainable development:

> The theme of the project is highly relevant to socio-scientific discourse, and it tackled the theme from the perspective of sustainable development. I hope the project got the students thinking about the possibilities of technology for solving environmental problems.

Jukka, from the applied mathematics group, did not find their project to be relevant to socio-scientific discourse and said that he did not promote ethical discussion during the project.

Environmental issues

Three of the specialists mentioned that environmental issues were also part of their projects. Mikko said that the ICT group discussed the ecological benefits of the water rover they built, and Ismo, from the food science group, mentioned that bringing an environmental point of view was one of his main goals in deciding on the project theme. He also mentioned the discussions with the students:

> The campers were asked to discuss the use of plant- and meat-based proteins…we had a lot of discussion on whether animal proteins are ethical. Happily, the students were not too black-and-white in their opinions.

The water group discussed how environmental problems can be prevented or minimized. Sonja mentioned these discussions as follows:

> We discussed how the environmental effects of medicine compare to other chemicals. The main question was whether environmental risks caused by medicine should be viewed in a different way from the risks caused by other chemicals.

Concluding Remarks

This research shows that gifted students have academic, social, and ethical expectations of enrichment programs. All of these expectations should be acknowledged in order to provide a holistic education for gifted students. Moreover, in planning a curriculum for an educational camp, the camp administrators and teachers should consider aspects of meaningful learning. Previous research has already shown that MYC meets the criteria of meaningful learning for gifted students (Tirri et al., 2012). In this study, our emphasis has been on demonstrating how the expert teachers in different subjects met students' holistic expectations during MYC.

The results of our research show that gifted students apply to enrichment programs primarily for academic reasons. The curriculum for MYC was designed to meet these young people's academic expectations by providing fresh knowledge and creative insights into the themes of climate change, water, renewable energy and natural resources, applied mathematics, as well as information and communications technology. Our results also demonstrate that the students' academic expectations were well met in all these themes in the specialists' curricula. During the camp, the specialist teachers presented ongoing research and various academic and professional opportunities. The students were also allowed to work on a project that required creative thinking. The specialists believed that creative work enhances students' positive STEM experience by fostering their interests in studying these subjects in the future. Furthermore, the specialists set a goal to build students' knowledge during the camp, working on the projects in a timely manner, and making the projects meaningful for gifted students. In so doing, they were able to address the students' abilities, interests, and passions.

In the application phase, almost seventy percent of the students mentioned their social expectations for the summer enrichment camp. They wanted to meet new people, make new friends, and share ideas with like-minded peers around the world. In order to meet these social expectations, the specialists emphasized the importance of teamwork in their teaching. The projects were carried out in teams of six students. The students were also given opportunities to work in pairs or groups of three. With the help of these pedagogical approaches, the students learned to know each other well

during the camp. The teachers also gave the students a great deal of freedom and responsibility in all their work. This approach forced them to rely on each other, building up the team and providing maximum opportunities for peer interaction. In addition to peer interactions, the students had the opportunities to meet scientists in universities and companies, giving them the chance to see what scientists really do and allowing them to ask questions about scientific work. The specialist teachers also acknowledged the importance of the camp's informal programs in meeting the students' social expectations.

In addition to academic and social expectations, almost forty percent of the students wanted to address ethical issues in science during the camp. These expectations usually stemmed from a desire to make the world a better place by making a positive impact on the people and the environment around them. The female students expressed more ethical expectations than male students.

In order to meet the students' ethical expectations, four of the specialists implemented socio-scientific discourse and three implemented an environmental aspect in their projects. The specialist teachers were able to discuss environmental issues, because they had chosen projects with links to sustainable development. Through this link, they were able to meet the expectations of the many students who had mentioned a desire to make their environments a better place. This approach can also be a way of attracting gifted females to science-related careers, since previous research shows that helping others and doing something worthwhile for society serve as powerful motivators for drawing gifted women to science all over the world (Rosser, 2000).

In this study, we have investigated how gifted students' expectations for summer study and the curriculum in a summer enrichment course in science can coincide. According to our findings, a holistic approach in curriculum design is needed to meet the variety of expectations that gifted students bring to their experiences. Academic and social expectations are easy to meet by providing expert teaching in science along with like-minded peers and creative challenges. The biggest challenge in designing summer enrichment courses and camps in science is to address the ethical issues of doing scientific research and the necessity of taking responsibility for global issues. Our results show that ethical issues were addressed in the curriculum of this particular camp by a majority of the specialist teachers. However, this is an aspect of curriculum design that needs further research and attention. Furthermore, in order to understand the holistic development of students, longitudinal learning outcomes of summer programs are needed.

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About the Author

Sakari Tolppanen is a doctoral student in the Unit of Chemistry Teacher Education, Deparment of Chemistry, University of Helsinki. He is also the coordinator of the International Millennium Youth Camp. His main research interests are non-formal education, education for sustainable development, and moral education.

Dr. Kirsi Tirri is a Professor of Education and Research Director at the Department of Teacher Education at the University of Helsinki, Finland. She is the Chair of Doctoral Programme SEDUCE (School, Education, Society and Culture). She is also a visiting scholar with the Stanford Center on Adolescence, USA. Tirri has been the President of ECHA (European Council for High Ability) for the years 2008-2012 and the President of the SIG International Studies at AERA (American Educational Research Association) for the years 2010-2013.

Addresses

Sakari Tolppanen
The Unit of Chemistry Teacher Education, Department of Chemistry,
University of Helsinki,
P. O. Box: 55, FIN-00014,
Finland.

e-Mail: sakari.tolppanen@helsinki.fi

Kirsi Tirri
Department of Teacher Education,
University of Helsinki,
P. O. Box: 9, 00014,
Finland.

e-Mail: ktirri@helsinki.fi

Problem Solving Style and Creative Productivity

Frederick H. McCoy

Kutztown University, Kutztown, Pennsylvania, USA

Edwin C. Selby; John C. Houtz

Graduate School of Education, Fordham University, New York, USA

Abstract

Freshmen education students created five-to ten-minute multimedia presentations in response to one of several prompts about education, learning, and teaching. Students who completed *VIEW: An Assessment of Problem Solving Style* were assigned to working teams based on their *VIEW* scores such that team members were similar on the three dimensions of problem solving style (Orientation to Change, Manner of Processing, and Ways of Deciding). Students' presentations were scored for clarity of prompts used, for supporting details, and for use of multi-media to enhance the presentations. Generally, on Orientation to Change, Developer-dominated teams received higher ratings on clarity of prompt expressed in their presentations. In addition, "style-matched" teams received higher ratings than randomly-created teams but this result had low statistical power, so results must be considered suggestive only. Additional research on problem-solving style and creative productivity is essential.

Keywords: Problem solving style; creativity; orientation to change; manner of processing; ways of deciding.

Introduction

A major (if not primary) goal of instruction is to maximize learning and achievement. To that end, educators at all levels have searched for dependable and effective instructional methods based on theories and knowledge of human learning and behaviour. It is a truism to say that learning is a complex phenomenon depending on and influenced by many factors, but at least one hypothesis has received considerable attention from researchers, that if there is a better match between the instructional methods and learners' individual information processing preferences and strengths, the outcomes are better (Cronbach & Snow, 1977). This hypothesis remains of interest to researchers despite mixed results over the years if for no other reason than it seems such a natural idea, that behaviour is a function of the person and environment (or context) interacting together (Lewin, 1936, Woolfolk, 2010).

To examine the "person" side of the interaction, there have been numerous efforts over several decades to identify and to assess learners' information processing and responding styles and to relate styles of instructional strategies and methods (Jonassen & Grabowski,1993; Sternberg, 2000). Among the most recent efforts has been the assessment of creative problem- solving styles (Treffinger, Selby, & Isaksen, 2008; Treffinger, Selby, Isaksen, & Crumel, 2007). The importance of the idea of creative and problem-solving styles is that we no longer look solely at how much creativity a person exhibits. Instead, we are able to study "how" a person uses his or her creative skills. It is an idea referred to as the "level-style" distinction, and it assumes that individuals of different styles can still effectively solve problems (Isaksen & Dorval, 1993).

Recognizing the "level-style" distinction puts the emphasis back on the context of problem solving, the task conditions, demands, or constraints (or lack thereof) that problem solvers face. When Isaksen, Sternberg, and others (Isaksen, Dorval, & Treffinger, 2010; Sternberg & Lubart, 1995; Zhang & Sternberg, 2006) argue that most real-life problems are very complex and "fuzzy," it follows that certain personal styles of information processing may be more effective than others. For example, to

respond to complexity, individuals may need a wider range of cognitive processes indicative of a more open, flexible style. If the context is clearer, narrower, on the other hand, a better style "fit" might involve more judgment and evaluative processes (Treffinger, et al., 2007; Isaksen, Dorval, & Treffinger, 2010)

With a new instrument for assessing problem solving in individuals aged 12 through adult, entitled *VIEW: An Assessment of Problem Solving Style* (Selby, Treffinger, Isaksen, & Lauer, 2004), six problem-solving styles aligned over three dimensions have been identified that describe a person's consistent preferences for working on problems and for responding to change. The dimension termed Orientation to Change describes Explorers, who prefer to make their own way in approaching problems, and Developers, who prefer working within existing rules and structures. Developers may "push the boundaries," so to speak, but Explorers more likely ignore boundaries.

The second style dimension, Manner of Processing, describes External and Internal processors. Externals easily and early on share ideas with others and take strength from such interactions, whereas Internals require their own time and reflection before "joining the fray." The third dimension, Ways of Deciding, describes Person-oriented versus Task-oriented Deciders. When finally making decisions and settling on criteria for action, Person-oriented Deciders will consider the impact of their choices on people who might be affected. They will give weight to these implications, whereas Task-oriented Deciders will value more highly and make more decisions based on logic and efficiency.

To be sure, there are strengths and limitations of each of these six styles, but the point of the "level-style" distinction is that individuals characterized by each style still solve problems. They will respond to change, but their styles may or may not be most appropriate, most compatible, most complementary to the problem contexts they face. With respect to achievement, the educational psychology of style theory hypothesizes that "matches" of styles and situations will be most effective (Zhang, 2006a, 2006b, 2008).

The purpose of the present study was to test the relationship of style to achievement. First, if the "level-style" distinction is valid, different styles may make a difference in achievement depending upon the context and the task required. Second, "matches" may outperform "non-matches." Would students working on a substantive academic problem in a group format be better able to develop a better product if group members were similar to each other in one style or another? Would teams of "matched styles" create a better product than teams that were formed randomly? The present study was able to investigate these two questions and test the following hypothesis: group productivity will be higher if group members are "matched" in styles.

Method

Participants

Participants in the present study began with 464 freshmen undergraduates beginning their first semester at a mid-sized state university. These students had identified themselves as education/pre-service teaching majors, and represented approximately 33% of the entire incoming freshman class. There were 93 males and 374 females. They ranged in age from 18 to 26 years old. More than 85% of the students were Caucasian, with the remainder including individuals from a variety of ethnic backgrounds. The socioeconomic background of these freshmen may generally be characterized as middle- to lower-middle class.

From the total group, 401 students had taken VIEW on-line as instructed during the summer before attending the orientation in late August. Of these students, 67 teams were initially created with five or six members per team. On the day of the orientation, 63 additional students attended who had not taken VIEW. Of these students, 11 new teams were created with sizes of five-to six members. The freshman orientation preparation had planned for the possibility of non-VIEW students and assigned these students as they arrived randomly to new teams.

By the due date of the project, there were 65 teams that submitted a presentation. Of these, 56 were teams that were "matched" by their *VIEW* scores and nine teams that never took *VIEW* were thus considered "randomly-made." A limitation discussed below is that the nine "randomly-made" teams may have contained members with similar *VIEW* scores. Further, a number of teams, both "matched" and "randomly-made" lost members during the project period. Most teams retained six members. A few teams lost one or two members, but as many as two teams from the "randomly-made" group completed their projects with as few as three members.

Instruments

VIEW: An Assessment of Problem Solving Style. *VIEW: An Assessment of Problem Solving Style* is a relatively new measure of "…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, p. 2). In each of its 34, seven-point Likert-type items, an individual is presented with two short descriptive phrases that represent different ends of a continuum. Each item belongs to one of three style dimensions. On the Orientation to Change dimension, the two styles assessed are termed Explorer and Developer. On the Manner of Processing dimension, the two styles are termed External and Internal Processors. On the Ways of Deciding dimension, the two styled are termed Person-oriented Deciders and Task-oriented Deciders.

To date, the reference sample of *VIEW* takers includes over 25,000 individuals, ranging in age from 12 to 80 years old. *VIEW* has been translated in seven foreign languages. Generally, all three scales yield reliability estimates over .80 (Schraw, 2007; Selby et al., 2004). Criterion and construct validity are equally positive, with correlations with other style measures and personality characteristics consistent with the definitions and descriptions of the *VIEW* styles (Houtz, Ponterotto, Burger, & Marino, 2010; Houtz, Matos, Scheinholtz, & Selby, 2007; Houtz & Selby, 2009; Shaw, Selby, & Houtz, 2009). In addition, factor analyses support the internal structure of the *VIEW* items and dimensions (Anthony, Rauch, & Williams, 2011; Schraw, 2007; Selby et al., 2004; Vasquez & Proestler, 2011).

A well-maintained website (www.viewassessment.com) offers free downloads of research articles about *VIEW* and updates of technical data, as well as additional information about style dimensions and how styles affect creative problem solving. *VIEW* is a controlled measure and individuals who wish to use *VIEW* in their research or work must receive training and abide by standards such as those endorsed by the American Psychological Association, the American Education Research Association, and other professional societies.

The Freshman Orientation Assignment and Procedures

During July of the Summer preceding their first semester, incoming freshman were mailed a letter and instructions to access the VIEW website and complete *VIEW: An Assessment of Problem Solving Style*. By the August orientation date, most freshmen had done so and their scores on the three dimensions were used to create more than 60 six-person teams matched to the extent possible on similar styles.

The orientation session late in August involved welcoming and introductions and seating assignments throughout the large auditorium based on which team a freshman belonged. During the two-hour orientation, students were shown three short video clips designed to motivate and to illustrate aspects of learning and thinking. The video clips included:
1. Dalton Sherman's "Believe in Yourself";
2. A scene from the movie "Dead Poets Society"; and
3. A most recent "Shift Happens" video.

These clips are available on the YouTube website. Dalton Sherman was a 10-year-old motivational speaker, exhorting individuals to have confidence in their own abilities to achieve. The clip is of a speech he gave before 20,000 teachers in Dallas Texas. The scene of the actor Robin Williams in "Dead Poets Society" illustrates his teaching philosophy and motivation for his students to "seize the day (*carpe diem*)." Finally, the "Shift Happens" video illustrates the rapid pace of change in human civilization and implications for education.

After seeing the three clips, the multi-media project was then described. Students were to work together in their respective teams to create a brief, five-to eight minute multi-media presentation that offered their views about students, teaching, and learning. Their presentation could respond to one of several prompts offered in the assignment materials. The five prompts were:

1. As a new college pre-service teacher, what do you believe about students, teaching, and learning?
2. What currently accepted beliefs/assumptions about students and practices of teaching and learning will need to change within the next 20 years?
3. What emerging national and economic, political, and social changes do you see that could impact schools? How do you foresee these events affecting your career?
4. In what ways do Mr. Keating's teaching methods reflect Dalton's beliefs about students? How would Dalton describe the teaching styles of Mr. Keating's colleagues?
5. Is "Shift Happens" an accurate perception of the teaching and learning landscape at the end of the first decade of the twenty-first century? Why or why not?

Materials given to students during the orientation also described resources in the university that students could access in support of their work. These included technical support from computer and media centres as well as in-person, on-going advice and feedback from a project consultant. Suggestions for how effective groups typically function, including the designation of a team leader and other activities of group work were also distributed as part of the orientation materials. Students had six weeks (by mid-October) to complete and submit their projects. For the most part, one team member submitted the final presentation via e-mail. A few submissions were on CD or DVD.

Results
Evaluation of the Presentations
A rubric for scoring each of the presentations was developed that included a rating scale for each of the three main components of students' presentations. The three components were:
  a. The degree to which the presentation clearly reflected the prompt chosen by the team;
  b. The degree to which the presentation included relevant information and details in support of the prompt; and
  c. The degree to which the use of multi-media supported or enhanced the presentation. For each component, raters could award zero to three points.

Thus, a maximum score on a team's project could be nine points. Pearson intercorrelations among the judges' ratings were small, ranging from -.006 to .627, with an average of only .250 for the 36 possible correlations. An alternative procedure was therefore needed to establish a degree of reliability to warrant further analyses. It was decided to consider the nine ratings as individual items as if from a single measure of a specific phenomenon, in this case, the overall "value" of a team's presentation. Using the nine ratings in this manner, a Cronbach's Alpha estimate of reliability was computed to be .7198, a much more acceptable level to justify further analyses.

However, assuming the nine ratings to be individual items of some hypothetical scale of value did raise the issue of what is termed Common Method Variance (CMV; Podsakoff, MacKenzie, Lee, & Podsakoff, 2003), which is a potential scoring bias when multiple measures are taken of the same

phenomena. With the problem of CMV, subsequent ratings may be affected by previous ratings, either positively, as in a "Halo Effect", or negatively. To compensate for the possibility of CMV, a popular remedy is to factor analyze the individual ratings. If there is CMV bias, there will be a large first factor extracted. Any subsequent factors are considered free of such bias.

The nine ratings were subjected to a principal components analysis with varimax rotation. Two factors among the nine ratings were identified, accounting for approximately 53% of systematic variance. The first factor extracted was the three raters' scores on the second and third rubric criteria, supporting details and use of multimedia to enhance the presentation, with loadings ranging from .503 to .728, accounting for 31% of the total variance. The second factor extracted was the three raters' scores on clarity of prompt exhibited in teams' presentations, with loadings ranging from .734 to .830, accounting for another 22% of variance.

Based on this analysis, two composite scores were computed for testing the hypothesis of the effects of problem-solving style on productivity. For purposes of labelling, the two composite scores were termed Clarity (factor 2) and Work (factor 1). The Clarity score was the simple sum of the three scorers' three individual rubric ratings on clarity of prompt. The Work score was the simple sum of the three scorers' six rubric ratings of supporting details and use of multimedia.

Overall VIEW Results

Table 1 presents descriptive statistics for those students who completed *VIEW*. Skew and kurtosis computations revealed no deviations from normality. *VIEW* scores revealed that these students' Orientation to Change scores were a nearly one-half standard deviation higher than the hypothetical mean of 72 for *VIEW*. These results suggest a general characteristic of these participants as Developer. Results for Manner of Processing and Ways of Deciding did not deviate very much from the hypothetical mean of 32 for each of these scales. These freshmen scored slightly External and as People-oriented Deciders. These results are consistent with previous studies involving both pre- and in-service teachers (Houtz, et. al., 2007, 2009, 2010).

Table 1: Descriptive statistics for VIEW orientation to change, manner of processing, and ways of deciding (N = 401).

VIEW Dimension	M	SD	SE	Minimum	Maximum
Orientation to Change	80.768	15.159	.757	25	126
Manner of Processing	29.633	8.769	.438	10	56
Ways of Deciding	30.277	7.028	.451	8	50

Pearson correlations were computed among the *VIEW* scores. Orientation to Change correlated with Manner of Processing and Ways of Deciding (*r*'s = .157 and 279, respectively). Manner of Processing correlated with Ways of Deciding (*r* = .271). Each of these correlations was statistically significant (*p* < .01). Again, the international database of *VIEW* scores does not show significant correlations among the three *VIEW* scores. However, previous research with education students has observed small but significant correlations (Houtz et al., 2007, 2009, 2010).

Finally, analyses reported below, compare teams characterized in the main by each of the three *VIEW* score dimensions separately. Teams, of course, have all three scores together in their respective make-ups. According to *VIEW* theory, the combinations of the six styles across the three *VIEW* dimensions yields eight distinctive style-types (2 x 2 x 2 = 8).

Table 2 lists the frequency of each of the eight types observed among the original 67 teams and the 56 teams that submitted presentations. As can be seen, Developer-dominated teams far outnumbered Explorer-dominated teams. In this study, comparisons among the eight possible style types of teams were not possible due to the under-representation of all eight style types.

Table 2: Frequencies of the eight VIEW styles observed among the original 67 teams and final 56 teams that submitted presentations.

Style Type	Frequency	Percentage	Frequency	Percentage
Explorer External Person	9	13.4	5	8.9
Explorer External Task	2	3.0	2	3.6
Explorer Internal Person	3	4.5	3	5.4
Explorer Internal Task	2	3.0	1	1.8
Developer External Person	15	22.4	15	26.8
Developer External Task	11	16.4	8	14.3
Developer Internal Person	10	4.9	9	16.1
Developer Internal Task	15	22.4	13	23.2
Total N	67		56	

Comparisons of "Matched" and Randomly-Made" Teams

To test the hypothesis of this study, analyses of variance were computed comparing Clarity and Work scores across "matched" and "randomly" formed teams. Table 3 contains descriptive statistics for the 56 teams on the two composite scores Clarity and Work. On both Clarity and Work, mean ratings are larger for "matched" teams. However, there are no significant differences on Clarity ($F = .997$, $df = 1,55$). On Work ($F = 3.17$, $df = 1, 55$), the significance level is .08, with a power of .42.

Table 3: Descriptive statistics for style comparisons among teams.

	N	M	SD	SE
Orientation to Change				
Clarity				
Explorer	12	4.000	2.256	.651
Developer	44	5.454	1.438	.217
Work				
Explorer	12	9.083	3.579	1.033
Developer	44	10.454	2.723	.411
Manner of Processing				
Clarity				
External	30	4.833	1.510	.276
Internal	26	5.500	1.924	.377
Work				
External	30	10.233	3.170	.579
Internal	26	10.077	2.726	.535
Ways of Deciding				
Clarity				
Person-Oriented	30	4.833	1.783	.326
Task-Oriented	26	5.500	1.631	.320
Work				
Person-Oriented	30	10.067	3.062	.559
Task-Oriented	26	10.269	2.864	.562

Comparisons of Teams Based on Styles

A second set of analyses was computed to see if differences in productivity simply existed due to the type of problem-solving style. Teams with complete *VIEW* scores were categorized as Explorer vs. Developer, External vs. Internal Processor, or People- vs. Task-Oriented Decider, based on the hypothetical means (72, 32, 32, respectively) of the *VIEW* scores of the majority of the members of their groups. Table 4 also presents the descriptive statistics for these comparisons.

Table 4: Descriptive statistics for clarity and work scores for matched and non-matched teams.

	N	Mean	Standard Deviation	Standard Error
Clarity:				
Matched Teams	56	5.143	1.731	.231
Randomly-Made	9	4.556	1.944	.648
Work				
Matched Teams	56	10.161	2.947	.394
Randomly-Made	9	8.444	1.424	.475

An analysis of variance comparing teams "dominated" by Explorers versus Developers was statistically significant ($F = 7.434$; $df = 1, 54$; $p = .01$) on the variable of Clarity, with eta-square equal to .12 and power of 76%. Developers received higher ratings. The comparison on Work was not significant ($F = 2.082$; $df = 1, 54$; $p = .16$).

With respect to teams "dominated" by External or Internal processors, Clarity ($F = 2.107$; $df = 1, 54$; $p = .15$) and Work ($F = .039$; $df = 1, 54$; $p = .84$) did not exhibit significant differences. With respect to teams "dominated" by People- and Task-Oriented Deciders, neither Clarity ($F = 2.107$; $df = 1, 54$; $p = .15$) nor Work ($F = .065$; $df = 1, 54$; $p = .80$) yielded significant differences.

Discussion and Limitations

The initial purpose of this research was to examine the effects, if any, of problem-solving style on creative productivity. As mentioned above, the "level-style" distinction undergirding the development of *VIEW: An Assessment of Problem Solving Style* argues that style and creative productivity should not be correlated. There is some research to support this distinction, albeit with well-known tests of creative potential (Woodel-Johnson, 2011). In the present study, however, a large number of individuals who completed *VIEW*, were assigned to teams of similar styles, and then assigned a real task, to create a multimedia presentation. Thus, in this study, it was possible to examine the relationship of style to actual creative productivity.

The results presented above suggest that style and productivity can be related. While the "matched styles" hypothesis was not supported, there was a statistically significant difference in favour of Developer-dominated teams in the case of ratings of the clarity of the prompt expressed in their presentations. The observed power of this result was a high-enough level to warrant consideration.

To be sure, the limitations of this study are both theoretical as well as mechanical. While comparisons were made with each of the three *VIEW* dimensions, as mentioned above, teams were labelled one style or another based on the majority of members' *VIEW* scores. In reality, some teams contained a "minority" of members whose scores on one or more of the three *VIEW* dimensions were not "as extreme or consistent" with all the other members. A few teams "tied" in the number of members with scores above or below the hypothetical means. In those cases, the teams were labelled Developer, Internal, or Task-Oriented, respectively, in keeping with the rules governing official *VIEW* scoring (Selby et al., 2004).

One must also consider the hypothesis that any relationship between style and productivity may depend on the context, the job, or the task at hand (Treffinger, Isaksen, & Dorval, 2007). In the present study, the task was an academic one, required of students enrolling in college and, presumably, who were fairly able at academic work. The task was designed to be relevant to the students' course of study. Quite possibly, the initial effort on the part of students in their teams to meet their team members, to understand the task, and to organize themselves to begin work would be the most difficult aspect. Once the team got itself organized and responsibilities and work divided up among members, students could proceed on a more "individualized" basis, relying on their various academic skills which they have used successfully enough, one must assume, to get into college in the

first place. This is a reasonable explanation why Clarity might be the more affected variable than Work, thus resulting in the one statistically significant result with reasonable power.

Some might suggest that the three raters, the three authors of this study, could have been biased in their ratings due to the Experimenter or other effects. Would independent raters have resulted in different outcomes? Possibly, of course, but this criticism may be the easiest to defend against. As reported above, the individual correlations among the nine ratings by the three raters rarely exceeded .50. This suggests that, even using the same rubric, and with their extensive knowledge and background with VIEW and education, the three raters rated the same presentations differently. In addition, to compensate for any possible bias, a factor analysis was employed, yielding one measure, termed Clarity, that was independent of the primary factor, Work.

Another limitation also gives direction for additional research. No data were collected about the actual interactions among group members as they worked on their projects. How did they begin? How did they respond to each other? How did they make decisions, such as which prompt(s) or media to use, or even dividing up the work? What criteria were important to them as they made decisions? If there was conflict, why did such occur and how was it resolved? Problem-solving style is relevant to each of these questions. Style can affect the ways individuals act and react in all phases or stages of problem solving, whether generating ideas in expansive explorations of possibilities or efforts to focus down on one or a few ideas for taking action. If the "match-mismatch" hypothesis is to be pursued, future research should try to gather these types of behavioural data.

Finally, the individuals on each of the teams were not told of their *VIEW* scores or were offered information about their *VIEW*s and what problem-solving style was about until after the assignment was completed. If teams had known about their own styles or style generally, perhaps their work and interactions during the work period would have been different. Additional research should examine the effects of knowledge of style on performance.

Conclusion
What can be concluded from the data reported above? The Clarity result yielded sufficient power that its explanation must be considered. This result is not contradictory of *VIEW* or general educational psychological theory. This result seems consistent with the idea that on a new and basically academic task, individuals with strengths in working with rules and guidelines (Developers), using logic and analytic skills to complete an assignment within a deadline, would have an advantage.

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About the Authors

Frederick H. McCoy, Ed.D. is most recently retired as Associate and Interim Dean of the College of Education of Kutztown University. Dr. McCoy served more than 40 years as teacher, principal, college professor, and senior research director at the Mid-Atlantic Regional Laboratory for Student Success at the Center for Research in Human Development in Philadelphia. He has presented more than 100 papers at professional conferences in his career and published widely on curriculum and professional development issues, school leadership and education reform, student achievement, and teaching critical thinking for the 21st century.

Edwin C. Selby is a Senior Associate at the Center for Creative Learning in Sarasota, FL and an Adjunct Professor at Fordham University's Graduate School of Education. He lectures, offers workshops, and writes on creativity, style, and talent development. He is the principal author of *VIEW: An assessment of problem solving style*, and co-author of books on creativity, talent development, and problem solving style. He served as President of the Board of Directors of the Sussex County Teen Arts Festival and currently serves as board President at the Sussex County Charter School for Technology.

John C. Houtz is Bene Merenti Professor of Educational Psychology in the Graduate School of Education of Fordham University, New York City. He earned his doctorate at Purdue University in 1973 under the direction of John Feldhusen. Dr. Houtz also is Research Fellow for the Center for Creative Learning, Inc., is a licensed psychologist, served two terms each as department chair and associate dean. He has taught and written extensively on creativity and problem solving, research methods, measurement, and statistic, and mentored more than three dozen doctoral candidates as well as undergraduate and Masters research projects in his 42-year career at Fordham.

Addresses

Prof. Dr. Frederick H. McCoy,
Associate Dean of the College of Education (Retired),
Kutztown University,
Kutztown, Pennsylvania

Prof. Dr. Edwin C. Selby,
Graduate School of Education,
Fordham University,
New York, New York, USA.

Prof. Dr. John C. Houtz,
Graduate School of Education,
Fordham University,
New York, New York, USA.

e-Mail: jhoutz@fordham.edu.

The Factor Structure of the Scales for Rating the Behavioural Characteristics of Superior Students (SRBCSS): Results on an Omani Sample

Ali Mahdi Kazem; Abdulqawi S. Alzubaidi; Ahmed Hassan Hemdan
Sultan Qaboos University, Oman

Joseph Renzulli
University of Connecticut, USA

Abstract

The use of teacher-rating scales constitutes an integral component in the identification of gifted students. The purpose of this study was to explore the factor structure of the Scales for Rating the Behavioural Characteristics of Superior Students (SRBCSS, Renzulli, Smith, White, Callahan, & Hartman, 2002). Participants consisted of 672 (310 females and 362 males) students from several parts of Oman from Cycle II (grades five to ten). Exploratory factor analysis of the fourteen scales was conducted using principal components analysis with varimax rotation yielded thirteen factors. The results of the study support the factorial validity of the SRBCSS and warrants future research on the scale.

Teacher-rating scales are among the most widely used instruments for the screening and identification of students for later participation in programs of the gifted. The authors contend that rating scales are the second most frequently used, after the Intelligent Quotient (IQ) test, in assessing the gifted students (Pfeiffer, 2002). Some widely used teacher-rating scales exist: the Gifted Evaluation Scales (GES, McCarney & Anderson, 1998), Gifted Rating Scales (GRS, Pfeiffer & Jarosewich, 2003), Gifted and Talented Evaluation Scales (GTES, Gilliam, Carpenter, & Christensen, 1996), Scales for Identifying Gifted Students (SIGS, Ryser & McConnell, 2004), and Scales for Rating the Behavioural Characteristics of Superior Students (SRBCSS, Renzuli, Smith, White, Callahan, Hartman, & Westberg, 2002). These scales are widely used as screening instruments to identify gifted and talented students and to prepare them for enrichment programs (Renzulli, Siegle, Reis, Gavin, & Reed, 2009).

Several authors studied the use of teacher-rating or teacher-nomination scales to select students to participate in programs for the gifted (Johnsen, 2003; Siegle, Moore, Mann, & Wilson, 2010; Siegle & Powell, 2004). Also, several authors investigated the construct validity or criterion-related validity of teacher-rating scales for gifted students (Ryser & McConnell, 2004; Worrell & Schaefer, 2004).

The authors concluded that teacher-rating instruments represent a supplementary way in the identification for students who are often neglected (Stambaugh, 2007; Van Tassel-Baska, 2008). The success of teachers-as-raters depend on the explicit behaviours that students exhibit. When teachers are requested to nominate gifted children in their classrooms, the nominations or judgments might not be accurate (Peters & Gentry, 2012).

The advantages of rating scales include the ability to amalgamate a large number of observations of students in a reliable and well-organized way (Jaroewich, Pfeiffer, & Morris, 2002).

Rating scales are characterized by their simplicity and ease of administration and the possibility of involving teachers from the initial moments of the identification process (Garcia-Ros, Talaya, & Perez-Gonzalez, 2012). Teacher-rating scales are the most efficient way to identify the psychosocial aspects of giftedness (Subotnik, Olszweski-Kubilius, & Worrell, 2011; Worrell & Erwin, 2011). Teacher rating scales can provide important characteristics of student functioning such as persistence and ability to produce original solutions to problems (Elliot, Busse, & Gresham, 1993). Rating scales plays a valuable role in portfolio assessment of creative and artistic products for the gifted (Pfeiffer, 2001).

Rating scales are criticized for not providing scores that add to the predictive validity of cognitive and achievement measures (Brody, 2007; Worrell & Schaefer, 2004). Worrell and Erwin (2011) posited that "several scales result in obvious halo effects because of wording issues, use of questions that are clustered or under subheadings, or use of high-inference items. Thus, although the scores may be reliable, the validity of the inferences that can be drawn from the scores is questionable" (p. 334).

Worrell and Erwin (2011) listed three criteria of choosing rating scales. First, the scales should assess behaviours and attitudes that are related to learning and exceptional performance. Second, the scale items should be designed to measure the explicit behaviours by parents and teachers, not inferring behaviours. Third, the correlations among the subscales should be low to account for the different constructs that they assess.

The Three-Ring Model developed by Renzulli (1978, 2005) has viewed giftedness as the interaction of three constructs: above-average intellectual ability, creativity, and task-commitment. Renzulli has posited that each construct is essential in the development of gifted behaviour. The above-average ability is defined by Renzulli as either general ability that can apply to all domains, content areas, or specific abilities. Task commitment refers to high levels of motivation and involvement in a given problem or situation. Creativity refers to the fluency, flexibility, and originality of thought. These abilities, according to Renzulli, are possessed by those who perform in the top fifteenth to twentieth (percentile?) of any domain or content area.

The SRBCSS (Scales for Rating the Behavioural Characteristics of Superior Students, Renzulli et al., 2002) was originally developed in 1976 with ten subscales. The purpose was to provide teachers and other school personnel with a tool to select students who are eligible for specialized programs using a six-point rating scale that includes; never, very rarely, rarely, occasionally, frequently, and always (Renzulli et al., 2002). The first three subscales - learning, motivation, and creativity- were developed to support the construct of the Three-Ring Conceptions of Giftedness (Renzulli, 1978). More subscales were added including leadership, art, music, drama, communication (precision), communication (expressiveness), and planning as conceptions of giftedness have broadened. Four new subscales were added including mathematics, reading, science, and technology.

> Argulewicz (1985) mentioned that
> " The SRBCSS represents a significant advancement in the expansion of the methodology for identifying intellectually gifted, creative, or talented youth. One promising area of research is the usefulness of the SRBCSS in identifying children from culturally-different backgrounds. Another research possibility is its use as a dependent variable in evaluating programs designed for the gifted". (p. 1312).

Renzulli et al., (2002) mentioned that the psychometric properties of teacher-rating scales might be different as each of these scales was compared against various assessment tools. For example, there may be a low correlation between the SRBCSS and a traditional measure of intelligence, such as the Wechsler Intelligence Scale for Children (WISC) or the Stanford-Binet, since the purpose of developing the SRBCSS was to identify strengths that are not measured in intelligence measurements.

A few rating scales involve subscales related to content areas such as Mathematics or Reading. The authors concluded that gifted and talented students excel in such academic areas (Sternberg & Davidson, 2005). However, some students exhibit different strengths. In other words, a student might excel in Mathematics, but his level in Reading might be average.

The present study had several advantages. No studies had been conducted to explore the factor structure of the SRBCSS's fourteen scales. Moreover, the use of a fairly large sample (762 participants) was advantageous to investigate such an issue. Accordingly, the current study was considered the first to investigate the factor structure of the SRBCSS in a different culture, namely, the Omani context.

Methodology

Participants

A random sample was selected to answer the questions of the study. A total of seven hundred and sixty-two students from ten schools representing the second basic education cycle in Oman (grades 5 to 10) in all governorates of the Sultanate, constituted the sample of this study. The sample was carefully selected in light of two variables: gender and grade level. Description of the sample is presented in Table 1 that follows:

Table 1: Description of the study sample.

Grade level	Male	Female	Total
Fifth	48	55	103
Sixth	63	41	104
Seventh	59	41	100
Eighth	54	58	112
Ninth	81	47	128
Tenth	57	68	125
Total	362	310	672

Instrument

The Scales for Rating the Behavioural Characteristics of Superior Students (SRBCSS) was originally developed in 1976 by Renzulli and his colleagues, to help teachers and other school staff to assess the behavioural characteristics of gifted students. The instrument started with four scales, namely, learning, motivation, creativity, and leadership. In 2002, the four content area scales were added: Reading, Mathematics, Science, and Technology. The study of construct validity of teacher judgments for high-ability students has been scarce (Renzulli et al., 2010). The SRBCSS was first published in 1976 with reliability and validity available for ten scales in the areas of learning that included: motivation, creativity, learning, leadership, art, music, drama, communication (precision), communication (expressive), and planning (Renzulli et al., 2009). Few researchers have used the principal-component analysis to explore the construct of the first four scales of the SRBCSS (learning, creativity, motivation, and leadership). Renzulli et al., (2010) conducted exploratory factor analysis to investigate the relationships between the four scales. The results indicated a four-factor solution that accounted for seventy-one percent of the variance. The four factors were learning, creativity, motivation, and learning. Confirmatory factor analysis was used to investigate the latent structure of the SRBCSS-III four domains (Reading, Mathematics, Science, and Technology). The content validity of the SRBCSS has been investigated for each subject scale.

A review of literature in the content areas has been conducted by specialists who investigated the research related to the behavioural characteristics of the students with high ability in areas such as Reading, Mathematics, Science, and Technology. A list of the most frequently cited characteristics was created in each area and was given to professionals such as scientists, computer technology specialists, mathematicians, and teachers. These experts reviewed and rated the characteristics. Then,

the experts reported how strongly they felt that each item described the behavioral characteristics (Renzulli et al., 2002).

After the initial content validation, subscales in each subject area were developed. Teachers rated students on the frequency of the behaviours displayed on a six-point Likert-type scale from 'never' to 'always'. After merging the four scales and randomizing the items in a single instrument consisting of seventy-three items, they were sent to elementary school teachers to rate students. To investigate the factorial validity of the SRBCSS, a confirmatory factor analysis, using Amos 4, was carried out to assess the latent structure of the four areas in Reading, Mathematics, Science, and Technology (Renzulli et al., 2002). Results of the confirmatory factor analysis for the Reading scale model was reduced to six items, Mathematics to ten items, Science to seven items, and Technology to seven items. For reliability, separate Cronbach alpha- estimates indicated that the four scales had high internal consistency (Renzulli et al., 2002).

For the reliability of the SRBCSS for the current sample, the Cronbach Alpha-coefficients were high and ranged from .87 to .96 (Planning Characteristics) as indicated in Table 2.

Table 2: Cronbach's alpha coefficients for the study sample (N = 100).

Subscales	Number of items	Alpha
Learning characteristics	11	.93
Reading characteristics	6	.88
Leadership characteristics	7	.90
Science characteristics	7	.90
Dramatics characteristics	10	.94
Creativity characteristics	9	.91
Motivation characteristics	11	.91
Artistic characteristics	11	.95
Musical characteristics	7	.95
Communication characteristics (Precision)	11	.95
Communication characteristics (Expressiveness)	4	.87
Planning characteristics	15	.96

For the concurrent validity, high correlations were found between the GATES (Gifted and Talented Evaluation Scales, Gilliam, Carpenter, & Christensen, 1996) and the SRBCSS subscales as shown in Table 3.

Table 3: Pearson correlation between the GATES and the SRBCSS (N = 110).

SRBCSS	GATES				
	Intellectual ability	Academic skills	Creativity	Leadership	Artistic talent
Learning	.56**	.60**	.68**	.62**	.60**
Reading	.63**	.67**	.56**	.51**	.46**
Technology	.32**	.29**	.25**	.24**	.24**
Leadership	.53**	.58**	.52**	.75**	.58**
Science	.67**	.60**	.68**	.62**	.58**
Dramatics	.30**	.22**	.34**	.35**	.33**
Creativity	.42**	.30**	.50**	.45**	.41**
Motivation	.46**	.44**	.54**	.53**	.52**
Artistic	.16	.13	.17	.19*	.21*
Musical	.07	.03	.14	.14	.10
Communication (Precision)	.51**	.46**	.54**	..52**	.39**
Communication (Expressiveness)	.41**	.37**	.43**	.48**	.29**
Mathematics	.61**	.55**	.62**	.53**	.57**

Note. ** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed). (Explain meaning of '2-tailed'.)

Procedure

The scale was translated into Arabic and was shown to experts in educational psychology, measurement, and evaluation to revise the translated version and the appropriateness of the items for the Cycle II (grades five to ten) students in the Omani context. The judges approved the sound translation by professors in English language teaching to explore the translation. The scale was then implemented on a sample of teachers in Cycle II (grades five to ten). Research assistants were recruited to collect the data from the selected schools. The classroom teachers were informed to nominate the high-achieving students in some subject area that included language, mathematics, and science. Then, the SRBCSS was used to rate the different behavioural characteristics of the nominated students.

Results

The KMO (Kaiser-Mayer-Olkin Measure of Sampling Adequacy) for the sample was .84. This refers to a sufficient number of significant correlations among the items to justify conducting the factor analysis (Pett, Lackey, & Sullivan, 2003). The exploratory factor analysis was employed using principal component analysis with Varimax rotation. According to Pett et al., (2003), the criteria used to decide on the number of factors were the Kaiser criterion and the Scree Test (a technique for determining the number of factors to retain in a factor analysis or a principal components analysis), the interpretability of the factors, and the amount of variance explained. Items should load greater than .40 on the pertinent factor. Only one item in the planning characteristics factor (H11: is good at breaking down an activity into step-by-step procedures) had a loading of .31. The procedure resulted in thirteen factors. As shown in Table 4, the eigenvalues were 44.40 (35.24%), 7.41 (5.88%), 4.95(3.93), 4.08 (3.23), 3.66 (2.91), 3.31 (2.63%), 2.70 (2.14%), 2.34 (1.86%), 2.26 (1.80%), 1.93 (1.53%), 1.71 (1.35%), 1.65(1.31%), and 1.41 (1.12%).

Table 4: SRBCSS-III factor loading matrix with Varimax rotation (N=672).

Items	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII
M12	.685												
M10	.680												
M13	.669												
M14	.656												
M11	.650												
M9	.650												
M8	.646												
M4	.643												
M6	.639												
M2	.623												
M7	.599												
M15	.599												
M3	.597												
M1	.528												
M5	.502												
I2		.778											
I8		.759											
I5		.754											
I7		.754											
I4		.735											
I1		.718											
I3		.717											
I6		.716											
I9		.707											
I11		.682											
I10		.625											
A5			.676										

	1	2	3	4	5	6	7	8	9	10	11	12	13
A10			.674										
A6			.656										
A8			.654										
A9			.653										
A7			.639										
A2			.635										
A11			.622										
A4			.619										
A1			.590										
A3			.553										
K5				.647									
K2				.622									
K4				.616									
K9				.598									
K3				.595									
K7				.592									
K6				.580									
K10				.576									
K11				.574									
K1				.569									
L1				.566									
K8				.557									
L4				.505									
L3				.493									
L2				.477									
F5					.791								
F4					.778								
F3					.749								
F1					.746								
F2					.734								
F6					.696								
F9					.676								
F8					.674								
F7					.666								
F10					.614								
N4						.710							
N1						.709							
N3						.654							
N2						.649							
N7						.643							
N6						.636							
N5						.625							
N8						.615							
N9	.405					.588							
N10						.471							
J4							.885						
J1							.861						
J6							.859						
J3							.856						
J2							.856						
J5							.837						
J7							.774						
H7							.621						
H5							.618						
H10							.578						
H4							.575						
H8							.550						

Item	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII
H6								.533					
H9								.523					
H2								.519					
H3								.499					
H1								.439					
H11								.309					
C2									.761				
C4									.759				
C1									.746				
C3									.737				
C7									.720				
C5									.718				
C6									.697				
D2										.740			
D6										.728			
D4										.713			
D3										.671			
D1										.658			
D7										.623			
D5										.618			
G6											.639		
G8											.618		
G2											.572		
G4											.571		
G9											.566		
G3											.555		
G7											.519		
G5											.468		
G1											.454		
E3												.619	
E5												.604	
E4												.602	
E2												.601	
E6												.598	
E1												.490	
E7												.437	
B5													.661
B4													.647
B6													.604
B3													.600
B1													.579
B2													.566
E	44.4	7.41	4.95	4.08	3.66	3.31	2.70	2.34	2.26	1.93	1.71	1.65	1.41
% of V	35.2	5.88	3.93	3.23	2.91	2.63	2.14	1.86	1.80	1.53	1.35	1.31	1.11
M	4.50	4.43	4.75	4.61	4.21	4.58	3.59	4.78	4.40	5.16	4.58	4.79	4.95
SD	.84	.87	.78	.81	1.03	.85	1.37	.72	.93	.70	.81	.83	.78
alpha	.96	.94	.93	.95	.93	.94	.94	.90	.92	.89	.91	.90	.88

Note: 1- Loadings 0.400 and above were included except item (H11) it is loading was 0.309.

2- E= eigenvalue, V= variance, M= mean, SD= standard deviation.

3- I = Planning Characteristics, II = Artistic Characteristics, III = Learning Characteristics, IV = Communication Characteristics (Precision and Expressiveness), V = Dramatics Characteristics, VI = Mathematics Characteristics, VII = Musical Characteristics, VIII = Motivation Characteristics, IX = Technology Characteristics, X = Leadership Characteristics, XI = Creativity Characteristics, XII = Science Characteristics, XIII = Reading Characteristics

Factor One captured the Planning Characteristics Scale (fifteen items). Factor Two contained the Artistic Characteristics Scale (eleven items). Factor Three captured the Learning Characteristics

Scale (eleven items). Factor Four contained the Communication Characteristics Scale (both precision and expressiveness with fifteen items). Factor Five contained Dramatics Characteristics Scale (ten items). Factor Six captured the Mathematics Characteristics Scale (ten items). Factor Seven contained the Musical Characteristics Scale (seven items). Factor Eight captured the Motivation Characteristics Scale (eleven items). Factor Nine contained the Technology Characteristics (seven items). Factor Ten captured the Leadership Characteristics (seven items). Factor Eleven contained the Creativity Characteristics Scale (nine items). Factor Twelve captured the Science Characteristics Scale (seven items). Factor Thirteen contained the Reading Characteristics Scale (six items).

Discussion

The purpose of this study was to explore the factor structure of the SRBCSS (Renzulli et al., 2002). The current study is advantageous as it provides the first research study regarding the investigation of the fourteen subscales of the SRBCSS. No single study has been conducted to investigate the factor structure of the fourteen subscales of the SRBCSS. The results of the study indicated a thirteen-factor solution. Although extensive research has been carried out on the scale, no single study exists which adequately covers the factor structure of the fourteen subscales.

As stated in the technical and administration manual (Renzulli et al., 2010), several studies that were investigated, used the principal component analysis. For example, Lowrance and Anderson (1977) found a two-factor solution accounting for 87. 6% of the variance. Also, Burke, Haworth, and Ware (1982) found five more factors, namely, learning, motivation, creativity, leadership, and resistance. Principal component analysis was performed on the SRBCSS-R ratings that resulted in a four-factor solution that accounted for seventy-two percent of the variance. A second field test of the SRBCSS-R yielded a four-factor solution that accounted for seventy-one percent of the variance.

Renzulli et al., (2009) stated that "Creating research-based scales to identify the characteristics of gifted and high-ability students in specific content areas has been the subject of limited previous research, and most checklists used for these purposes, if they are available, are anecdotal" (p. 101). He also stated that finding research-based methods to explore the characteristics of gifted students in several areas such as Reading, Science, Mathematics, and Technology can add richness to the existing instruments in the field.

This finding has important implications for conducting more studies on the factor structure of the SRBCSS. Possible future research studies might include the exploration of the confirmatory factor structure of the scale, the comparison among two or more (similar/dissimilar) cultures regarding factor structure, and exploration of measurement invariance in gender. This combination of findings provides some support for the conceptual premise that using the rating scales is an alternative to exploring the detailed behavioural characteristics of bright students. However, more research on this topic needs to be undertaken to investigate the cultural differences on the scale.

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About the Authors

Ali Mahdi Kazem is a professor of measurement and evaluation in the Department of Psychology, College of Education, Sultan Qaboos University, Oman. He has worked as a teacher, lecturer, held several administrative positions, and provided several consultation to many institutions in education and psychology. He is the author and co-author of seven books, and published over 70 journal articles. Currently he lectures on research methods, statistics, and measurement and evaluation at Sultan Qaboos University, Oman. His research seeks to explore various issues in measurement and evaluation, such as developing and validating psychological measures appropriate for Arab culture. He is an editor-in chief of the American Arabic Academy for Sciences and Technology, and a board member of two other journals. He participated of the 17 projects such as project entitled "Assessment and Diagnosis of Gifted Children in Oman".
e-Mail: amkazem@squ.edu.om.

Abdulqawi Salim Alzubaidi is a professor of developmental psychology at the Department of Psychology, Sultan Qaboos University, Oman. He has worked as a teacher, lecturer, and has held several administrative positions. Professor Alzubaidi has provided several consultation to many institutions in education and psychology including the World Bank. He is the co- author of three books, and has published over 60 journal articles. His research seeks to explore various issues in psychology and education, such self- efficacy, body image, identity statuses, memory, bullying and intrinsic motivation. He is an editor of the *Journal of Educational and Psychological Studies* and is a board member of three other journals in education and psychology. He is an active member of Yemeni Psychological Society and the Arab Educational Society. He was the principal investigator of the project entitled "Assessment and Diagnosis of Gifted Children in Oman".
e-Mail: zubaidi@squ.edu.om.

Ahmed Hassan Hemdan Mohamed is an assistant professor at the Department of Psychology, College of Education, Sultan Qaboos University, Oman. He has an extensive experience in the educational psychology for children as well as gifted and talented students. His research has focused on the identification and education of gifted students, performance-based assessments, curriculum development, creativity and problem-solving in children, metacognition in early childhood, and attitudes toward giftedness. He has conducted several training workshops on the identification and enrichment of gifted students. He serves as a reviewer for the *Journal of the Education of the Gifted* and the *Turkish Journal of Giftedness and Education*.
e-Mail: amohamed@squ.edu.om.

Joseph Renzulli is a Distinguished Professor of Educational Psychology at the University of Connecticut, where he also serves as the director of the National Research Center on the Gifted and Talented. His research has focused on strength-based assessment, the identification and development of creativity and giftedness in young people through personalized learning strategies, and on curricular and organizational models for differentiated learning environments. The American Psychological Association named Dr. Renzulli among the 25 most influential psychologists in the world and in 2009 Dr. Renzulli received the Harold W. McGraw, Jr. Award for Innovation In Education, considered by many to be "the Nobel" for educators.

Address
Dr. Ahmed Hassan Hemdan Mohamed,
Psychology Department,
College of Education, Sultan Qaboos University,
P. O. Box: 32, PC 123, Al-Khodh, Sultanate of Oman.
e-Mail: amohamed@squ.edu.om

Profiles of Excellence: Exemplary Schools:

Transformative Learning through International Service Work

Nicole Desjardins; Meghan Elliott; Stephanie Sokal; Sara Christle; Aaryn Kornelsen; Kathryn Nikkel; Kelly Lone

Laura Sokal
University of Winnipeg, Canada

Abstract

Transformative learning, and its processes as proposed by Mezirow, has been the subject of much debate. This study contributes to the literature about these debates by examining transformative experiences within a foreign service-learning context. Canadian post-secondary students lived and worked to build a school in solidarity with a community in Nicaragua. Their reflections inform three contentious controversies regarding the nature of transformative learning.

Keywords: Transformative learning; service learning; post-secondary; qualitative.

Transformative learning (TL) has been espoused as the "new andragogy" (Cranton & Taylor, 2012). Mezirow, recognized as the seminal scholar in the field, defined transformative learning as the process by which we transform our taken-for-granted frames of reference to make them more inclusive, discriminating, open, emotionally capable of change, and reflective so that they may generate beliefs or opinions that will prove more true and justified to guide action. (Mezirow, 2012, p.76).

Although most research about transformative learning has been conducted using Mezirow's conceptual framework as a theoretical basis (Canton & Taylor, 2012), contemporary transformative learning theorists have challenged his ideas, and criticisms have followed three main themes (Merriam, Caffarella, & Baumgartner, 2007). First, Mezirow's conceptualization of transformative learning has been criticized for privileging cognitive processes over affective aspects (Dirkx, 1997). Second, Mezirow has been criticized for his lack of attention to the relational processes that support transformative learning (Baumgartner, 2012; Taylor, 2007).

Finally, scholars such as Collard and Law (1989) and Taylor (1997) have found Mezirow's lack of attention to context and social change to be of concern. This criticism is made on two fronts—that Mezirow privileges individual change over social change (Taylor, 2007) and that studies of transformation have mainly been conducted with a Western world view as the framework (Chilisa, 2011). Moreover, there is a lack of research connecting international service learning (ISL) initiatives by student groups to the processes described in Mezirow's transformative learning theory (2000).

In this paper, we examine the transformational learning experiences of eleven Canadian post-secondary students who built a school in solidarity with a community in Nicaragua. Using grounded theory (Glazer & Strauss, 1967), we analyze the lived experiences of the students in order to shine light on these three debates about the nature of transformational learning, namely its nature as emotive or cognitive; its processes as solitary or communal; and finally its outcomes as individualistic or societal.

Mezirow's Theory of Transformative Learning

Mezirow's notions of transformative learning are based on constructivist and humanist assumptions (Mezirow, 1991). According to constructivist theory, new experiences are interpreted through a framework previously developed from past experiences. Mezirow called these frameworks *meaning perspectives* (1978, p. 108). When new experiences are incongruent with the learner's cognitive framework, they are either ignored, or a process is undertaken that results in an adjustment to the existing framework. This process is called *transformational learning* (TL). TL is not additive but is instead transformative in nature. TL is the result of not only changes to the content of the lived experiences but also to the framework through which they and future experiences are interpreted. Humanist theory is also represented in Mezirow's theory, according to Canton and Taylor (2012), as notions of personal choice and an individual's drive to self-actualize figure prominently.

Based on these theoretical underpinnings, Mezirow (1978, 1985, 1991, 2000) put forward an evolving theory that focused on the processes by which participants experienced transformation. Mezirow (2000) emphasized the importance of the first step, a *disorienting dilemma.* As a result of this dilemma, Mezirow proposed that a series of subsequent steps may take place, not necessarily in sequential pattern (Baumgartner, 2012). They included:

1. Self-examination with feelings of fear, anger, guilt, or shame;
2. A critical assessment of assumptions;
3. Recognition of one's discontent and a process of sharing this transformation with others;
4. Exploration of options for new roles, relationships, and actions;
5. Planning a course of action;
6. Acquiring knowledge and skills for implementing one's plan;
7. Provisionally trying new roles;
8. Building competence and self-confidence in new roles and relationships; and
9. Reintegrating this new self into one's life on the basis of the conditions dictated by one's new perspective. (Mezirow, 2000, p. 22)

It should be noted that these ten steps represented the conceptualization of Mezirow's theorizing in 2000 and demonstrated modifications of his earlier work based on critiques from other theorists.

Three Main Critiques

The 2000 version of Mezirow's model represented a reworking of the 1978 version, and changes to the model were clearly a response to perceived inadequacies of earlier conceptualizations. For example, although not represented in the ten steps, Mezirow in his earliest (1978) paper discussed "dimensions of thought, feeling, and will" as psychological components of "meaning perspective[s]" (p. 108). Again in his 1985 paper, he discussed "cognitive… and affective" components of the meaning perspective as well as "making connections between feeling and action that guide the way in which we experience, feel, understand… and act upon our situation" (p. 22). In both cases, he gave attention to the emotional aspects of TL. These parenthetical observations were not acknowledged by his critics, however, and were later incorporated by Mezirow into the formal steps of this theory. Specifically, Step Two in the 1978 version gave no mention to feelings, while the 2000 version recognized the importance of "feelings of fear, guilt, anger and shame." (p. 22).

Early critics such as Boyd and Myers (1988) contributed to this evolution by calling attention to Mezirow's perceived privileging of cognitive processes over affective processes. Moreover, Dirkx (1997), one of Mezirow's main critics, focused attention on "learning through soul", which emphasized the relationship between cognitive processes and socioemotional aspects in the transformational learning process. Dirkx's work continued to affect Mezirow's thinking, and the two scholars later debated and then published together on their perspectives (Dirkx, Mezirow, & Cranton, 2006). In 2006, Mezirow published a manuscript recognizing that his theory had given short shrift to the role of emotion in transformative learning.

A second area of Mezirow's theory that demonstrates modification in response to criticism is the conceptualization of transformation as solitary or relational (Baumgartner, 2012; Taylor, 2007). While early versions of the model focused specifically on the agency of the individual and his or her reflection as key processes in transformation, later versions acknowledged the importance of others as evidenced in Step Four through "a process of sharing this transformation with others" (Mezirow, 2000, p. 22) and in Step Nine where individuals learn not only new roles but also new relationships.

A third aspect that provoked criticism was Mezirow's focus on the transformation of the individual over the transformation of society. In 1990, Mezirow differentiated between the political and educational roles of transformation. Mezirow overtly stated that he viewed the role of education as supporting individuals to develop awareness and insights about oppression so that they could take action against it. In contrast, Taylor (1997, 2009) viewed transformative learning from a different perspective. He argued that social transformation "is about ideology critique whereby people transform society and their own reality" (Canton & Taylor, 2012, p. 12). Despite Taylor's criticisms, Mezirow did not modify his stance on transformation of the individual versus transformation of society. As recently as 2006, Mezirow stated that he still viewed individual transformative learning as the prerequisite to taking social action to change society, and he responded to criticism such as those from Collard & Law (1989) by stating that the focus of transformative learning is questioning one's own assumptions rather than questioning political structures.

It appears that in the first two instances, Mezirow responded to critiques by either modifying his theory or drawing more attention to factors he had already represented in existing models. In the third instance, however, Mezirow did move from his conviction that transformative learning is in essence the transformation of an individual.

Applying Mezirow's Model to International Service Learning

Central to Mezirow's theory is the disorienting dilemma, and some recent studies have examined the cross-cultural experiences that provoke disorienting dilemmas (Taylor & Snyder, 2012). Taylor (2009) argued that cross-cultural experiences offer challenges to race-centric perspectives and, although there is a lack of research in this area, the likelihood of experiencing transformative learning in these settings is significant. Indeed, Ross (2010) defined the goals of international service learning (ISL) as *transformative:* "a dynamic sociocultural and uniquely individual process" (p. 54). As such, Mezirow's model has been proposed as a "useful framework for examining how students experience perspective transformation in international service learning" (Kiely, 2004, p. 6).

Ross (2010) observed that few studies have examined the elements of international travel that contribute to the desired transformative goals of student groups. An exception was Lean's (2005) research, which highlighted the aspects of international travel essential to promoting transformation. These included travel destinations where experiences were novel and unlike known experiences; intimate relationships and discussions with those in the host country; reflection; and post-travel activities that promoted further reflection and insight. Like Mezirow (2000), Lean focused on the goal of transformation of the individual and further advocated that these goals could be met through international experiences. Kiely (2005) supplemented these goals by adding that individual transformation should result in the participants' intent to act in ways that promote social change, potentially precipitating outcomes outside of those internal to the participants and their world views. These scholars joined Mezirow (2006) in suggesting that individual transformation precedes potential social change, and they applied this understanding specifically to international service learning contexts.

Examination of the Experiences of Tomorrow's Educators Building Learning Opportunities (TEBLO): Preparation and Work in Nicaragua

In 2010, a group of first-year and second-year University of Winnipeg students met with two professors with the objective of starting a project that would provide educational opportunities for

others. At the same time, these students wanted to develop their own teaching and organizational skills, to promote volunteerism, and to work together to learn how to become good teachers who could bring global perspectives and a sense of social justice to their future classrooms. They chose the name "Tomorrow's Educators Building Learning Opportunities" and called themselves TEBLO.

In late 2011, TEBLO partnered with an international organization called Casa Canadiense that works with disadvantaged communities in Nicaragua. Casa Canadiense identified a small community outside of Managua, the capital city, who had submitted a proposal requesting Canadian partnership in building a secondary school in the rural community of Santa Julia. Although the community was home to an elementary school that educated students up to sixth grade, students who wanted to attend high school had a sixty-minute uphill walk to a nearby community. A high school in their own community would increase the number of students completing formal schooling. The people of Santa Julia were originally coffee plantation workers for the dictator Anastasio Somoza Debayle (known as Somoza), who was deposed in 1979. Since that time, they have struggled to rebuild their community, to fight for access to clean water, to improve their living conditions, and to have the right to education. Leading the community's movement against these injustices is the Gloria Quintanilla Women's Co-operative, a group of 16 mothers from the community. Through their partnership, TEBLO and the Gloria Quintanilla Women's Cooperative established a goal to build a two-classroom building that would benefit 270 students from Santa Julia and six surrounding communities.

To fund this project, the TEBLO students worked diligently, meeting monthly to discuss the project and plan fundraisers. They had bake sales and pizza sales, sold vegetables and flowers, cleaned up the planters in their city for remuneration, received donations, and hosted concerts. The Nicaraguan Children's Fund donated over $9,000 to this goal. As of May 2013, TEBLO raised over $26,000 and, with the help of their supporters, exceeded their goal of $25,000.

In the final months leading up to the trip, TEBLO members met more frequently, and began to discuss their expectations and doubts about the trip. The students took preparatory Spanish lessons, organized lesson plans, and prepared a cultural show for the host community. In May 2013, after three years of fundraising, thirteen members of TEBLO-- eleven students and two professors-- travelled to Nicaragua at their own expense.

Upon arrival in Managua, students were greeted by their translator and taken to Casa Canadiense, a dormitory setting where they slept for the next two nights. While in Managua, students took a bus tour around the city, witnessing the wealth disparity within the capital. That night, Casa Canadiense co-ordinators sat with the group to share and to discuss the thoughts and emotions evoked throughout the day. On the second day in Managua, a presenter from the local university spoke to the students about the history of Nicaragua. Students learned not only of Somoza's dictatorship and of the Sandinista rebels, but also were made aware of some of the injustices still faced by Nicaraguans today.

The third morning in Nicaragua, TEBLO members travelled to Santa Julia, where they stayed for the next two weeks. Students lived in pairs with host families from the Co-operative. During this time, TEBLO members spent their mornings divided into two groups, either teaching in the elementary classroom, or building the school. The groups switched tasks half way through the school day, ensuring that every member had an equal opportunity to help with each task. Students aided in the construction of the school by shovelling rock and sand, mixing cement, and carrying buckets of water. In the classroom, students taught lessons that introduced new content, such as basic English, or supplemented learning taught by the local teacher, such as basic arithmetic. Most members spent their afternoons getting to know their host families and organizing activities for the children of the community, such as parachute games or bracelet making.

The living conditions in the community were quite different from those the members were accustomed to in Canada. Students used latrines and bathed with buckets of water. The area was very

dusty, and students were consistently dirty. Students were exposed to alternative means of accomplishing tasks, as electricity was intermittent and there was no running water.

Following the two weeks spent in Santa Julia, TEBLO then returned to Casa Canadiense, in Managua. Over the next few days, the students discussed the events of the past two and a half weeks with the Co-ordinator, and reflected on the emotions and internal conflicts faced during the stay in Santa Julia. After three weeks in Nicaragua, the students returned to Winnipeg, Manitoba, Canada.

Data and Analysis

In this section of the paper, we examine the interview data generated from seven of the students who participated in the project in Santa Julia. All eleven students who travelled to Nicaragua were invited to participate in this writing project. Two students were teaching outside of Canada, and two students declined. The remaining seven students were provided with a list of five questions that roughly followed the model proposed by Mezirow (2000). Each student independently answered all the questions. When each student had submitted her answers to the first five questions, she was provided with the sixth question related to Taylor's (2009) conceptualization of transformative learning as social change. Students' answers to all six questions were then masked and collated. Each of the students was assigned the task of using grounded theory (Glazer & Strauss, 1967) to report on concepts generated by one of the questions. Grounded theory is a qualitative research method whereby data are coded and then grouped into concepts and categories in order to generate theory. Next, the student comments and concepts were organized into categories that captured the students' comments related to their disorienting dilemmas and to the three areas of debate: 1) TL as a cognitive or affective process; 2) TL as a solitary or a relational process; and 3) TL as transformation of the individual or transformation of society. Given that few studies have examined transformative learning from an international service learning perspective nor from the perspectives of students, it was hoped that the data might reveal new insights that would be helpful to resolving the debates. The entire paper was sent back to the TEBLO students several times in order to conduct member checking. Students corrected any misinterpretations and these changes were incorporated into the report. In this section we present the analyses of themes identified in the student responses as they relate to Mezirow's theory (2000) and the debates about it.

Disorienting dilemmas: Cognitive and affective dimensions.

All of the students experienced disorienting dilemmas, some in Managua and some in Santa Julia. It is interesting to note that emotions as well as cognitions figure prominently in the students' responses, supporting that importance of the emotional lens, as suggested by Dirkx (1997).

> *[I struggled with] the complete culture shock I was feeling most days, or the mental and emotional struggle I experienced between what I knew was correct – that life in Nicaragua was just different, not better or worse – and involuntary feelings that snuck up on me– sadness, unintentional entitlement, hopelessness at life circumstances, sometimes pity.*

> *The overwhelming smell of warm meat hits you before you can even see any of the products. Slabs of beef and pork...whole chickens, sit in the 40° heat of the tight market stalls. Sides of beef, one and a half by three feet, hung on display, hooked and held by metal barbs. Breathing through my mouth and trying desperately to withhold disgusting first world judgment, I swallowed back bile. I failed at the judgement.*

> *I remember feeling angry and confused. These feelings came about when we toured around Managua: we were spectators peering in on so many lives that were completely different from the lives we lived back home. I was mad. I began to feel overwhelmed again because I felt like I had to do something. I'm still not even sure what that 'something" should be.*

> *In Nicaragua, the separation between the rich and the poor is so evident. It's so hard not to create an'other' because the lives of the people living in Managua slums are, on the surface,*

so different than mine. I'm trying so hard to be open and accepting, but Nicaragua is so different and overwhelming, I'm having trouble fighting with my gut reactions...

The relationship between the students' experiences, cognitions, and emotions are overt and reciprocal, as evidenced by their comments. This observation gives support to Mezirow's focus on the cognitive aspects of transformation as well as Dirkx (1997) attention to the non-rational components. For the TEBLO students, neither aspect took precedence, indicating that consideration of both is necessary to understand the transformative learning process. Furthermore, strong emotions and thoughts are *parts* of the disorienting events, rather than being solely a response to them. That is, the cognitions and emotions are necessary in living the disorienting event, not only in processing the events in order to come to new understandings.

Evidence of transformation

According to Mezirow (2012), "the human condition may be best understood as a continuous effort to negotiate contested meaning (2012, p. 73). Transformative learning occurs when an individual's meaning perspectives become problematic, and "the most personally significant and emotionally exacting transformations involve a critique of previously unexamined premises regarding oneself" (Mezirow, 2012, p. 87).

The experiences of the TEBLO students in Nicaragua provoked these types of critical self-examinations. Students who viewed themselves as agentic, independent, and competent were forced to examine these self-perceptions in light of their experiences in Nicaragua.

I remember looking outside the window on the other side of the bus and seeing a giant white wall on the top of the hill. It was the wall that separated the rich from the poor. I remember being dumbfounded by this. Imagine waking up every morning and looking up to see that wall as a reminder of what you don't have. And then I started thinking about those who put up the wall. Then I started thinking about the same situation back home. I lock my car doors when I drive through the poorer, rougher areas of the city. I take extra precautions in the more poor areas to keep myself safe. But in that case, wasn't I the same as the ones in Nicaragua who put up that wall? How was I any different from them? What was I doing for the impoverished in Winnipeg? Nothing. So how could I say I was any different? I realized all the ideas and principles I was fighting for in Nicaragua were ideas and principles I was ignoring back home.

I was used to being competent. The first few days I felt so strange. I was always dirty. I had understood that it would be that way before we had even arrived, but I did not expect it to affect me that much. The first few days, not being self-reliant made me feel like I was taking and taking from my household, which conflicted with my ideas that we were there to work together.

I got really sick. I've really come to consider myself an independent person, ... and I'd grown to wear this part of my identity like a badge of honour. I had to accept help though, and even ask for it, and feel like a child in front of strangers and mentors. It was important though, because we were all in the experience together.

In addition to critically examining one's premises about oneself, Mezirow (2012) proposed that empathy and trying another's point of view are essential to transformative learning. The students' comments verified this process as relevant to their experiences in

Nicaragua. One student, in response to seeing an old man in Managua selling bags of water so he could eat that day said,

> *He could've been anyone—he could've been my grandpa. I remember that thought being so potent. I remember crying that night when I thought about it. Any person that I love back home could've been that man had they been born in his circumstances, but our birthplace privileges us in more ways than that man had probably ever experienced. I remember really understanding the unfairness of poverty that day.*

An especially poignant event for many TEBLO students occurred when the students were given the opportunity to listen to the stories of the women from the Gloria Quintanilla Women's Co-operative. Although the students had lived in these women's homes for over a week at that point in the trip, the language barriers had prevented some students from the having intimate conversations with their house mothers. After building trusting relationships with both students and community members, a Nicaraguan translator, who had been with the group since their arrival, facilitated the discussion. Having access to the woman's point of view was an essential factor in the students' transformation. Hearing the *doñas* weave their personal narratives into the local and national histories was an overwhelming experience for both the women and the students, and tears flowed freely.

> *One of the most important and treasured memories of the journey was hearing the women of the cooperative get a chance to tell their stories. As the doñas were talking, I felt completely alive and charged. I felt like all the things I had seen, the poverty, the need for education; that could change because there are people in the world like the [people] in that room. There are people with the drive, the heart, the passion and the experience to make this world a better place than where they found it. I was so inspired by the women of the cooperative, and felt such a sense of togetherness and solidarity.*

> *I went from feeling like we were different people to us all working towards the same goal.*
> *There are people everywhere like the strong women of the Co-operative, who will fight for their children and their communities, and that thought makes me hopeful and excited for the future.*

The students' comments recognized the shared humanity and goals of the women of Santa Julia and the student group. Despite the language barrier, hearing the women's stories allowed the students to develop understanding and empathy, which in turn allowed the students to experience the doñas' point of view. It is noteworthy that the evidence of the students' transformations, like that of their disorientating dilemmas, encompassed both cognitive and emotive processes, as well as both solitary and relational processes.

Transformation as a solitary or a relational process.
According to Mezirow (2012) and as supported by student comments, transformative learning is "often an intensely threatening emotional experience" (p.75). Furthermore, the possibility that disorienting dilemmas will lead to transformation is affected by both the individual's opportunities for critical reflection and discourse (Mezirow, 2012). Given that "we interpret our experiences in our own way" (Cranton & Taylor, 212, p. 5) and that this is a highly individualized process, Mezirow described how individuals used *instrumental learning,* including both deductive reasoning and hypothesis testing, during the transformative learning process (1981, p. 18). In addition, Mezirow

described *dialogic learning*, a process by which these meanings were validated by others through discussion (1985). Thus, according to Mezirow, transformation may encompass both solitary and relational processes. Although Taylor (1997) criticized Mezirow for his emphasis on the individualized, cognitive learning aspects, Mezirow (1991) defended his theory by reasoning that just because he emphasized individual processes in his writing, it did not mean that he valued instrumental learning over dialogic learning.

For most of the TEBLO group members, the initial reaction to the disorienting dilemmas was to talk through the events of the day and the days to come. In Managua the students discussed their feelings within the TEBLO group, and many members felt that the Casa Canadiense Co-ordinator was monumental in helping them with the first few days of adjusting to the new climate and environment. For some students it was helpful to discuss the days' events, and for some it was a time to listen, and process their thoughts and emotions.

> *I think the group discussion was most helpful because we could relate to one another and some of us had similar thoughts and feelings as others.*
> *They helped keep the situation in perspective. In a few situations I remember thinking that if [my fellow student] is okay with this, and she is used to the same things I am, then I know I can adapt to this too.*

Berger (2004) recognized support from other students as an important aspect of transformative learning. He proposed that for students who are undergoing TL, the "success or lack of success could rest on the degree of social recognition and acceptance from fellow students" (Taylor & Snyder, 2012, p. 49). However, the group processes that seemed to work well for some students worked less well at other points in the experience.

> *At first I tried to resolve my thoughts and emotions through talking. I talk through every problem in my life, and I thought it would be a great strategy in Nicaragua as well. But I was wrong, because my resolution process was unhealthy.*

What became the most helpful tool for the majority of the students were journals that served as an outlet, a place to put any fears, frustrations, surprises, and memories.

> *I learned how to self-regulate my feelings and thoughts (if that makes any sense). I find myself thinking a lot about the issues and new ideas I encountered. I wrote in a journal every single day, sometimes writing multiple entries.*

Considered together, the students' comments represent what Goleman (1991) called emotional intelligence. According the Mezirow (2012) emotional intelligence is characterized by a "maturity—knowing and managing one's emotions, motivating oneself, recognizing emotions of others, and handling relationships, as well as clear thinking" and is a requisite of transformational learning (2012, p. 79). Similar to the interplay between the emotional and cognitive aspects of transformative learning found in the students' experiences, likewise the individual preferences to depend on either solitary or relational processes or a combination of the two, became evident.

Transformation as social change or individual change.

One of the greatest yearnings in the human experience is to have a sense of agency (Kegan, 1994). According to Mezirow (2012), " A mindful transformative learning experience requires that the learner make an informed and reflective decision to *act* on his or her reflective insight" (p. 87). In this way, Mezirow's theory encompasses Taylor's (1997) ideas about transformation as social change through agency. From the students' comments, it was clear that they had experienced individual transformative experiences. Furthermore, they valued the women of the Co-operative as well as their agency in creating a better world for the families in their community. What remained in question was whether the individual

transformative experiences of the TEBLO students would provoke social agency in the students' future actions.

Although some students left Nicaragua with clearly defined goals, some students expressed difficulty defining potential intentions and actions upon returning home. Each of the students who expressed difficulty discussed an intention of exploring different routes to enhance their own civic engagement, which may or may not lead to the civic engagement of others.

> *I felt that our work was definitely not done...I had every intention to continue [helping others] but absolutely no plan for how I was going to go about that.*

> *I'm honestly still unclear on what my intentions are. I haven't figured it out yet. I just know whatever I (we) started, has barely begun.*

> *Even though I have not done much for the people in Winnipeg up to this point, I understand that that does not mean I do not have the potential to do anything now.*

Being as most of the TEBLO members were future teachers, a common intention of those who had determined a future path was to use new world perspectives and understandings to enhance civic engagement within classrooms in Canadian communities.

> *I took away more of what am I going to do in my classroom here to educate my students of what they can do to help around the world [but I'm not sure] how I can give this experience to my students.*

Once the students returned to Canada, however, they experienced challenges to maintaining the new perspectives they had developed in Nicaragua.

> *Coming back was frustrating because I felt like I had evolved so much as a person and yet that experience doesn't exist in my realities here. I feel that it's really difficult to fit my new understanding and worldview into my life here, and I really struggle to articulate that.*

> *Returning, I've really enjoyed connecting with the TEBLO group members, because I feel in a lot of ways they're the only people in my life that 'get' the experience. I think I get most frustrated when friends or family talk about life here or there in terms of 'better' or 'worse', which is a recurring theme in my reflection. I've had people ask me how the Nicaraguans can be so happy with nothing. I don't even know how to begin to explain that in many ways, they're much richer than most Canadians I know.*

> *I do not think it is a matter of explaining it to other people so they understand. The issue is understanding my own thoughts and experiences and processing them.*

These comments collectively speak to the continued and unresolved disequilibrium experienced by the students upon their return to Canada. Rather than normalizing their experiences through talking with family and friends who had not shared their work in Nicaragua, the students found their own feelings and thoughts were still insufficiently developed to help others truly understand the experiences. Both individual reflection and relational processing are continued features of the students' experiences, and cognition and emotions interplay throughout their comments. Subsequently, students began to take tentative, personal actions but did not initiate new actions aimed at societal change.

> *I realize that there are things about my lifestyle that I can't change, but that I can be conscious about the things that I can.*

I need to make peace with the way I live.

I was scared before coming back that I could go back to the way I was before I had left and forget the lessons I had learned. Now, having been back [in Canada] for just over three months, I feel like I've slipped back into my life comfortably, but instead of forgetting what happened, I embrace the experience I have had, and incorporate the new understanding I have into my life.

Students' comments indicated that they did not have a clear direction about how to put their nascent world views into practice. While the students did not want to go back to their previous meaning perspectives, they lacked direction for making social change. One student came to the realization that her actions for social change began in Nicaragua and perhaps they should also continue there.

Building a school is an important development to the community, but it will always need lifelong resources and support, whether it's physically, emotionally, or financially.

These sentiments were shared by seven of the eleven students who travelled to Santa Julia. In August 2013, these students formed TEBLO 2, with the goal of not only raising funds to sustain the secondary school in Santa Julia, but also to recruit new members, so that they too may learn the value of promoting development, both personal and relational, through education. TEBLO 2's hope is that the new members will keep this project alive, and continue to raise funds for Santa Julia long after the present members have graduated.

Although it can be argued that building a school is a societal change that is a sustainable, generative entity when it is built in solidarity and partnership, another truly sustainable and transformational aspect for the TEBLO students related more to the development of their own sense of a global community. The students expressed appreciation for having made

…human connections and learning what it meant to work in actual solidarity for a common goal and understanding.

I hope that I experience the learning and struggle again in my life, both at home and internationally, because I know that I grew exponentially as a person and a member of a global community in the three weeks that I was in Nicaragua.

While these statements of personal growth clearly represent the transformative learning experiences described by Mezirow (2000), critics of international service learning make several arguments about why it is not helpful on a societal level. Kate Simpson (2004) argued that ISL is exploitive of the communities who serve as partners. She argued that the transformational opportunities that are often experienced by the visitors are not equally available to the people of the community due to lack of resources for them to travel. Furthermore, she argued that students' transformational experiences in international service learning are contingent on the injustices and inequities that exist between the context of the visitors' home country and the country they visit. These criticisms capture a critique made by Taylor (1997) in highlighting the inadequacies of Mezirow's (2000) conceptualization of transformation as being focused in the individual process rather than on social change.

When responding to a critique of international service learning, TEBLO members had a very negative reaction to the implication that what they had done was solely for their own gain through exploitation of the community. A term that came up repeatedly in TEBLO members' responses was 'solidarity', as working in solidarity with a community was an explicit requirement of this project to avoid the risk of exploiting a community, or assuming a position of superiority based on Canadian ideals.

If we were going to do this, it needed to be in solidarity. I really and truly believe that we were just a small, small part in the bigger picture of the school in Santa Julia.

They will still continue to be positively impacted by what we did while we were there. It was their own agency that brought us there and it is their own agency that will continue to make good use of that school, as they see fit.

It was extremely important to TEBLO that we work in solidarity with a community, and that whatever project we contributed to would be in response to a community-initiated effort and determined need.

Having better access to education, through the school TEBLO helped the community of Santa Julia to obtain, can work to increase the agency of that community. It is vital that ISL groups align themselves with communities who already have a sense of agency though.

While vehemently defending the results of their work in Nicaragua as a contribution to social change undertaken with the people of Santa Julia, the students also were able to articulate how their own transformation would result in future social change.

The poverty and inequality of wealth distribution that I saw firsthand in Managua changed the way that I think about a lot of things. I think what I choose to do with those transformative experiences is what is important.

I was disappointed that up to that point I had done nothing for those in Winnipeg, but I believe having that moment of doubt in myself was beneficial, as it served to make me more accountable in my everyday life for the wellbeing of others. It made me realize that I had a commitment to helping others that could no longer be put aside.

I also think it's important to understand that I don't have to go halfway around the world to better understand the injustice and inequality of wealth disparity; that fight is happening right on the streets of Winnipeg. I can see the interconnectedness of my 'everyday' life and my experiences in Nicaragua, and my passion for positive change is translated through work with at-risk youth in the North End and city core.

The students responded to the criticism of international service learning on three fronts. First, the students justify the building of the school in solidarity with the local people as an act of social change. Second, TEBLO members propose that their own transformations will result in future social change through their involvement with their own students and through service in Canada. Finally, students experienced several challenges related to putting their individual transformations into social action: 1) they found it difficult to maintain their new meaning perspectives outside of the place of their inception in Nicaragua; 2) they felt inadequate at helping others in Canada understand their experiences and transformation in meaningful ways; and 3) they continued to struggle with resolving their disorienting events. Despite these challenges, the students in time could articulate a clear plan that related to extending their own transformation into social action: they came together to form TEBLO 2 with the explicit goal of sharing their learning with other students and continuing their social action in support of the school in Santa Julia. In this way, the personal became social and the social became personal.

Revisiting the Debates

According to Cranton and Taylor (2012) some of the main tensions in the field of transformative learning relate to the ongoing debates about the nature of transformation as outlined in Mezirow's (2000) theory. These debates relate to 1) the transformational process as cognitive or emotive; 2) the transformational process as solitary or relational; and 3) the transformative process as individual or societal. Analysis of the experiences of the TEBLO students both in Nicaragua and since

their return to Canada sheds light on these debates, as they apply specifically to international service projects. Results of the analysis indicate that, as supported by Cranton and Taylor, these varying perspectives can co-exist.

> It may be that for one person in one context, transformative learning is a rationale endeavor; for that same person in another context, it could be emotional and intuitive; in some contexts, social change may need to precede individual change, in an another context, individual transformation drives social transformation, and so on. (2012, p. 3)

Evidence from the TEBLO students showed that students processed their transformative experiences both cognitively and emotionally, both relationally and in solitude, and that the social change initiated by the Women's Collective precipitated the individual transformations in the students that led to the students' own agency in social change. Findings indicate that the debates may be misguided in their polarity, insofar as they apply to international service projects. Although a careful reading of Mezirow's work substantiates that all these perspectives are considered in the evolution of his theory, his critics focused on his relative inattention to some aspect of transformation as compared to other aspects. These debates have created false dichotomies that have distracted from the development of theorizing about transformative learning. Cranton and Taylor (2012), for example, have acknowledged this fault in stating that the unit of analysis (the person or the society) influences what is examined and discovered. That is not to say one exists and the other does not: "transformative learning theory need not be about individual transformation or social change, it is about both" (p. 10). Likewise, in their 2006 paper, Mezirow and Dirkx agreed that both affect and cognition were necessary to transformation, yet different aspects were of more interest and therefore more studied by one scholar than by the other (Dirkx, Mezirow, & Cranton, 2006). Together, these scholars as well as the data from the current study suggest that a more unified theory of transformation is required.

Some of the true strengths of Mezirow's theory relate to its flexibility in capturing human transformation. Specifically, Mezirow allowed that the stages are not necessarily sequential and that it is not uncommon for people to stall during their transformative processing (1978). The flexibility of this theory was therefore able to capture the diversity within the TEBLO students experiencing of transformation. It captured the experiences along all the continua: cognitive *and* emotional; solitary *and* relational; and individual *and* societal. Findings from the TEBLO group suggest that polarized debates will therefore not add to transformative theorizing in meaningful ways. Rather, future research should focus on when, how, and under which circumstances transformative learning is supported.

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About the Authors

All the authors are current students or recent graduates of the University of Winnipeg. The exception is Laura Sokal, a professor who mentored this group of students in their work before and during their travel to Nicaragua.

Address

Prof. Dr. Laura Sokal;
Faculty of Education, University of Winnipeg;
515 Portage Avenue, Winnipeg, Manitoba;
R3B 2E9, Canada.

e-Mail: lj.sokal@uwinnipeg.ca

Dr. Michael Pyryt:
Easy to Praise; Hard to Replace

Sal Mendaglio
University of Calgary, Calgary, Alberta, Canada

Recently, on my return flight to Calgary, Alberta, Canada from Sydney, Australia, I could not help but think of the last voyage of my dear friend and colleague, Dr. Michael Pyryt.

The thirteen hour flight to Los Angeles proved somewhat uncomfortable for me but it paled in comparison to what Michael must have felt, on his way back to Calgary, having undergone surgery for a broken leg in Australia. A tragic accident at the age of 54 resulted in a great loss to our field of gifted education. The loss was not restricted to the scholarly domain: Michael was mourned by students and colleagues alike; by the countless educators and parents that sought his wisdom as Director of our Centre for Gifted Education. For me, after an exemplary collaboration that lasted 19 years, it was the loss of a colleague turned brother.

Michael had a shy, introverted demeanour except when it came to activity related to gifted education, at which time he became animated and passionate. It was a delight to witness the transformation. His knowledge, enthusiasm, and advocacy for our field is manifested in his many and varied scholarly and professional contributions. His scholarly pursuits ranged from statistical analyses and research design to Dabrowski's theory of positive disintegration. Through his writing, serving as journal reviewer and consulting to graduate students and colleagues, Michael aimed to encourage rigour in gifted education research. The major organizations in our field that include: the World Council for Gifted and Talented Children, the American Educational Research Association, Special Interest Group, Research on Giftedness, Creativity and Talent; the National Association for Gifted Children, (particularly the Research and Evaluation Network); the Council for Exceptional Children, and the Association for the Gifted, all benefitted by Michael's professionalism, generosity, and sheer humanity.

Michael's primary interests and where he made his most significant contributions were in the domain of the social and emotional aspects of giftedness. This interest began with his doctoral dissertation in which he examined social intelligence, before Howard Gardner popularized it through his construct of interpersonal intelligence, basing it on a synthesis of literature. The approach Michael took on this topic in his dissertation foreshadowed his approach to his work in general. He adopted Thorndike's view of social intelligence, which is anchored to data and to statistical analyses. In today's terms, Michael exemplified an evidenced-based approach to understanding constructs related to the affective domain of giftedness. In essence, Michael was concerned with eliminating

unsubstantiated pronouncements regarding giftedness appearing in our journals. His response to such statements could be summed up with "Where's the data?"

Though Michael published articles on several topics including research methodology, perfectionism, moral development, and self-concept, similar to another luminary in our field, Harry Passow, Michael enjoyed publishing book reviews. His reviews demonstrated an enviable knack for compelling titles for his reviews. Here are two examples: Reviewing (1) Classroom Communication and Instructional Processes: Advances Through Meta-Analysis—Promises: A little Meta, a Lot of Narrative; and Reviewing (2) The Bell Curve—Easy to bash, hard to replace. Though Michael was serious about his dedication to gifted education, he also had a playful, creative side.

Michael and I planned to revise the self-concept scale; we developed, the Pyryt-Mendaglio Self Perception Scale, and we planned to continue our work on self-concept and giftedness. Fate did not permit it: Dr. Michael Pyryt passed away January 15, 2008.

Searching for Meaning: Idealism, Bright Minds, Disillusionment, and Hope

James T. Webb (2013)

Book Review by Sandra K. Linke

James T. Webb, Ph.D., has been recognized as one of the 25 most influential psychologists internationally on gifted education. Dr. Webb has written 16 books and 75 professional publications; in addition, he produced three DVDs and has presented his research at many psychology conferences specializing in gifted and talented individuals. Six of his books are on gifted children and adults, and four have won "Best Book" awards. He has written yet another book entitled: "*Searching for Meaning: Idealism, Bright Minds, Disillusionment, and Hope*". This book actually compels gifted minds to search for meaning in their life. By drawing on their own unique talents and skills, individuals can pull themselves out of existential depression and disillusionment throughout their life's journey. They can emerge as bright, gifted, idealistic and hopeful human beings.

In Search for Meaning: Idealism, Bright Minds, Disillusionment, and Hope, Dr. James T. Webb brings his valuable experience as a clinical psychologist, professor, author, and founder of Supporting the Emotional Needs of the Gifted (SENG) to shed light on topics which have hidden in dark corners for far too long. James T. Webb addresses the subject with a style that is at once both welcoming and reassuring while at the same time being thought-provoking and inspirational. This book can be an important resource for parents of gifted children, teachers, counsellors and mentors, and for gifted individuals themselves.

Drawing from his own personal experiences growing up in the American deep south, it took James Webb over five years to write this book. He explains that life meaning is a deeply sensitive topic and during the writing, he revisited the anguish and disillusionment he felt during his teen years. He was disillusioned by the culture, social and religious institutions and even members of his own family. Over the years, he realized that bright, idealistic people were prone to this type of widespread disillusionment that he felt. For this reason, this book should be read by parents of gifted, creative and talented children so that they understand more clearly the "sturm und drang" of adolescence. This book is an engaging read; it provides key information on the way that parents can best support their gifted children. Parents can encourage and guide their children to balance their ideals along with while coping with the disillusionment they may experience. These parents need to understand the source of their child's alienation and depression. They need to understand that their children can weather the storm; indeed, this stress and inner conflict may be a source of strength that can result in a later insightful, meaningful life and existence.
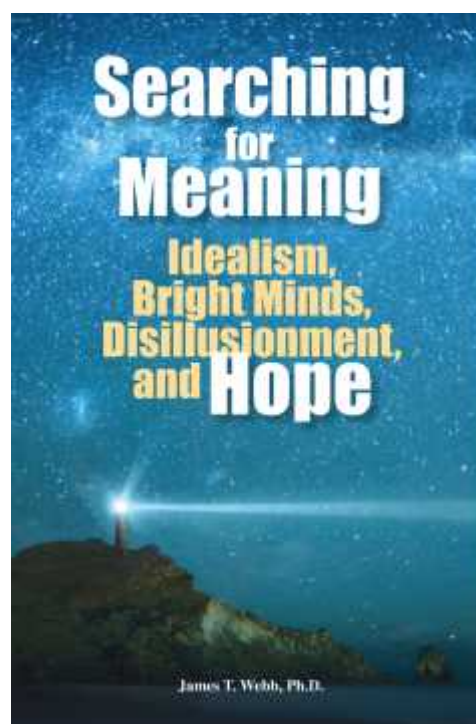
James Webb explains different complex concepts as you traverse idealism, perfectionism, illusions, and depression. He explains how these personality qualities relate to disillusionment, and different definitions of success. *With his guidance, the gifted explore his/ her own very personal meaning of life and discover how moral injury is about the damage you do, to your own moral fiber, when transgressions occur by your own hands.* Idealism and disillusionment are then tied together in life stages and you examine how your attempts to cope with. This book aims to help individuals who find themselves disillusioned in today's world by teaching them to understand themselves and their struggles. It also includes helpful information and suggestions for actions that disillusioned idealists can use to better manage their feelings and thoughts in ways that will nurture their idealism and provide a sense of satisfaction and contentment. The gifted are invited to read this book.

For example, Webb (2013) points out that most bright people are idealistic. At a young age, they strive to accomplish things, to master tasks, and to understand things around. They want their environment in particular and the world in general, to be a kinder, better, and fairer place. Parents regularly mention that their gifted children want to allow the homeless person on the street to use their spare bedroom, or how their children cry when watching the evening news stories about crime, war, and terrorism. Webb provides helpful suggestions and strategies that can empower discouraged idealists so that they can better manage their feelings and thoughts in ways that will nurture their idealism and provide a sense of satisfaction and contentment.

Webb (2013) pointed out that while not all gifted children are idealists, many are. Some children may also be raised in fractured and dysfunctional families where they can become disillusioned at an early age. These children learn that they cannot trust the people in the world around them. Many are exposed to harsh, inconsistent punishment, or they observe unpredictable and mean-spirited outbursts and unfair criticisms. Their idealism, even at an early age, can lapse into cynicism, distrust, and depression. They do not harbor illusions of fairness or kindness or trust, nor do they have a sense of their ability to influence their world to make it better.

Webb (2014) explains that it makes much more sense to define gifted as the upper 10%, instead of the 3% to 5% that most school systems use. Additionally, this new definition of "gifted" (http://www.nagc.org/index2.aspx?id=6404) points out that a person can be gifted in only one or two domains, rather than being globally gifted. This would suggest that far more than just 10% of the population would be considered gifted. It was primarily for this reason that Webb (2014) uses the word "bright" rather than "gifted," though another factor was because many very bright and accomplished people are just unwilling to consider themselves as "gifted" because of their discomfort with that term or because they think that one must be a genius in order to be considered gifted.

According to James Webb, like many individuals, gifted children, adolescents and adults are searching for meaning in their lives and the world around them. He reported that Leta Hollingworth, who founded the first school for gifted children in the U.S.A., wrote about their widespread idealism and concern for fairness. She noted that the brighter the child, the more likely their idealistic concerns. Others more recently, such as Linda Silverman and Susan Daniels, have also noted that many gifted children and adults are intense and sensitive in their idealism. They want to do things that will make a difference in the world, and they are concerned with issues of fairness and equity. When intensity and sensitivity are combined with idealism, as so often happens with bright children and adults, positive social changes can occur.

However, setbacks and barriers can also lead to frustration, disillusionment, and unhappiness. Sometimes this prompts perfectionism; other times it results in existential depression and a sense of personal disintegration. Hopefully, the disintegration can become a positive disintegration in the sense described by the psychiatrist and psychologist Kazimierz Dabrowski.

It was prompted by the author's own early life experiences, growing up in the Deep South and being deeply disillusioned in his teen years by the culture, social and religious institutions, and even

members of his own family. During his professional life, as he increasingly worked with gifted children and adults, he began to recognize how many other persons were disillusioned and were searching for meaning, and that bright, idealistic people were particularly like to experience widespread disillusionment.

In the first two chapters, "*Searching for Meaning*"; and "*Idealism: Do You Get It from Your Parents, or Does It Just Come Naturally?*", James T. Webb highlights the characteristics of bright individuals (e.g., heightened sense of justice, intensity, and sensitivity) which often contribute to children and young adults having an idealistic world view. He writes that "as bright, curious, and observant children grow up, they become aware that so many of the things that parents, teachers, and community leaders claim about the world are false, or at least highly coloured. The result is that they are disappointed, hurt, angry, disillusioned, and even depressed." (p.12) Webb continues by explaining the cycle that may occur when that disillusionment manifests into existential depression. The book provides many valuable examples of the unique problems that gifted children are coping with.

In the next three chapters, "*Bright and Inquiring Minds Want to Know!*"; "*Gloom and Misery and Despair: So Much Depression Everywhere*"; and "*Life Meaning and Existential Concerns*", the author provides an excellent overview of the characteristics of gifted students which may increase their propensity for existential angst at an early age and how that angst can manifest into depression. One take away that many parents will find comforting is that their child is not alone in what he or she is experiencing.

In chapter five, the author focuses on personal meaning. James T. Webb introduces wise theologians, philosophers, writers, and psychologists from the past that have all been in our shoes, too. He explains what existentialism is and how others before us talked, wrote, and thought about the meaning of life, particularly the meaning of their own life. The quotations and insights from those who successfully navigated their ways through the search for meaning, as well as those who gave up too early, all help someone who is just starting their own journey. It helps to know and believe that they really aren't alone with all these thoughts at all. He blends scholarly quotations with words of advice from people we've actually heard of, like Dolly Patron, who says, "Find out who you are, and do it on purpose." The existential psychologist Viktor Frankl wrote: "When we are no longer able to change a situation, we are challenged to change ourselves." Somehow such words from others help to take away the depth of the despair or feelings that someone truly is wrong with us.

In the next chapter, "*Awareness and Acceptance*", James T. Webb begins to pull things together in ways that tie our idealism and disillusionment to life stages. This chapter addresses a number of questions, including: Can you provide an example of a life stage? Are these life stages connected to Erik Erikson's psychosocial stages of development? You could clarify then by connecting the clash between reality and idealism by examining stages such as identify vs. role confusion, intimacy vs. isolation or generativity vs. stagnation. You could also include another quote to exemplify Webb's style/content. This chapter also focuses on strategies that can encourage self-knowledge, self-awareness and self-acceptance. Webb suggests activities to help manage existential anxiety and depression.

This book has important implications for the work of teachers, counselor, mentors, and parents of gifted children and adolescents. Teachers of the gifted will find this book a valuable resource that they can return to; it can help them explore and understand the inner emotional landscape of gifted children in a new way. The book emphasizes that learning involves the emotions and rather than ignore them, effective teachers can build upon the students' emotional states in positive ways. For example, the curriculum can be enriched by encouraging the students to make text to self-connections. Real world applications of ideas from texts can be explored in authentic ways. Activities in listening, speaking, reading and writing can be an opportunity for students to develop essential skills; they can further explore their beliefs, values, and feelings on particular topics and themes. The

ideas in this timely book remind us that education is not all about the acquisition and accumulation of facts, knowledge and information. A holistic and transformative education centres around helping children and adolescents develop positive values, attitudes, and ideals that may lead to personal and social empowerment. Education can also promote self-awareness, compassion, and empathy for others. In reading this book, counselors and mentors further their understanding of the complex therapeutic processes of self-examination, self-exploration, and personal agency. This book should be studied not only for the wisdom in it but it should also be studied for the style and beauty of the language used.

In the next two chapters, "*Some Not-So-Healthy Coping Styles that Feed Illusions*"; and "*Healthier Coping Styles that Go Beyond Illusions*", the author discussed immediate concerns regarding classroom management and teaching strategies. He chronicles a litany of maladaptive coping methods and psychological defense mechanisms that many bright students who are dealing with issues involving disillusionment and/or existential depression employ such as, binary thinking, excessive control, overscheduling, distraction, clinging, narcissism, insensitivity, numbing the mind, seeking novelty, camouflaging, withdrawal, and anger. In addition, he offers a compilation of 13 suggested positive coping skills intended to help individuals successfully manage the emotions that typically accompany disillusionment. Several of these activities (e.g., creating your own life script; becoming involved with causes; maintaining a sense of humor; touching and feel connected; developing authentic relationships; letting go; learning optimism and resiliency; focusing on the continuity of generations; which coping style is best?) with some creativity and adaptation could easily be incorporated into the classroom.

In chapter nine, "*Hope, Happiness, and Contentment*", James T. Webb weaves the topical threads of the book together to form a very personal tapestry – the texture and pattern of which is unique to the individual reading and internalizing the information Dr. Webb provides. This chapter serves as the conclusion. According to Webb (2013), each person can make a choice about being hopeful, and each has to find his or her own meaning and path in life, as the motivational speaker Kevin Elko emphasizes, to "do something that will outlive you!"

The last two chapters present a contrast between unhealthy coping styles and then more productive ways to cope with life stress and disappointment. The most inspiring and motivating discussion revolves around developing healthy coping skills, such as those related to getting involved in a social cause, developing a greater connection to others, and living in the present moment. James Webb also offers concrete exercises to help individuals meet life challenges while searching for significant personal meaning in life.

At all times, Webb is clear but gentle, scholarly but not arrogant or preachy. You might include a quote to reflect Webb's elegant style. This is not easy to accomplish. The endnotes are helpful and handily listed at the end of the book and easy to find. In closing, this is an impressive book filled with reassurance and inspiration for bright minds that want and need to bridge the discomforting chasms between idealism and disillusionment. The scope and practical application of this book makes its accessible to many readers. It should be an essential text for all parents, teachers, counsellors, mentors, and administrators at all places of education. As someone who has worked and lived with very bright people my entire life, I think I can safely recommend this book for bright adolescents as young as 14 or 15. It is at this time and life stage that many individuals are questioning their identity and their ability to make significant friendships; they are also beginning the process of exploring career and life goals.

This is also a great book for older people who may be navigating the road to self-discovery, understanding, acceptance, and significant personal change. That road absolutely can lead to utter joy and it is well worth the trip. Hang in there. *Searching for Meaning* by James Webb is one very good guide. The insights, examples, and perspectives outlined by Dr. Webb are that important.

Reference:

Webb, J. T. (2013). *Searching for meaning: Idealism, bright minds, disillusionment, and hope*. Tucson, AZ, USA: Great Potential Press, Inc.

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Editor-in-Chief:

Dr. Karen Magro;
Faculty of Education, University of Winnipeg, 515 Portage Avenue;
Winnipeg, Manitoba, R3B 2E9, Canada.

e-Mail: k.magro@uwinnipeg.ca