# International Journal for Talent Development and Creativity

(Volume 8, Number 1, August, 2020); and (Volume 8, Number 2, December, 2020)

**ISSN: 2291-7179 (Print)**
**ISSN: 2563-6871 (Online)**

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The International Journal for Talent Development and Creativity (IJTDC) is a refereed journal published twice a year by both the International Centre for Innovation in Education (ICIE) & Lost Prizes International (LPI): **www.ijtdc.net**

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**Dr. Karen Magro**
e-Mail: k.magro@uwinnipeg.ca

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# Resilience and Perseverance in Uncertain Times

**Taisir Subhi Yamin; Ken W. McCluskey**

The evolving coronavirus is still with us (and mutating). Many have likened our struggle with this plague as warfare; and it is truly a formidable enemy. In times like these, the world needs all the creativity we can muster, together with a liberal dose of resilience and perseverance. The International Centre for Innovation in Education (ICIE), Lost Prizes International (LPI), and the University of Winnipeg (UW) are trying, insofar as possible, to stay the course and move ahead safely, cautiously, and productively.

As part of its overall service delivery, ICIE conducted four Interviews in the latter part of 2020:

- Vlad Glaveanu, *Contemporary Issues and Research in Creativity*;
- Ken McCluskey, *ADHD: Disorder or Gift?*
- Maureen Neihart, *Social-Emotional Problems of Gifted, Creative, and Talented Students*; and,
- Trevor Tebbs, *Misdiagnosis in Gifted Education.*

As well in 2020, ICIE published the following books and monographs:

- *A Call to Action: The Urgency of Cultural Competency Training for Teachers Working with Racially Diverse Gifted Students*, by Joy Lawson Davis (Foreword by Erinn Fears Floyd);
- *Gifted Workers Hitting the Target*, by Noks Nauta and Sieuwke Ronner;
- *Providing Students with Creative Spaces: The Power of Edutainment*, by Maher Bahloul; and,
- *21st Century Skills: Powerful Teaching with Cooperative Learning,* by Ludger Bruening and Tobias Saum (Translator, Heinz Neber; Editor, Taisir Subhi Yamin).

Unfortunately, we lost two renowned scholars in gifted education who passed away in 2020:

***K. Anders Ericsson***, a Swedish psychologist and Conradi Eminent Scholar, was known widely as the "expert on experts." A long-serving cognitive psychologist at Florida State University, he wrote extensively about expertise and performance in various forms of human endeavour, from sports to music to medicine. By zeroing in on "extended deliberate practice," Dr. Ericsson examined how it is that experts acquire skills so far above the norm. And from his nurture-trumps-nature perspective, hard work was a major part of the expertise equation. His research has had far-reaching impact and his advice has been sought from many quarters, including corporate executives, professional coaches, and well-known organizations (such as Cirque du Soleil, Google, the Philadelphia Eagles, and the CIA).

***Victor Müller-Oppliger*** served as Professor at the University of Education and Teacher Training, Northwestern Switzerland. We're told that Professor Müller-Oppliger enjoyed a full and energetic life well-lived, and that – as a passionate and talented percussionist – he literally marched to the beat of his own drum. And professionally, he made many contributions to gifted education. A respected writer (on topics such as giftedness, talent development, self-directed learning, and mentoring) and a popular speaker locally and internationally, Professor Müller-Oppliger was the founder of the Swiss international Master in Gifted Education and Talent Development program; a co-founder of the International Panel of Experts in Gifted Education; a member of the General Committee and the Educational Board of the European Council for High Ability; and an elected delegate for Switzerland with the World Council for Gifted and Talented Children.

In closing, as we write this piece, preparations are well underway for the 9th Annual Lost Prizes/ICIE Seminars that will take place July 8-10, 2021 at the University of Winnipeg. Due to the ongoing pandemic, this event will again be delivered virtually. We were thrilled with the engagement of presenters and participants during our first venture with a remote format this year, and look forward to even bigger and better things on our next attempt. The conference theme for the upcoming Seminars is *Staying Connected: Engagement, Creativity, & Innovation*. Three keynote speakers have been confirmed: Dr. Michael Ungar (Halifax), who will be presenting on Building Resilient Schools and Communities; Dr. Jody Carrington (Alberta), who will bring her expertise on Relationships and (Re)Connecting; and UW's Marc Kuly, who will share Walking Between Worlds: Stories Inner City Indigenous Young Adults Tell About School. (We expect to finalize our slate of keynote and invited speakers in the very near future.)

New this time around is a youth panel where we are engaging the voices of young people who will share their stories, passion projects, and perspectives on community and global issues. Also new for 2021 is the opportunity to submit presentation proposals. We look forward to expanding our networks and sharing the amazing and innovative work our communities of educators have been doing as they navigate these challenging and unprecedented times.

**From the Editor's Desk:**

# Ingenuity, Imagination, and Innovation: Re-visioning Learning Pathways in 2021

**Karen Magro**
The University of Winnipeg, Canada

> "We need new narratives that give us a more complete and accurate picture of who we are and who we can be — stories that show that our enormous capacities for consciousness, creativity, and caring are integral to human evolution, that these capacities are what make us distinctively human." **Riane Eisler**

> "A talent for speaking differently, rather than for arguing well, is the chief instrument of cultural change." **Richard Rorty**

**2020** has been a year like no other year; the ongoing pandemic has resulted in a tragic loss of life and a disruption of the familiar spheres of work and family life. The closure of many businesses, the resulting loss of work and the accompanying financial hardship have led to emotional, social, and economic dislocation and untold stress. As we enter 2021, new hope is on the horizon in terms of the widespread availability of Covid-19 vaccines and the renewed optimism to re-vision our world in life-centered ways where compassion and care are at the core. Urgent and innovative action is needed to prevent further climate catastrophe and species extinction. How do we learn new ways of adapting, thinking, and acting to protect the matrix of planetary life? *Learn* is the operative word if collaborative and creative solutions are to alleviate the existing stresses resulting from the pandemic.

In *Twilight of democracy: The seductive lure of authoritarianism*, Anne Applebaum (2020) writes about the fragility of democracies. She asserts that we cannot assume rational debate, knowledge and expertise will be respected. While Applebaum outlines many ominous examples of societies (past and present) heading for anarchy or tyranny, she is still hopeful that social democracies can flourish. People do not have to accept a vision of the world "born of resentment, anger, or deep messianic dreams" where "information technology can undermine consensus, divide people further, and increase polarization and only violence can determine who rules" (p. 186). Applebaum (2020) observes that the pandemic might also inspire "a new sense of global solidarity" (p. 186). Her book is written at a time when the roots of persistent conflict and war---poverty, oppression, human rights violations, and competition for the control of resources persist, but globalization and environmental deterioration continue to create global stress fractures that have also led to the displacement (both internal and external) of thousands of individuals seeking a new homeland (Magro and Honeyford, 2019). Communities and nations need a new way of working together that is built on dignity and respect for all. Applebaum suggests that the pandemic may be a type of disorienting dilemma that could challenge people to transform their existing beliefs and actions:

> Maybe we will renew and modernize our institutions. Maybe international cooperation will expand after the entire world has had the same set of experiences at the same time: lockdown, quarantine, fear of infection, fear of death. Maybe the reality of illness and death will teach people to be suspicious of hucksters, liars, and purveyors of information…to some, the precariousness of the current moment seems frightening, and yet this uncertainty has always been there. The liberalism of John Stuart Mill, Thomas Jefferson, or Vaclav Havel never promised anything permanent. The checks and balances of Western constitutional democracies never guaranteed stability. Liberal democracies always demanded things from

> citizens: participation, argument, effort, and struggle. They always required some tolerance for cacophony and chaos, as well as some willingness to push back at the people who create cacophony and chaos. (pp. 186- 189).

An alternative and more positive vision of the future involves a key word: ***Learn.*** How do we learn to live in a more peaceful world where global citizenship and true collaboration among nations exist? How do we repair a fractured world? If there is one thing that the pandemic has revealed it is that we are all sharing the matrix of our planet: the air, the water, and the soil. Inspiration can be gleaned from Canadian artist Bertram Brooker's iconic work "Sounds Assembling" which was created in 1928. Brooker captured the zeitgeist of the era. There is an emergence of different dynamics from the centre. His geometric art work reflects musical cadence, melody, kinetic energy and an upward movement of growth and dynamism. If we look closely at his work, his design suggests multiple corridors and pathways and the exploration of new vistas of imagination. Brooker's work illuminates key elements of creativity: an openness to new ideas, interdisciplinary thinking, and discovery learning.

**Image 1:** Bertram Brooker: *Sounds Assembling* (1928); Courtesy of The Winnipeg Art Gallery (WAG).

In his article "After the Pandemic, A Revolution in Education and Work Awaits" the writer Thomas Friedman (2020) explains that the pandemic will impact all societal structures and systems, including education. Access and opportunities to encourage lifelong learning will be a type of new "portable pension. "Personality traits such as critical thinking, creativity, flexibility, self-direction,

resourcefulness, and problem finding will form "essential skills" for the future rather than formal degrees. The nature of work, the workplace, and educational settings will radically transform and potentially, can lead the way to solve major environmental and economic problems. Drawing on the work of Ravi Kumar, the president of *Infosys*—an Indian based technological firm that helps prepare companies for a digital world, Friedman writes of the contradictions in our world today that can lead to generative and transformative shifts in the way we perceive learning and education:

> Because the pace of technological changes, digitization, and globalization just keeps accelerating, two things are happening at once; the world is being knit together more tightly than ever—sure, the globalization of goods and people has been slowed by the pandemic but the globalization of services has soared and the skills you have today may be obsolete tomorrow…Children can expect to change jobs and professions multiple times in their life times (Friedman, *The New York Times,* October 20th, 2020).

Friedman (2020) posits that as work becomes more digitized, modular, and disconnected from conventional work settings of offices, factories, schools, and so on, there is the potential for more diverse groups of people,who might have previously been excluded or marginalized due to geographic barriers or physical challenges to compete for new jobs. Opportunities for talent and skill development and new pathways for learning emerge and open up. There are tremendous opportunities to bridge cultural, social, and class divides so that a more egalitarian workforce that is based on skill and merit emerges to solve some of the most urgent problems of our time. The emphasis, notes Friedman, would be on developing skills in a wide variety of areas that cross disciplines and areas of specialization. A "global education" would involve the exploration of art, literature, sustainability, anthropology, and sciences. Learners are also problem finders and creators of knowledge; rigid boundaries between teachers and students and among subject specialization areas continue to blur as new hybrid systems of knowledge are created. "Postsecondary education will be a hybrid ecosystem of company platforms, colleges, and local schools, whose goal will be to create the opportunity for lifelong learning" and "radical reskilling" (Friedman, NYT, p. 2). The concept of "self-direction" for lifelong learning takes on a new meaning. Self-direction, as the Australian adult education scholar Philip C. Candy emphasized, can be viewed as a personality trait and a process of learning; particular educational contexts can also enhance self-direction. His landmark book *Self-direction for lifelong learning* provides rich theoretical information that can help scholars and practitioners to examine learning processes from new angles.

Apprenticeship learning and programs that enable and empower youth in high school to develop practical skills in workplace settings will continue to increase. These "complex adaptive conditions" (Friedman, 2020) would create new opportunities for apprenticeship programs between high schools, colleges and universities, and diverse workplace settings. Learning is situated within a particular context and skills can be directly applied and enhanced with new technologies, professional mentoring, and an integration of humanities and sciences. Civics education, ethics, principles of democracy, environmentalism, emotional literacy and creating a climate of caring can open new and more optimistic inroads for the future. Nell Noddings' emphasis on holistic education and creating a culture of caring applies to the way humans connect to the natural world and their immediate community. Noddings (2005) highlights four aspects of the human connection to place: 1) the political/psychological—how a psychological attachment to a place influences emotion and attitude; 2) the environmental how caring for one's natural surroundings can contribute to a commitment to care, cherish, and protect the earth and the matrix of the soil, air, and water; 3) the relationship between local and global citizenship; and 4) love of place and the idea of human flourishing and self-actualization (Noddings, 2005, p.57). Earlier, Rudolf Steiner emphasized that physical, mental, and spiritual health form an essential foundation that enhances creative learning and intellectual growth. Creative and visionary teaching should be "permeated by an artistic quality" (p.12) and "working from the basis of the artistic, we can educate the [human beings] in such a way that [they] will feel a sense of inner well-being with every step and movement of the hand" (p.12).

Innovative and visionary education would encourage a climate where learners would develop a global perspective and a sense of collective responsibility to break down barriers and create greater

opportunity and access for all. The American philosopher Richard Rorty (1989) emphasized a "re-imagining" of society and collective responsibility that would create a culture of human rights. The moral capacity to help resolve social injustices, cruelty, racism, oppression, neocolonialism, and genocide would challenge artists, philosophers, educators, and writers to take a more multi-faceted view of thought, culture, and politics (Barreto, 2020). Rorty stressed that the "utopia of human rights" is a goal to work toward. He posited that a respectful, cooperative, and democratic way of life can only be achieved *not by inquiry,* but by *imagination*, "the imaginative ability to see strange people as fellow sufferers" (Rorty, 1989, p. 152). Empathy and a capacity to "see other humans beings as 'one of us' rather than as 'them' is a matter of what unfamiliar people are like and a re-description of what we ourselves are like" ( Rorty, p. 152). He writes about the potential of great literary works to inspire and help individuals broaden their knowledge scope by learning more about humanity and the world from narrative experiences found in the works of diverse writers such as George Orwell, Jane Austen, Charles Dickens, and Richard Wright. Awareness, sensitivity, insight, and empathy can be developed, as Rorty notes, from studying different genres and looking more closely at ethnographies, journalists' reports, memoirs, docu-dramas, and the world of the novel. In other works, I have built on Rorty's ideas and highlighted the transformative potential of works in both literature and non-fiction to encourage emotional intelligence and transcultural understandings (Magro and Honeyford, 2019; Kornelsen, Balzer, & Magro, 2020).

## Research and theoretical perspectives

The articles that form our new 2021 special double issue are timely and exceptional; they build upon the idea of re-imagining education and learning processes in creative ways that can lead to a more hopeful global network of nations and a sharing of ideas that can heal a world under siege. The authors' unique perspective on dimensions of education, creativity, and learning invite new ways of thinking and exploring the possibilities of learning and innovative educational change in interdisciplinary ways.

In "Fostering creative thinking in a digital world" Douglas and Lynn Newton provide a fascinating insight into the future of educational innovation. Artificial Intelligence (AI) has rendered obsolete many work skills and competences, leading to job losses and socio-economic disarray. Drs. Douglas and Lynn Newton suggest the kind of skill-training that education will have to offer in order to facilitate students' future transition into the workplace. These skills include a high degree of digital literacy, along with a cautionary attitude towards what AI can achieve, given that it lacks such aspects of Human Intelligence (HI) as creativity, intuition, and emotional awareness, ability to improvise and to evaluate. On the basis of a comprehensive analysis of existing research, the authors recommend a number of pre-conditions that need to be met in the educational setting itself, in order to ensure a successful (and harm-avoidant) collaboration between HI and AI.

Paul Orlowski highlights adolescent perspectives on climate change in an era of uncertainty. His study is situated in Nelson, British Columbia, a geographic area in Canada known for its progressive politics. Dr. Orlowski's study took place approximately a year and a half before the coronavirus pandemic outbreak. He was interested in understanding the perspectives of adolescents who are trying to make sense and find meaning around contradictory discourses about climate change, economic uncertainty, and competing and binary political opinions. Orlowski writes that "how humanity deals with both these issues will have profound effects on the entire adult lives of this adolescent demographic." Climate change, as Orlowski explains, can be linked to more frequent and devastating forest fires, increased desertification, uncertainty over crop yields, shortages of drinkable water, and warmer ocean temperatures that threaten sea life. Orlowski's study also presents a hopeful vision for education and the future. With enlightened education and a greater focus on teaching sustainability and well-being, the repair, restoration, and renewal of planetary resources can occur. O'Sullivan (2001) suggests that educational systems, at all levels, need to move away from industrialism, nationalism, competitive transnationalism, individualism, and patriarchy, and, instead should open new pathways where individuals gain awareness and insight into a "cosmological sense" that invites new discourses of hope and healing. "We must educate to survive, critique, and

create…and that the specificity of contexts demands the specific creativity of the people or communities who live and work and educate in those contexts" (pp. 8-9).

Connie Phelps, Ashley Beason-Manes, and Amy Lockman explore covert aggression and gifted adolescent girls. Olweus (2003) describes a bully as someone who "intentionally inflicts, or attempts to inflict, injury, or discomfort on someone else" (p.12). Despite widespread "anti-bullying" programs, courses, and interventions in schools, the prevalence of bullying behaviors continues to threaten the emotional and social development of children, youth, and adults. Covert aggression, ostracization, relational bullying and online bullying can erode self-confidence and self-efficacy; learners may experience a sense of intimidation and fear both in the class and outside the classroom can be linked to mental health challenges such as depression, anxiety, and demotivation. Individuals who have been "bullied" might internalize negative messages; their full academic and personal potential can be eroded. To what extent are bullying behaviors enabled and even encouraged in particular social and cultural climates? In her book, *Odd girl out*, Rachel Simmons (2002) writes that girls' aggression is often hidden in tightly structured networks of friends. Bullying among girls, Simmons notes that bullying

> is epidemic, distinctive, and destructive. It is not marked by the direct physical and verbal behavior that is primarily the province of boys. Our culture refuses girls access to open conflict, and it forces their aggression into nonphysical, indirect, and cover forms. Girls use backbiting, exclusion, rumors, name-calling, and manipulation to inflict psychological pain on targeted victims (p.3). Dr. Phelps and her colleagues explore adolescent girls' experiences of bullying. They suggest that future studies are needed to explore covert aggression in minority gifted adolescent populations with marginalization as a central theme (p.3).

Lara Milan and Sally M. Reis describe the results of a research study investigating the effects of a programming model specifically designed to apply the pedagogy of gifted education to the overall process of school-wide enrichment, specifically the application of The School-wide Enrichment Model (SEM, Renzulli & Reis, 2014). Factors such as student attitudes toward learning, teacher attitudes toward teaching, the extent of students' creative productivity, and the processes involved in the implementation of SEM are highlighted. Drs. Milan and Reis also examine the application of the SEM to the Italian Public School System. Results indicate that the SEM application is linked to positive changes in parent, student, and teacher attitudes toward talent development, gifted education, and creative learning. The SEM can provide varied examples of specific resources and teaching and learning approaches that can uncover students' strengths which may be hidden or dormant, and can build on students' motivation, learning styles, and personality attributes.

In his qualitative study "Use of the Jordanian WISC-II for Twice Exceptional Identification," Dr. Anies Al-Hroub presents an empirical investigation of the the Wechsler Intelligence Scale for Children – the third Jordanian version (hereinafter WISC-III-Jordan) profiles to analyze cognitive factors for 'twice-exceptional' (2E) children characterising "mathematical giftedness with learning disabilities (MG/LDs)." The paper examine whether WISC-III-Jordan (the latest adapted version in Jordan) is a useful psychometric assessment tool for providing a partial picture on the cognitive weaknesses and strengths of 2E learners. Dr. Al-Hroub draws upon a clear description of 2E learners as demonstrating:

> the potential for high achievement or creative productivity in one or more domains such as math, science, technology, the social arts, the visual, spatial, or performing arts or other areas of human productivity AND who manifest one or more disabilities as defined by federal or state eligibility criteria. These disabilities include specific learning disabilities; speech and language disorders; emotional/behavioral disorders; physical disabilities; Autism Spectrum Disorders (ASD); or other health impairments, such as Attention Deficit/Hyperactivity Disorder (ADHD) (Reis, Baum, Burke, 2014, p. 222).

This empirical study would be of value to scholars and practitioners who wish to learn more about the value of WISC-II applications; important implications for teaching and learning are further highlighted in this study. What are the strengths, challenges, and limitations of such testing

instruments in gifted education? How can learning be enriched when test results are interpreted? Dr. Al-Hroub's study provides a compelling discussion.

In "Educating the gifted: An opportunity for improving the quality of teaching and learning in classrooms," Heinz Neber analyzes important ways that insights into gifted education can improve the overall quality of teaching and learning. Early approaches to educational programming for gifted students viewed ability as fixed and unchangeable. Accordingly, students first had to be identified as gifted before suitable programs could be offered them. According to Dr. Neber, a number of research studies support a different concept: ability is variable rather than fixed, and it is modifiable in response to instructional strategies. Rather than "First identify the student, then offer relevant educational programming", the preferred model becomes "First offer programs, then identify students who would benefit from them." Dr. Neber examines in detail the components of such whole-classroom programs as Problem Based Learning (PBL) and Cooperative Discovery Learning (CDL) which require students to think for themselves and to cooperate with others in generating knowledge. Research indicates that the "program first" approach meets the needs of gifted students and of those with lower-than-average ability.

In her article, "Minimizing the familiar and maximizing the diverse: Emergent pedagogy and self-differentiation in a post-COVID world, Christine Boyko-Head draws from her early teaching experiences from the 1990s and notes how a relatively homogenous student body has changed in response to late 20th century and more recent socio-political events. Over time, learner profiles have become increasingly diverse, with the inclusion of "first generation, second career, Indigenous, international, LGBTQ, and unique ability learners." Moreover, industry's demands have shifted, from the skills workers need in order to thrive in a fixed, hierarchical work environment, to a new set of skills better suited and more responsive to a continuously changing global work context. Emergent pedagogies, Dr. Boyko-Head notes, are increasingly learner-driven; they are characterized by inclusiveness and differentiation among learners. Boyko –Head includes an exercise that invites readers to review their own thinking processes. She meshes her innovate "3D-Briefing" approach with other educational paradigms to clarify the process. Drawing upon differentiated instruction, brainstorming, and experiential learning, Dr. Boyko-Head reinforces the value of creative learning dynamics; her ideas further drive home the messages that the 2020 COVID-19 pandemic has now given rise to urgent additional need for changes in education. Boyko-Head's research reinforces the idea that "classrooms are not static places, lacking in movement, action, or change….the interactive, interdependent, transactional nature of the classroom transforms students and teachers" (Buckelew & Ewing, 2019, p.14). In "No such thing as just a game: A briefing on 3D-Briefing" Dr. Boyko-Head further exemplifies a transformative approach to teaching and learning that is rooted in curiosity, courage, and creativity. Essential questions, enduring understandings, and a critically reflective stance can encourage clarity, self-agency, and creative self-expression.

While it is easy to include into society gifted individuals representing the social functions of maintenance or entertainment, it is much more challenging to fully include brilliant intellectuals who can potentially change society and its power structure by their insights. In "Extreme Intellectual Ability and the Dynamics of Social Inclusion," Roland Persson analyzes recent research that informs how gifted and talented individuals relate to the process of social inclusion. In particular, what factors influence the inclusion of gifted and talented individuals into mainstream society? On the basis of well-established empirical research in a multitude of disciplines, this study concludes that societal attitudes towards the intellectually gifted may to some extent be influenced by social policy, as well as by educating the general public. However, Dr. Persson suggests that the intellectually gifted themselves need to understand who they are in the light of social evolutionary dynamics; despite myriad intellectual, dispositional, and social gifts, they may be ignored or sidelined by the society as a whole. These individuals need to learn why the world around them sometimes reacts with aversion towards them. In his second article, Persson elaborates on an evolutionary-function-dysfunction taxonomy of the multiple subjective realities of the human mind. His theoretical analysis provides a cross-disciplinary synthesis of academic disciplines' understanding of "illusion and reality." The human mind is "adaptive in an evolutionary sense" and "illusion" as a positive force in human

behavior has been neglected in favour of an over-emphasis and focus on "dysfunctions" of the human mind. Dr. Persson's perspectives challenge scholars and practitioners to reflect on important dimensions of personality theory, well-being, creativity, social psychology, and cognitive processes.

## Innovative learning

In his *Catch-A-Wave Theory of Adaptability*, based on a "surfing" analogy, Dr. Joseph Renzulli discusses five Core Competencies that are, or will be required in the workplace, to enable students or employees to "ride the wave," failing which they will "crash" and must refine existing skills. According to the 41-nation Organization for Economic Cooperation and Development (OECD) *Schools for the Future* report (2019), educators are not all well prepared to equip students with the skills they need in order to navigate future technological and social changes affecting the workplace. Students must develop a wide range of skills; in addition, they need to acquire new skills to replace obsolescent ones, as the need arises. The five sets of skills that Renzulli describes are interdependent and "need to be fluently used together." They are best presented as authentic, project-based, student-driven learning endeavors. By way of support for educators, Dr. Renzulli offers two comprehensive appendices: Appendix A lists Practical Resources for Teaching Core Competencies, while Appendix B lists free or Inexpensive Web Sites for Teaching Coding.

In "Spectacles of Light, Fire, and Fog: Artichoke and the Art off the Ephemeral," Francisco La Rubia-Prado explores the potential of social art and display to strengthen the foundation of community and democracy. Increasingly, arts-based pedagogies are used to tap into creative realms of learning. Looked at from a critical pedagogical lens, public forms of learning can be a catalyst for personal or social transformation. LaRubia-Prado supplements current dictionary definitions of the term "spectacle" with a more comprehensive version, in which spectacle involves art productions designed to "unite people in public spaces"—cities, the countryside, and coastal venues. He explains that spectacle "is a source of values, myths, and symbols that directly impact our psychological, emotional, and material lives as individuals and members of communities." LaRubia-Prado describes in detail four categories of live and virtual art-centered spectacles produced by the British group *Artichoke*, expressing various themes: historical events, for example London's Great Fire in 1666, and the conflict in Northern Ireland; cultural identity, for example the Medieval Lindisfarne Gospels; and a variety of light, fog and sound installations that encourage participants' multi-sensory awareness of their environment, notably at a time of climate change. The arts-based recall of historical events, informed by elements of creative play and ritual, serve to celebrate, in positive ways, the notions of identity and community, along with a sense that problems can be resolved in creative ways and through common purpose.

Dr. Jaclyn M. Chancey and Dr. Jennifer Lease Butts (Enrichment Programs, University of Connecticut) describe a new program called the Coalition for Life-Transformative Education (LTE) that has been applied to the Honors Programs at the University of Connecticut. They explain that 21st Century learning goals in higher education "should add a sense of purpose, social engagement, a healthy lifestyle, and engagement at work or in a career." (Chancey and Leese Butts, this issue). Authentic learning experiences that encourage university students to apply their ideas to practical settings outside the university can encourage self-agency, creativity, and self-direction. "Helping students to rely less on authority and more on their own views and ideas is a cornerstone of higher education; designing educational practices that help them to trust their internal voice, build their internal foundation, and secure their internal commitments" can enrich university experiences. Their study is informed by several theoretical perspectives developed by Joseph Renzulli: *The Three Ring Conception of Giftedness, the Enrichment Triad Model, and Operation Houndstooth.* Collectively, Renzulli's ideas highlight the important of talent development, identifying and developing learner strengths and interests that may be dormant, self-direction, flexibility, authentic learning, and creativity.

Dr. Shauna MacKinnon describes a transformative post-secondary education program in the inner-city of Winnipeg (Department of Urban and Inner-City Studies). Dr. MacKinnon writes that

like many urban centres, the City of Winnipeg has deep racial and class divisions. Her important work highlights the way that universities can connect more with local communities by creating courses and programs that support local youth and adults. Personal and social transformation are possible when individuals feel a sense of hope and agency. Rather than escaping from a community, members have opportunities to work together to identify pressing needs in education, health care, safe housing, food security, employment, and neighborhood revitalization. Specialized courses provide learners with authentic learning experiences that can be applied to practical settings. Collaborative partnerships such as the one described by Dr. MacKinnon are increasingly important as we seek to rebuild urban centres with imagination, hope, and sustainability. She explains that "Winnipeg's North End has been home to a high number of working-class immigrants, refugees, and low-income Indigenous families who have migrated from First Nations." This area of Winnipeg has "long suffered the stereotypical narrative of being a dangerous and undesirable place to live." The idea of locating post-secondary programs and courses in this area has helped community members "reclaim" and transform their community into one of vibrancy, opportunity, hope, and healing. Her post-secondary program in the Department of Urban and Inner City Studies is centred around inclusion, access, and opportunity for historically marginalized and under-represented youth and adult learners. In breaking down psychological, situational, and institutional barriers that too often prevent Indigenous youth and adults from realizing their life and career goals, Dr. MacKinnon's exemplary educational initiatives can serve as a role model for visionary change in education today.

New problems require new solutions or perhaps a creative modification of existing solutions. Helen Lepp-Friesen opts for the latter in her article "A Long Poem: Take Time to…" When she became aware of how neighboring families on her block were suffering from the isolation imposed by COVID-19, she enlisted their help to design a "community sidewalk chalk project." This project was informed by her thorough prior review of arts-based pedagogies and the emotional, social, and health benefits of community art. In the project's final form, fathers, mothers and children, all of them living on Dr. Lepp-Friesen's block, cooperated to cover some 70 sidewalk squares with word messages that enjoined viewers and passers-by to participate in a wide variety of activities, while at the same time adhering to the COVID-19 restrictions.

Christiane Kirsch presents an intriguing interdisciplinary approach to understanding journeys of spiritual rebirthing. In "Closing the spiritual circle of life: The unconditional love revolution" Dr. Kirsch draws from psychology, comparative mythology, and comparative religion to understand spiritual dimensions of life. She examines the role of the Divine Feminine in salvation history. Her interdisciplinary analysis challenges readers to examine their own faith and their own conception of the spiritual meaning in life.

## Case studies, profiles of excellence, and interviews

In "Standing on the Shoulders of Giants," Dr. Shoshana Rosemarin presents the case study of Janusz Korczak, a gifted educational innovator whose ideas, methods, and approaches have had a profound impact in both special education and gifted education. Dr. Rosemarin writes that at the heart of Korcza's pedagogical vision was the belief that children are humanity's only hope and that "mending the world means mending education." Essential questions, enduring understandings, and experiential and authentic learning experiences could be catalysts for new thoughts, creative solutions, and transformative education. Character education or "the intelligence of the heart" and the encouragement of awareness, empathy, motivation, and transcultural communication skills were highlighted by Janusz Korczak decades before Daniel Goleman's (1995) theory of emotional intelligence and Howard Gardner's theory of multiple intelligences. Attributes such as self-direction, creative self-expression, and personal agency can be encouraged in enriched experiential learning climates**.**

The IJTDC *Profile of Excellence features* "Reflections on an Academic Life" by Dr. Sally M. Reis. The tributes to Dr. Reis emphasize her brilliance, generosity, and ongoing creative approach to teaching and educational innovation. Through her transformative leadership, tireless research

endeavors, publications, international work, teaching, workshops, and presentations, Dr. Reis has helped so many students, scholar-practitioners, and theorists in varied disciplines. Her exemplary works continue to include cutting-edge research on understanding the learning processes of gifted students with autism.

The interviews in this publication highlight the work of Dr. Sally Reis and Dr. Françoys Gagné. In unique ways, these scholars share their insights into educational leadership that encourages interdisciplinary studies, holistic learning, emergent curricula that are multi-layered and complex; and they also stress the importance of dialogue and relationship building in varied educational contexts. Teaching and learning are grounded in understanding complex connections between personal philosophies of teaching, learning preferences, curriculum choices, and the evolution of new ideas that can illuminate life. In "The Seven Principles of Sustainable Leadership", University of Toronto theorists Andy Hargreaves and Dean Fink (2003) write that:

> Sustainable leadership matters, spreads, and lasts. It is a shared responsibility, that does not unduly deplete human or financial resources, and that cares for and avoids exerting negative damage on the surrounding educational and community environment. Sustainable leadership has an activist engagement with the forces that affect it, and builds an educational environment of organizational diversity that promotes cross-fertilization of good ideas and successful practices in communities of shared learning and development (p.8).

In sum, the contributions in this special double issue point to a pathway where education can be re-imagined, reconceptualised, and reconfigured in multi-dimensional ways to draw out the talent, potential, and success for all learnersIn welcoming change, new opportunities, and inquiry, lifelong learning will continue to be the beacon of hope as we move forward in 2021.

In sum, the contributions in this special double issue point to a pathway where education can be re-imagined, reconceptualised, and reconfigured in multi-dimensional ways to draw out the talent, potential, and success for all learners. Lifelong learning continues to be the beacon of hope as we move forward in 2021.

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Bertram Brooker: Canadian (born in England), 1888–1955.
Image: Sounds Assembling, 1928.
Oil on canvas112.3 x 91.7 cm.
Collection of the Winnipeg Art Gallery, L-80.
Photography by Ernest Mayer, Courtesy of the Winnipeg Art Gallery.

## Acknowledgements:

**The IJTDC and ICIE executive** *I would like to extend their appreciation to Ms. Jocelyne Scott for her academic insights and editorial suggestions.*

# Fostering Creative Thinking in a Digital World

**Douglas P. Newton; Lynn D. Newton**
Durham University, UK

## Abstract
We are now moving rapidly into a new world, one shaped by the Fourth 'Industrial' Revolution. This world is one in which digital technologies in various forms will shape work, play and everyday life. Such technologies, unlike the relatively passive ones of the past, are adaptive, able to learn and make decisions and changes using their artificial intelligence (AI). AI, however, has its limits, and productive thought continues to need fostering in the classroom. As a consequence, education systems around the world must respond in what has been called the Fourth Education Revolution. This article explores the potential relationship between AI, creative thinking and education, and the fostering and development of human creative thinking supported by AI. Some significant omissions in current notions of AI support for creative thinking are presented, and some cautionary thoughts offered. The article concludes with recommendations for a more structured and comprehensive provision of AI support.

**Keywords:** Human creativity; computational creativity; AI; Fourth Industrial Revolution; human-computer educational collaboration.

## Introduction

### *AI and the fourth 'industrial' revolution*

We are moving rapidly into a new world, a world shaped by the Fourth 'Industrial' Revolution in which digital technology, in the form of genomics, robotics, information and nanotechnology will change lives (O'Hara, 2007; Prisecaru, 2016). Unlike earlier, somewhat 'passive' technology, this will be adaptive, able to 'learn' from experience, make decisions, and act on them using their artificial intelligence (AI). Artificial intelligence may be defined as 'technology with the ability to perform tasks that would otherwise require human intelligence' (SCAI, 2018), or 'a system that analyses the environment and hence takes actions with some autonomy to achieve a particular goal' (Krafft et al., 2020). Both definitions are justifiable but they direct thought in different directions. The first ties AI to human thought and behaviour and can bring with it connotations of the non-human life of fiction and films. It is important to put these undertones aside. Today's AI falls short of the world of fiction and should not be confused with it. For at least the present, it can be more helpful to see AI through the eyes of the second definition, with its emphasis on technical functionality.

Nevertheless, while AI has its limitations, it is a very powerful tool which can carry out many routines unattended. Given that significant parts of some people's work are often routine, and that people's wages are a major cost for businesses, AI-enabled devices could do the work of people more cheaply, tirelessly, productively, and with fewer errors. In the EU, there is a strong belief that AI will take work away from people (Dignum, 2017). For instance, at least one large European Bank is reported as expecting to cut its workforce by almost 50 000 (Pistrul, 2018). Bakshi, Frey and Osborne (2015) estimated that as many as half of the jobs in the USA and one-third of those in the UK are at risk. Some believe the impact will be less than this (Arntz, Gregory & Zierahn, 2016), while others, looking back in history at earlier industrial revolutions, believe that some occupations will disappear and be replaced by others (Ramge, 2019; Clark, 2020): robots, for example, will need to be maintained (at least in the foreseeable future). There is, however, a consensus that work will change. Bakshi et al. (2015) see the change for people as a move away from routines to what is more difficult to turn into an algorithm, namely, thinking that is hard to define, such as that which is creative. Bregman (2018) makes the point that this includes knowing when and why we need to be creative, and which problems are worth thought and need solutions. In an AI-shaped world, this will

put problem noticing, problem appraising, decision making, planning and creative thinking at a premium (e.g., Pistrul, 2018).

### *AI and the fourth education revolution*

Education will need to respond to this in what Seldon (2018) has described as The Fourth Education Revolution. In his book, Aoun (2017) asks how higher education institutions can prepare students for their professional lives in such a climate. He suggests a framework for a new discipline, humanics, which prepares students to be inventive and creative discoverers who can meet the needs of our societies in ways that even sophisticated AI cannot do. He sees the workplace as one in which smart machines and human professionals work side by side, with the latter having skills in data, and technological and human literacies. The policies of national governments concerned with maintaining economic advantage, and pressures from 'the knowledge industries' which want a supply of workers to meet their needs, have all led to proposals that education at all levels should embrace the information age by producing more digitally competent people. In particular, education should:

1. Equip students with knowledge and skills which could, at the least, be a foundation for further study in the domain of digital technology (e.g., Lourie, 2018).
2. Make all students 'digitally literate' so that they can become 'responsible, competent, and creative users' of digital technology (e.g., HMSO, 2018).
3. Develop 'Twenty-first Century Competences' which reflect the needs of a digital world, such as creative thinking, problem solving and being innovative, critical thinking, decision making, and metacognition (e.g., Voogt & Roblin, 2012).
4. Be taught by AI-enabled technology as an efficient and effective means of providing an education (e.g., Hans & Crasta, 2019).
5. Recognise that what it means to be a teacher will change in this digital world (e.g., McCluskey, 2012).

Putting aside an education that is about more than the narrow needs of the workplace, seeing schools as a ripe market for digital technology, and teaching being somehow 'fixed ' by that technology-- all assumptions capable of prompting hesitation (see e.g., Mehta et al., 2020; Seethal & Menaka, 2019; Selwyn, 2016)-- item 3 is of particular interest in this context. Proposals of this kind are not, of course, new, although tying it closely to the narrower needs of the digital world is (Howard, 2018). The competences have wider application than in the workplace, as when they empower the individual by, for instance, fostering learning, preventing exploitation, enabling problem solving in everyday life, and even by being an antidote to the demands of the workplace, digital or otherwise. This is not to say that attempts to foster such competences have been universal, or always successful, but that does not detract from their potential value in life more widely.

Holford (2019) has directed attention to the way that organisations are seeking to replace as much of human thought and action as they can by robots and AI, and this includes automating the creative process. This would make such human competences in the workplace redundant. For instance, some may point to automated journalism which uses software to convert data into publishable news stories, story generation, game construction, and art production (e.g., Carlson, 2015). For instance, Nikolay Ironov is an artificial neural network and decision making device in the Lebedev Design Studio. It is reported as being able to generate new logos and brand identities for businesses (Art Lebedev, 2020), and it is said that clients believe the designs come from a person. But, as Raczinski and Everitt (2016, 275) put it, 'just because a computer program appears to produce a creative output, this does not mean that its code is inherently creative – it just follows the rules that produce the output from a human creation in an automated manner ... computers do not consciously create as do humans ...'. Cohen, himself the creator (in the human sense) of software which generates art-like images, did not regard what his software did as creative (Cohen, 1999). Because of the illusion of human-like creativity, Cohen preferred to avoid the word 'create' in connection with 'computational creativity', and, instead, described it as 'Behaviour X'. Using human intelligence (HI) as an analogy for artificial intelligence (AI), and transferring terms without qualification, can mislead: analogies have limits.

According to Acer et al.'s (2017) distillation of definitions of human creativity, it is the process of producing something new, novel or original, appropriate or fit for purpose, and, preferably, in some way surprising or satisfying. (The precise meaning and weight of these terms may change with context.) The process is often unconscious, 'intuitive', and emotional. It draws on tacit knowledge and heuristics, and can involve social agency (Newton, 2016; Herzmann, 2018) while that of AI is one of routines, templates, algorithms, rules, and lacks the benefit of tacit knowledge (Leppänen at el., 2017). One consequence is that the products are likely to be different, and those of successful human creators could be more relevant, surprising, and better suited to the context in which they will appear (Holford, 2019; Trausan-Matu et al., 2010). As Raczinski and Everitt (2016, 271) point out, 'taking theories on human creativity and directly applying them to machines seems logical but may be the wrong (anthropomorphic) approach'. For example, Hertzmann (2018) points out that computer art is not human art. No doubt, the products of computational creativity (what Holford (2019) calls 'pseudo-creativity') may be adequate for some organisations' needs, but the process of human ideation is not confined to routines and rules; at times, it may fail, but it can notice needs and problems, can improvise when a machine cannot (Sarathy & Scheutz, 2018), it can draw on emotional connections, and, as Boden (1998) pointed out, can evaluate potential products. Fostering a competence such as this is worthwhile, both for students themselves, and for their workplace. This is not to say that such thought must be entirely outside the world of digital technology. We increasingly live in a hybrid world of AI and HI (human intelligence), and aspects of human creativity and machine creativity may be made mutually supportive (e.g., Galanter, 2016). Wilson & Daugherty (2018) list areas of potential 'collaboration', presented and supplemented here (with some paraphrasing) in Figure 1.

**HI-AI collaboration for enhanced performance**

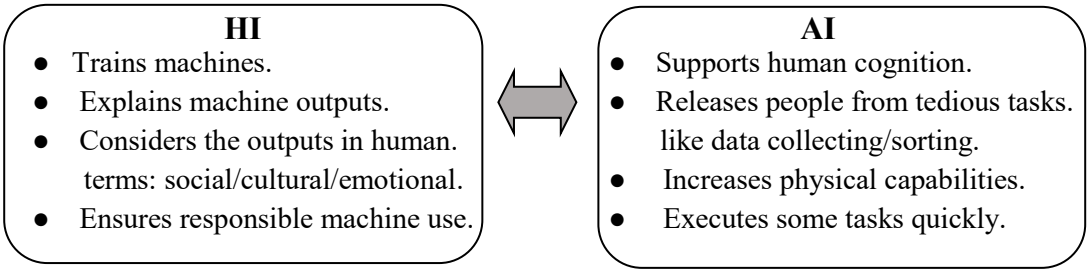


**Figure 1:** Some potential areas of collaboration between people and digital devices (HI: human intelligence; AI: artificial intelligence).

## Fostering human creative thought in a hybrid world

### *In the workplace*

There are some informative and diverse instances of human creative processes with digital augmentation in the workplace. For instance, journalists are expected to produce new stories or, at least, original angles on old news. The process can be slow, but there is software to help, such as INJECT which uses a web crawler to mine news, generate possible associations between items, and present them for the journalist to evaluate and serve as the basis of a story. Maiden et al. (2020) found that using INJECT led to more novel stories (although not necessarily 'more valuable' stories). Designers often sketch ideas as they develop them, but can become trapped by 'fixation' when they cannot break away from an existing idea. Karimi et al. (2020), led by the notion of 'design by analogy' produced the Creative Sketching Partner to help designers progress. The designer offers a sketch and the tool provides another from a different category, that shares some but not all features (hence 'design by analogy'). This is intended to prompt further ideation and iteration to refine an idea. More specific is software by Dubey et al. (2020) used to support the design of clothes. Based on past commercial successes, this identifies marketable aspects of items of clothing and allows them to be merged and varied by the designer. Interest in a movie is often generated by a trailer. Smith et al. (2017) used software to

select known structures in a film commonly understood by audiences and used by film makers to convey emotive concepts in events. The human partner edited and arranged these to produce the trailer. In the workplace, health and safety matters can be a concern, but suggestions for solutions can be vague or evasive. Maiden et al. (2017) describe a tool which takes the report of the problem and offers existing, potentially relevant, generic approaches to solving it. These are to stimulate creative thinking and the production of a specific solution.

These examples serve to show that digital support can be elicited for quite diverse creative endeavours. Where there is a need for creative thinking, it seems likely that some form of digital support could be constructed. The second point is that the support can take some of the tedium out of parts of the process. Edison is reported as saying that invention is 99% perspiration and 1% inspiration. It seems that some of the perspiration may be reduced by using AI. The third point is that support can be used to overcome significant obstacles to productive thought, such as idea fixation. Garcia (2015) described how the musician and composer, David Cope, turned to computers to help him overcome 'composer's block'. The human creative process is not formulaic and can be susceptible to disruptions of this nature.

### *(ii) In the classroom*

Unsurprisingly, digital support for creative thinking in the workplace is designed for adult use. While Luckin et al. (2016) are ardent advocates of the use of AI in education, they remain vague about its role in supporting creative thinking. Creative thinkersfor the classroom would at least need to reflect the different ages and abilities of the students and the different disciplines or subjects taught. If it is also a tool to foster the development of human creative thinking, then it may need to be different in its composition, because the primary goal is one of human learning. Some aspects of creative thinking it could support are, for example:

- need, opportunity, and problem finding or noticing,
- need, opportunity, and problem exploration, clarification and formulation,
- the process of ideation, idea selection, and development,
- reviewing and completing, and
- helping to overcome obstacles in each of these, such as fixation.

Early digital technology of a somewhat passive nature has been routinely used to support creative writing by, for instance, enabling drafts and revisions of children's stories, and providing a ready access to information, story templates and story boards. For older students, more sophisticated programs offered structures and plot-building frameworks for book-length writing. In technology and art, readily available draw and paint tools made experimentation easier and errors of less consequence. (To set against that, the internet also provides ready-made pictures for reproduction, taking away the need to practise creative activity.) Working with young adults learning English, Fageeh (2010) had them produce web-based publications in the form of blogs in English. He found that the activity was motivating and enhanced linguistic proficiency and creative expression. Majid et al (2003) described a study in which they compared the use of two tools (the internet and a non-technological tool, SCAMPER) to facilitate creative writing with primary school children in Singapore,to see how each facilitated creative writing. The children who used the internet showed greater improvement in their creative writing's fluency and elaboration.

As far as a more active AI is concerned, Park Woolf et al. (2013) found that few such learning systems were consistently used in classrooms, and support for creative thinking and creative competence development by this means seems to have attracted less attention. This can be justified on educational grounds: we could want students, particularly young students, to exercise their creative processes directly, not confused with the capabilities of digital devices, in order for them to grasp the nature of those processes before they hand some over to AI. There is, however, a tendency in education to think in terms of the 'creative arts' as though all else could not be creative (Newton, 2012, 2013; Rees & Newton, 2020). Faced with such beliefs, the notion of fostering or supporting creative thinking in history, or mathematics, or the sciences would seem incongruous.

The fostering of creativity more broadly, regardless of subject, has attracted some

attention. For instance, in a study of Korean elementary school teachers' perceptions of AI and education, Ryu and Han (2018) noted that teachers with experience in leading schools recognized that AI education would help to improve creativity. Safinah Ali has described a project of the Robots Group at MIT. The expansion of AI into children's lives is significant, but she points to a lack of evidence of efforts to educate school age pupils in AI, and its wide use and misuse. MIT is currently developing a curriculum for middle school pupils based on student-machine partnerships in creative expression in art, music, and poetry (Ali, 2020). Ali et al. (2019) aimed to develop a 'creative mindset' in young children (between 6 and 10 years of age) using the Droodle Creativity Game. A Droodle is a simple, abstract drawing in need of a title. A social robot, serving as a model for creative behaviour, gives it a title. The child then has a turn inventing a title for the next drawing, and so it goes on. Ali et al. found that the children playing the game with the robot produced significantly more and a greater variety of titles than those without the robot. While this was seen as a development of a general creative mindset, it could, of course, reflect the development of creative title construction, something much narrower. It remains to be seen if this 'mindset' generalises usefully to other areas of classroom activity. Also relating to a general capacity for creativity, videogame playing has been found to 'predict' some measures of it, at least with 12 year-olds in the USA (Jackson et al., 2011). But, as is often said, correlation is not causation, so it remains to be seen if providing videogames raises creative competence, or increases it in specific classroom domains.

Nevertheless, aspects of subjects seen as being creative, like story writing in language skill development, have attracted some attention. For instance, for children of 5-6 years of age, Cooper and Brna (2001) developed an application they called, 'T'rrific Tales' to enable a co-construction of a multi-frame, cartoon-illustrated story. Young children writing stories often need a lot of teacher time, but this software provided a person on the screen who supplied affirmation and prompts to keep the construction going and to give it a story-like structure. Amongst other support, there were word and phrase banks, pictures to modify for the tale, and speech and thought bubbles. Although the stories were shorter than those produced conventionally, they were richer and more complex, and produced more enjoyment. The value of a tool for supporting story telling amongst older students (16 to 17 years old) has also been demonstrated: WebGIS (the Web-based Geographic Information System) is a package which enables the purposeful inclusion of maps in stories, alongside other forms of communication, to enhance their effect (Giannakou & Klonari, 2019).

It can make some educational sense to deny children access to collaborative AI while they develop an understanding of their own creative potential, but there can be a place for that which keeps a creative disposition alive. If this, however, does no more than have children model themselves on the computer, then it risks equating human creativity with computational creativity and limits understandingto what the software does. There also seems to be a belief in a generalisability of creative dispositions and mindsets which needs to be tested. For instance, do the habits of mind produced by the Droodle Creativity Game extend to creative thinking in, say, learning history or science? Creative thought in the various areas of human endeavour may have a family resemblance but there are significant differences in more than detail (Kaufman et al, 2017). AI aimed directly at developing human creative processes in particular domains could be helpful. Boden (1998) has indicated that creative thinking is not a unitary notion. There are kinds of creative thinking centred on idea combination, the potential of conceptual spaces, and productive transformation which could be systematically exercised. Does the mindset apply to all these? As understanding and competence develop, students could benefit from learning how to work with AI to increase the success and quality of their creative efforts.

Although not the focus of this study, it should be mentioned that digital technology may also be used with particular groups of students to overcome 'disadvantage and disaffection' by supporting various kinds of thinking to enhance skills and the acquisition of knowledge (Bradbrook et al., 2008). In this more general and broader use, digital support for creative thinking may not be the only or main concern.

## Some cautionary thoughts about the design of AI creativity tools and learning aids

This suggests that AI tools could make a contribution to the development of student's creative competences, and to their experience of working with an AI tool to enhance the product of their creative thinking. Some cautionary thoughts regarding the further development of such tools may be helpful.

### *Human creativity is not the same as computational creativity*

Holford (2019) makes a sharp attack on the notion of computational creativity as a substitute for human creativity. He points to the difference between symbols and signs, the former has multiple levels of meaning, while the latter has only one meaning. He argues that the reduction of symbols to signs in computational creativity reflects a belief that all knowledge can be made explicit and is a flawed epistemology. Human creativity, relying on heuristics and symbolic transformations, is a richer kind of thinking which notices relevance in places where AI is blind. Through working with AI, the danger is that human creative thinking will be reduced to what AI can do when HI could go beyond it. In other words, the distinction between computational and human creativity and the potential of the latter, would be lost. Of course, this may also arise if the user is uncritically enamoured with AI, or its use encourages an indolence or apathy which delegates thinking to the machine. Such outcomes would benefit neither the workplace nor the person's daily life, and the use of personal creativity as an antidote would be lost.

### *Educational misalignment*

The thrust of the proposals is strongly towards an education which services the needs of the digital industries. But an education should be wider than that. While we would want students to be competent and confident in a digital world, we should not forget that there could be more to life than that. Ironically for the proponents of a narrower, work-focused education, it would also narrow the potential of human creativity to make remote connections between disparate mental entities. But there is another kind of educational misalignment. AI software is complex and can be costly to produce. It is likely to come from large and distant corporations and to bring with it a hidden cultural curriculum from elsewhere which may not be universally acceptable. There is the danger that, as Creely and Henriksen (2019) have put it, the values of the digital specialists who constructed the software will be privileged.

### *Omissions*

Being imaginative and having good ideas is not all there is to creative thought. The human mind must also concern itself with noticing problems and opportunities, discriminating between those that are trivial or inconsequential and those that are pressing or worthwhile, and making the latter a priority. We have evolved to function in a social world; cooperation and the impact of new ideas and products on others have to be considered. This calls for wise thinking and decision making which takes itself beyond the immediate and narrow context. Technology has given enormous power to people, but how to choose whether how, and when to use it tend to have been neglected. There can be a dark side to creativity: if it leads to continual change, it can be unsettling for those subject to it. Moreover, institutions that initiate change often also have the power to coerce people to accept it by removing what went before.

### *Living in a hybrid world*

We live in an increasingly hybrid world, one that we share with digital devices. But we are not like them: we have a capacity for reasoning, but are also guided by emotions. Being human is a condition we cannot shed but must recognise and manage by, for example, making the interaction of reason and emotion productive. Children will spend more and more time with digital devices which augment their thinking and learning, so it is important that they distinguish between HI and AI, and continue to learn what it means to be human in a given cultural context (Newton & Newton, 2019).

We put children in an artificial world; it is our responsibility to ensure that they know it is not all there is, and they should have time and space to think for and about themselves.

### *Practicalities*

One obvious practicality is the availability of digital devices, and often, access to the internet. There are parts of the world where these are not readily accessible. Where there could be digital devices, many classrooms were not designed for a way of teaching that draws heavily on their use (e.g., Darmody, Smyth & Doherty, 2010). This can make the notion of using AI as a tool less of a routine behaviour, and it is this which is to be encouraged in what is supposedly a digital world for students. This practicality is mentioned here, but school design is commonly outside the control of the teacher.

### *Teacher identity*

Given a burgeoning role of AI in education, it will affect what teaching means. Intelligent tutoring systems could take on aspects of what is now the teacher's role. This does not mean that the teacher must be redundant, but he or she will need management and orchestration skills to maximise learning, and check that it is of a quality and of a kind that is appropriate. But, the use of AI in education also calls for an understanding of the broader aims of education, and of the strengths, weaknesses, benefits and dangers of AI in order to appraise what is offered, to judge the promises, and decide on whether it is to be used, and if so, how it is to be used (Newton & Newton, 2019).

## Conclusion: Towards working with computational creativity

It is not a matter of rejecting digital support. We all must live in a hybrid world, so it does no good for the next generation, or ourselves, if we avoid it, and cling tenaciously to past ways of working. Instead, we need to consider how we might take the best of what digital support offers, or improve what is on offer, and blend it with other good practices. This needs thought, and the specific answers will vary from place to place and context to context. Regarding AI support for human creative thinking in the classroom, it would benefit from a widening of provision both across all phases of education and across disciplines. The diversity in what is possible is seen in what is available for the workplace, and it is an indication that this is not an impossible task. The construction of these tools needs to be strongly influenced by educators familiar with teaching the targeted students and with the nature of creativity in the given domain. To this end, we recommend that four aspects of an educational context are considered when designing AI support:

1. the characteristics of the child or student, such as, age, stage, ability, experience;
2. the domain/discipline/subject in which human creative thinking is to be supported/developed;
3. the nature of the anticipated creative thought (e.g., idea combination, concept potential, productive transformation); and,
4. the part(s) of the process to be supported (e.g., problem noticing, exploration, formulation, ideation, potential solution appraisal, obstacle reduction, insofar as these are relevant to the particular nature of the creative thought).

We also suggest that there are some concerns which should enter into this influence. In particular, educators need to ensure that there is a clear distinction between human and computational creativity in students' minds; that what the tool does or supports is in alignment with their educational goals and the cultural context;that omissions or deficiencies are made good in the classroom, and that life in a hybrid world does not mean an entire life in the digital world, particularly for the younger child. Learning to be human may have been a routine matter in the past, but it now may need more explicit attention. In addition, there are the practicalities of integrating AI tools in the classroom and ensuring that they work seamlessly together – often a difficult task.

Historically, the human mind-computer processor analogy has been a useful way of explaining how the latter functions, but all analogies have their limits, and if taken literally, anthropomorphising digital technology can begin to impede understanding. Human creativity and

computational creativity are not the same: the former, at its least, takes into account relevance to the human situation, and at its best, may produce world-view-changing paradigms, although AI could usefully augment or support such creative activity. A careful distinction between human creativity and computational creativity may help students and their teachers understand the potential roles of the latter. Without that distinction, there is the danger than human creativity could be reduced to what only the tool can do, that is, Cohen's Behaviour X. Maybe the time has come to break from the analogy, and avoid the word 'creativity' in computational contexts, instead using some alternative with as few connotations as 'X'. In the meantime, teachers need an awareness of such matters, an ability to appraise particular tools which promise augmentation, and develop some sensitivity to unwanted effects.

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## About the Authors

**Douglas P. Newton**, *Ph.D.*, *D.Sc.* teaches and researches in the School of Education of Durham University, UK. His interest is in supporting purposeful thought in education, such as understanding and creative thinking, and how moods and emotions affect them. Recently, his work has focused on encouraging the fostering of creative thinking across the curriculum, and the extent to which artificial intelligence can support productive thought, like creative thinking. These interests are reflected in some of his recent books, such as *Teaching for Understanding* and *Thinking with Feeling* (Routledge), *In Two Minds* (ICIE), and *Creative Chemists* (Royal Society of Chemistry) (the last with Simon Rees).

**Lynn D. Newton**, *Ph.D.* is Head of the School of Education at Durham University in the UK. Her successful book, *Creativity for a New Curriculum* (Routledge), describes creative thinking in the context of the disciplines commonly taught in schools. Her interest is in strategies for supporting thinking and learning, such as questioning (see, for instance, *Questioning: A Window on Productive Thought* (ICIE) and *Making Purposeful Thought Productive* (ICIE). She had a major role in the Durham Commission on Creativity in Education (2019), a collaborative project with Arts Council (England) which aimed to ascertain the quantity and quality of provision for creative thought in education and in the workplace. Its recommendations have generated a second phase of research and implementation activity.

## Addresses

**Prof. Douglas Newton**
School of Education; Durham University;
Leazes Road; Durham DH1 1TA;
United Kingdom.

**Prof. Lynn Newton**
School of Education; Durham University;
Leazes Road; Durham DH1 1TA;
United Kingdom.

**e-Mail addresses:**
d.p.newton@durham.ac.uk
l.d.newton@durham.ac.uk

# Adolescent Perspectives on Climate Change in an Era of Economic Uncertainty: Eschewing Neoliberalism in Nelson, British Columbia

**Paul Orlowski**
Department of Educational Foundations, University of Saskatchewan, Canada

## Introduction

In the summer of 2018, I interviewed 10 senior high school students in Nelson, a small city of 15,000 located in the West Kootenay Mountains of southeastern British Columbia that is known for having progressive politics.[1] Nelson is also known for having a unique history – situated in the heart of the traditional territories of the Sinixt and Ktunaxa peoples, it has experienced waves of radical dissidents from early 20th century Wobblies, to mid-century waves of pacifist Quakers and Doukhobors, followed by several hundreds of American and Canadian adherents to the anti-war counter-culture of the 1960s and 1970s (Rodgers, 2014). There is no question that this distinctive past and demographic influenced the adolescents who participated in this study.

It is significant that the summer of 2018, when the interviews took place, was the second consecutive summer in which this region (as well as most of the BC Interior) was experiencing numerous forest fires, many massive in size (Lindsay, 2018). I wanted to inquire into the thoughts of adolescents around climate change and economic uncertainty.[2] (This study took place a few months before the advent of the Climate Strike movement spawned by the Swedish activist Greta Thunberg, herself a teenager. It is also noteworthy that this study took place roughly a year and a half prior to the coronavirus outbreak of early 2020.) I was curious to understand how they were making sense of competing discourses around climate change and the economy, especially those pushed by media pundits and right wing politicians who describe the situation as a binary that pits climate concerns against the economy. After all, how humanity deals with both of these issues will have profound effects on the entire adult lives of this adolescent demographic. My curiosity was piqued not only because of the burning forest fires in the BC interior, however, but because of a growing awareness of a set of disconcerting statistics and discourses that were dominating political debates in Canada and across much of the world.

According to NASA, the year this study took place, 2018, was at that time the fourth hottest year on record (CBC, 2020). In 2014, the American Association for the Advancement of Science (AAAS) found that "based on well-established evidence, 97 percent of climate scientists have concluded that human-caused climate change is happening" (Molina et al., 2014, p. 1). Studies by the U.S. National Oceanic and Atmospheric Administration (NOAA) indicate that ocean levels are rising at an average of over 3 cm per decade since 1992 (2016). Climate change is also believed to be responsible for more frequent and larger forest fires, increased desertification, uncertainty over crop yields, shortages of drinkable water, and warmer ocean temperatures resulting in decreased sea life and the breakdown of ocean food chains (Molina et al., 2014). In Canada, we are experiencing more frequent massive forest fires in BC and beyond, including a raging wildfire that burned an area "larger than Prince Edward Island" around Fort McMurray Alberta in the summer of 2016 (Giovannetti, 2016). These statistics were part of a set of alarming facts that led me to wonder what today's youth were thinking.

Two months after I collected the data for this study in the summer of 2018, the United Nations-sponsored Intergovernmental Panel on Climate Change (IPCC), a group made up of over 60

climate scientists and climate policy experts from around the world, released a report that stated in no uncertain terms that the time limit to reverse the amounts of greenhouse gases entering the Earth's atmosphere is 12 years (IPCC, 2018). The report clearly explained that urgent changes are needed to lessen the risk and frequency of extreme heat, massive forest fires, powerful hurricanes, drought, floods, and dire poverty. Almost a year after the interviews, the U.S. Department of Commerce published a report that was authored by climate scientists at the National Oceanic and Atmospheric Administration stating that July 2019 was hottest month on record for the entire planet (NOAA, 2019). The report also claimed that July 2019 was the 43rd consecutive July and 415th consecutive month with above-average global temperatures. Moreover, NASA recently determined that the decade from 2010 to 2019 was "by far the hottest ever measured" (CBC, 2020). These are extremely frightening trends.

At the same time, many members of the public have been overwhelmed with discourses about a fragile national and global economy. In 2016, the International Monetary Fund (IMF), an American-based financial organization that has unashamedly promoted neoliberalism since the 1970s, released a report called 'Neoliberalism: Oversold?' in which the authors conclude that cutbacks in social spending and privatization of the commons has resulted in extreme poverty throughout the world (Ostry, Loungani, & Furceri, 2016). Despite this rather late admission by the IMF, neoliberalism is an extremely powerful economic paradigm that is very difficult to challenge (Brock, 2019). It concentrates the wealth at unprecedented levels among the upper echelons of economic elites (Orlowski, 2014) and without regulation will continue to do so (Piketty, 2014). Many Canadians and Americans undoubtedly lament public debates about the growing wealth inequality in our countries.

In the midst of the release of these reports and countless others about climate change and an uncertain economy, I conducted my study with senior high school students in the BC interior. The research question for this study was: How do high school students in British Columbia intellectually process the ongoing public debates around climate change and an uncertain economy?

This article describes my analysis of the thoughts of the 10 student-participants. My own position is that human-caused climate change is a fact. As a former engineer, I believe the general consensus among climate scientists. The goal of the study was to explore how adolescents in rural BC think about it. Before we get to the study, however, an overview of related studies and other relevant scholarly work is in order. The overview is necessarily longer than most because of the complex interplay between climate science, an apparent fragile global economy, human psychology, and the roles of right wing politicians and corporate media pundits who support the neoliberal agenda.

*Literature Review: People and Climate Change*

Before discussing the relevant environmental psychology and sociological work done on how people think about climate change, a brief overview of what environmental history can tell us is informative. In *Fossil Capital: The Rise of Steam Power and the Roots of Global Warming* (2016), Andreas Malm explains that the fossil economy began in 1842 in Manchester England when the first tiny emissions of carbon dioxide (CO2) were released into the atmosphere that enabled certain capitalists of the day to benefit financially. This same dynamic is in operation today, as can be demonstrated by the massive profits of fossil fuel industries over the past several decades. Further, and even more unethical, Malm poignantly states that the "emissions produced by cars [today] … will have their greatest impact on generations not yet born: they are so many invisible missiles aimed at the future" (p. 7).

Malm (2016) explains that since the first IPCC report was published in 1990, global CO2 emissions have continued to rise, even at increased rates. He states a bitter irony, "the more knowledge there is of the consequences, the more fossil fuels are burnt" (p. 3). But why is this happening? This is where the fossil economy comes into play, and Malm makes a strong argument that it is this *fossil economy* that is beyond a doubt "the instigator of climate change" (p. 5). As soon as financial profit was made back in 1842 with the first CO2 emissions, the fossil economy was established and with a force that quickly enabled it to become entrenched into the British national economy and soon afterward other national economies around the world. Fast forward to the present

where one can see history collapsing into the present at an alarming rate. Through photosynthesis, fossil fuels were created hundreds of millions of years ago. The invention of the car was over a century ago, an event that displaced streetcars, buses, and bicycles as a massive infrastructure of "oil terminals, petroleum refineries, asphalt plants, road networks, gasoline stations" was built up over the decades (p. 7). Malm refers to this as a *carbon lock-in*, and because of its influence on human choices and behaviours, contends that this is a major obstacle to combatting the climate crisis. Humanity is effectively caught in a frightening business-as-usual scenario, according to Malm, in which the fossil economy forges ahead despite the present-day consequences and many looming catastrophes.

Environmental psychology has also illuminated some important findings about cognition that are relevant to this study. Capstick and Pidgeon (2013) describe two types of scepticism: epistemic and response. The former refers to an individual's doubt of the validity of climate science, while the latter is used to describe pessimism and doubt over the efficacy of national or international responses to fight climate change. One study found that media and political inaction influenced the attitudes of Norwegian adults toward climate change (Ryghaug, Sorensen, and Naess, 2010). A focus group study of Swedish farmers determined that they believed climate change was occurring based on their experience, but the media they relied on influenced their thinking on whether it was natural or anthropogenic (Asplund, 2014).

Norgaard (2011) interviewed educated people in a rural Norwegian community to examine why they did not demand a political response from their government during an unusually warm winter. The findings suggested the lack of response stemmed from what the Norwegian people as a collective were suffering from, namely, a condition similar to what psychologists call *psychic numbing* (Gregory, 2003; Lifton, 1982). Lifton (1982) originally conceptualized psychic numbing as a collective phenomenon in which a culture or a society adapts to potentially stressful situations of extreme proportions by adopting a type of arms-length perspective as though the situation threatened others instead of them.

An earlier ethnographic study by Norgaard (2006) on climate change denial is particularly insightful in understanding the dynamics of how socio-cultural norms interact with individual beliefs and attitudes. Norgaard's research demonstrates how some people psychologically distance themselves from the realities of climate change when faced with information that does not align with their personal values or identity. Another psychological term based in Piaget's theory of cognitive development, *cognitive accommodation*, is useful here. This arises after an individual has invested so much emotionally into something like climate change denial that to change their stance, even after experiencing strange and extreme weather patterns, would bring them psychological discomfort and pain. Often, rather than change their stance, strong negative reactions surface, as can be seen with some climate change deniers in Canada and the USA. Collective angry responses in many parts of Canada to the federal government's carbon tax plan in 2018 and 2019 could be an example of cognitive accommodation. Some studies, however, suggest that personal experiences with climate change effects can lead to increased concern and support for mitigation policies (Lujala, Lein, and Rød, 2015; McDonald, Chai, & Newell, 2015). Of relevance to this study, the widespread forest fires in the BC Interior during the summers of 2017 and 2018 are likely caused by a warmer atmosphere.

Moreover, research has shown that public opinion on climate change takes its cue from political leaders, with public opinion rising or falling depending on how much or how little politicians publicly address it (Mildenberger & Leiserowitz, 2017). In Canada, support for government mitigation policies is also higher in areas where policies have already been instituted (Mildenberger et al., 2016). This could be the case in British Columbia where the provincial NDP government has been in a prolonged fight against new oil pipelines emanating out of the Alberta Oil Sands (Shaw, 2019). As mentioned above, one Norwegian study found that media and political inaction influenced the attitudes of adults in Norway toward climate change (Ryghaug, Sorensen, and Naess, 2010). A survey-based study found that most Norwegians believed that fossil fuel emission are contributing to climate change, but were unwilling to support solutions that related to personal financial sacrifice (Rosentrater, Saelensminde, Ekstrom, Bohm, Bostrom, Hanss, & O'Connor, 2012). Both Norwegian

studies could explain why many people living under Conservative provincial governments in parts of Canada vociferously express their displeasure over attempts to fight the climate crisis.

Thus far there is a limited amount of scholarship examining how young people engage with the climate crisis. One study reviewed the research done with youth in several countries (Corner et al., 2015) and found that concern over the warming atmosphere varied greatly from place to place. Of significance, however, is that there were some clear similarities in diverse locations around trust in various sources of information. Climate scientists are viewed as highly trustworthy, and "teachers and lecturers rank highly in the list of messengers successfully facilitating climate awareness among young people" (Corner et al., 2015, p. 528). A study based in Australia (Dawson, 2015) and another study based in the American Midwest (Shepardson, Niyogi, Choi, & Charusombat, 2009) demonstrated that students have a rudimentary knowledge of the science associated with climate change. Both studies made recommendations for curriculum revision based on their findings of the knowledge gaps. Curriculum revision may be part of the solution to foster an informed citizenry around climate change – a study in Sweden concluded that the more adolescents learn about climate change, the less likely they were to be sceptical (Ojala, 2015). A delicate balance is required, however, because some studies have concluded that negative emotional responses can arise in people who are forced to think about climate change to the point that they prefer to ignore the issue entirely (Kahan et al., 2012; Norgaard, 2006).

None of these studies, however, made connections between solutions to the climate change issue, the economy, or the influence of the media. These studies point to the need for this study. Do senior high school students in BC have a grasp of climate science? Do they believe there is scientific disagreement about climate change? Are these adolescents experiencing psychic numbing? Are they optimistic or pessimistic about the ability of humans to successfully take on the climate crisis? Are they optimistic or pessimistic about their economic futures?

## Neoliberal economics – a primer

> The government carbon tax "will hit hard-working families the hardest, with higher costs for gasoline, groceries, and home heating." (Andrew Scheer, cited in Scherer, June 19, 2019)

This quote is from the (now former) leader of the federal Conservative Party of Canada. In fact, Conservative leaders across the country have expressed disdain about the carbon tax, often utilizing a false binary of the environment versus the economy (CBC News, 2017; Smith, 2019). Most Canadians are empathetic to a certain extent to the economic concerns emanating out of Alberta and Saskatchewan in recent years because of the collapse in global oil prices. These fears are based on an economic reality on the prairies, which have increasing unemployment rates. Workers in the oil sector are particularly vulnerable to the narrative that the carbon tax will lead to further economic hardship. Significant numbers of Canadians seem to be unaware that contemporary Conservative and many Liberal politicians in Canada and the USA are committed to fighting on behalf of corporate power, ascribing to an economic paradigm called neoliberalism.

**Neoliberalism** can be a confusing term for students to comprehend. After all, progressive Americans and Canadians accept the basic tenets of liberalism in terms of individual rights. Neoliberalism, however, only refers to economic issues, not social issues. There are four main tenets to neoliberalism on the domestic front: the deregulation of private industry, tax cuts (primarily for corporations and the wealthy), privatization of the commons, and the weakening of collective bargaining rights for workers (Orlowski, 2015, 2011). It also trumpets the individual over group membership (Harvey, 2005). In short, neoliberalism refers to economic and public policy based on a powerful discursive formation that aims to entrench the corporate agenda throughout society. Recent calls for austerity, attacks on public sector workers, and the threat to workers' and seniors' pensions are all part of the neoliberal agenda (Caplan, 2012; Kennedy & Press, 2012). Citizens in Canada and beyond have been inundated with a "permanent campaign of persuasion" in the mainstream media to garner support for economic policies favoured by neoliberals and politicians willing to implement them (Kozolanka, 2007, p. 7). The fossil fuel industries in particular have been major beneficiaries of this support in the political arena and the mainstream media.

## The role of mainstream media and the (mis) informed citizen

At the Paris Climate Agreement in November 2015, there was somewhat of a political consensus stating that our atmosphere can accept up to a 2-degree Celsius increase before we reach a point of no return and experience regular meteorological catastrophes. Many scientists, however, believe that the 2-degree limit is arbitrary and therefore problematic. They contend that a 2-degree increase will result in rising ocean levels that will completely cover many low-lying lands (Shaw, 2013), and more severe droughts across the planet (Hare, Roming, Schaeffer, & Schleussner, 2016).

There is a growing acceptance among climate scientists that in order to lessen suffering among living species, the temperature increase must not reach 1.5 degrees Celsius (King, 2016). Scientists believe that more greenhouse gases have already resulted in a 0.8 degrees Celsius increase in average global atmospheric temperature since humans began burning coal during the Industrial Revolution (Klein, 2014). Indeed, a new scientific statement released in September 2016 by seven highly respected climate scientists asserts that keeping the warming trend below 1.5 degrees Celsius "has almost certainly been missed" (Mooney, 2016). These scientists, most of whom have held prominent positions with the UN's Intergovernmental Panel on Climate Change, are calling for all national governments in the world to cut CO2 emissions much more substantially than agreed to in the Paris Climate Agreement. To not do so, they contend, will lead to endangering all life on Earth.

One might think that a problem of this magnitude might garner serious debate around what to do in these circumstances. Despite the near consensus among climate scientists, the overwhelming majority of conservatives in the United States still reject the evidence produced by the climate scientists (Dunlap, McCright, & Yarosh, 2016). A major reason for this disconnect is that climate change denial is a dominant perspective in popular media sources. For example, one of the most influential news outlets in the United States is *Fox News*.

Over the past several years, its coverage has referred to climate change as a "superstition, a scam, and a hoax" (Gerken, 2015). Moreover, massive donations from the fossil fuel industry have gone to climate change denying think tanks (Fischer, 2013) that have much greater access to the media than climate scientists or environmental groups (Negin, 2014). Similar tactics control the public discourse in Canadian media outlets (De Souza, 2010, 2008). Moreover, up until the federal election in late 2015, the Conservative government forbade its scientists from speaking to the media about their research on climate change and other environmental issues (Mortillaro, 2015).

What this means is that adolescents today are situated in an uncertain economy as well as a media environment usually inclined to deny climate science. This must present huge challenges for Canadian youth trying to navigate and negotiate their worldviews on matters pertaining to climate change and the economy. The major aim of this study was to investigate their attempts to reconcile and make sense of these complex discourses.

## Methodology

Through the help of a few teachers I knew in Nelson, BC, I was able to recruit 10 students who had just finished grade 11 or 12 in one of the two local high schools in the early summer of 2018. I utilized a snowball approach to recruit and more students agreed to participate, resulting in nine students who went to either of the local high schools. A tenth student had just completed her high school program by being home schooled for her entire education. The participants included seven females and three males, and seven of them had just completed grade 11 while the other three had recently completed grade 12. See Table 1 for the demographics.

Over the months of July and August, 2018, I conducted one-on-one semi-structured interviews with each of the 10 participants. Each interview lasted between 60 and 90 minutes and took place in various cafes in Nelson. A transcriber was hired, and by late 2018 the entire set of data was ready to be analyzed.

**Table 1:** Participant Details.

| Student Pseudonym | Gender | Schooling Details |
|---|---|---|
| Danielle | Female | Completed grade 11 |
| Gajra | Female | Completed grade 11 |
| Ingrid | Female | Completed grade 11 |
| Irene | Female | Completed grade 12 (Home-schooled) |
| Leo | Male | Completed grade 11 |
| Lynn | Female | Completed grade 11 |
| Olivia | Female | Completed grade 11 |
| Quinn | Male | Completed grade 11 |
| Reggie | Male | Completed grade 12 |
| Rhiannon | Female | Completed grade 12 |

**Note:** All names are pseudonyms.

# Discussion: Listening to the adolescents of Nelson, British Columbia

This section includes five subheadings pertaining to the research question. It will be composed of mostly the words of the participants, although sometimes connections to studies mentioned in the literature review will be included. This will be followed by some overall concluding statements that specifically addresses the research question: How do high school students in British Columbia intellectually process the ongoing public debates around climate change and an uncertain economy.

## Nelson adolescents' understanding of the causes and effects of climate change

All 10 participants believed that the temperature of the Earth's atmosphere was increasing and the main cause was human activity. It was also clear from the outset of each interview that each adolescent understood that this was occurring because of human activity. The participants answered the question, "*What* do you think is causing the temperature of the atmosphere to increase?" While three specifically mentioned deforestation as a factor, nine of the 10 stated in one way or another that the burning of fossil fuels was the main reason for hotter temperatures. Here are some responses to the question.

> **Quinn:** It's because of transportation and agriculture for our species, the fuel that's being burned, it's causing excess CO2. The build-up is immense, and the congestion grows, especially in cities. It is really affecting the world as a whole.
>
> **Reggie:** It's caused by carbon emissions. The burning of fossil fuels, oil and coal mainly.
>
> **Rhiannon:** The basic root cause would be human activity. Greenhouse gas emissions, loss of natural habitat, the patterns in how we treat the environment. Factory farming. Raising livestock naturally releases a lot of CO2.

Although Rhiannon was correct in pointing out that human activity leads to greenhouse gas emissions, the greenhouse gas she identified with factory farming was incorrect – factory farming is a major source of the *second* most prevalent greenhouse gas after CO2, methane.

There were other minor points of confusion in climate science, as when Leo said, "It's about fossil fuels putting pollution into the Earth's atmosphere, damaging the ozone layer." There is no causal relationship between the burning of fossil fuels and depletion of the ozone layer. It is likely that Leo confused the results of burning too much fossil fuel with climate change instead of a damaged ozone layer in the Earth's stratosphere.

It was also significant that three of the 10 participants referred to "consumerism" as a cause of climate change.

> **Ingrid:** I think people should really stop thinking about *what* they want, and instead think about what it is they really *need* to survive. Consumerism is a cause of climate change.
>
> **Danielle:** I think that one of the main causes of climate change is overconsumption, the overconsumption of goods, and the need to buy things.

Of course, these two students are correct in making the link between consumerism and climate change, albeit they did not make a direct connection. The solution, according to these students, is to somehow convince individuals to buy less, to drive less, and to buy only what is necessary "to survive", as Ingrid put it. Individual acts can certainly help in the fight against an overheating atmosphere. They should be seen as additional ways to combat global warming rather than as a substitute for policy reform. To be most effective government is going to have to implement policy at the societal level, and most likely directed toward the major emitters of greenhouse gases such as CO2 and methane, namely, the mega-corporations. This will be discussed later.

One of the 10 participants often gave responses to the interview questions that were dissimilar from the others. Irene came from a conservative Christian family and was homeschooled for her entire K-12 experience. She lived with her family in a rural setting about 50 kilometers from Nelson. On the question of the causes of climate change, however, she also looked to individual choices as the solution.

> **Irene**: A large portion of it is human activity, maybe even the most. I feel like a lot of the problem is that people are just being lazy. Where they could walk or bike, that sort of thing, that would also be a great way to help with the global health problem. If people got out more and were more active, had more exercise, that could help … But people don't like to change. People are creatures of habit, so having to completely change their lifestyles is something a lot of them are not willing to do.

For these three participants, individual choice was a factor. An argument could be made that this focus on the individual indicates a neoliberal influence. As mentioned above, although in theory it might be helpful if individuals took the initiative to do what they can, a far more effective way to deal with the climate crisis is to regulate and incentivize greenhouse-gas emitting corporations (Klein, 2014). This strategy challenges the neoliberal doctrine.

All 10 participants were able to name the most prominent effects of climate change occurring across the planet today: frequent extraordinarily large forest fires, melting polar ice caps, rising ocean levels, warming ocean temperatures, massive flooding droughts, more frequent powerful hurricanes, and extreme weather patterns that are in flux. It is also noteworthy that five of the 10 mentioned the threat to other life forms. Here is one such response:

> **Lynn**: Just reading statistics in the news about how the temperature is increasing and how many animals are dying, it's powerful … These warmer temperatures are killing off lots of animals! For example, the ice caps are melting and polar bears are dying because of this. As well, the human population is increasing and if lots of animals, fish, and plants are dying, then our food sources are also going to disappear. In the future, we will definitely be feeling the effects of that.

Although Lynn made the link between dying life forms to human food source depletion, four of the other adolescents mentioned the threat to animal, plant, and fish populations on their own terms without connecting this to less food for humans. These five participants would likely be in support of the activist group known as Extinction Rebellion (Monbiot, 2020). This group is bringing global attention to the threat of extinction of other life forms that we share the planet with because of the climate crisis.

Overall, this group of adolescents was fairly knowledgeable about the causes of climate change. Although they often focused on different issues, it was also clear that all 10 participants were extremely concerned about climate change. This finding supports the study by Ojala (2015) who found that the more adolescents in Sweden learned about climate change, the less likely they would be climate sceptics. The next section addresses the sources of information from which the participants get their information about climate change.

## Sources of facts and opinions on climate change

In this section, I explore the responses to the question, "Where do you get your information about climate change from?" This question often led to lots of probing on my part. The students

mentioned several sources for their information on the changing climate. These included mainstream media, social media, parents, peers, and teachers. Parents were often mentioned first, and most of the parents of the Nelson students were environmentally aware.

> **Leo**: My family. I'd say they're pretty aware of climate change. Maybe not as much as me. But they definitely try to do certain things like putting low-flush toilets in our house, conserving water, taking shorter showers, only doing laundry when it's a full load. Small things like that.
>
> **Ingrid**: My parents are very aware of [climate change]. We always recycle, we don't drive much – we usually walk or bike because of what cars are doing to the climate. My mother especially is very conscientious.

It speaks to the environmental awareness of the Nelson community that most of the participants came from homes in which environmental concerns were a topic of conversation. There were two participants, however, who did not see eye to eye with their parents.

> **Quinn**: My dad sees the Earth much differently than how I see it or how my mom sees it. I'd say he is much more concerned about the economy. That plays in with his job, of course, which is in the financial industry. But he is still worried about issues the oil industry is causing to the environment.
>
> **Irene**: Well, in Nelson, everyone is a liberal. But where I live [about 50 km outside of town], it's very redneck, and there are not very many people who care very much. My parents are not redneck people, but they're not as concerned [about climate change] because they're very conservative, and they don't really focus on those kinds of issues … They are religious conservatives and, you know, they belong to the Conservative Party of Canada and all that.

Quinn's father works in the financial industry, so in that respect it is not surprising that he is concerned about what strategies to take on climate change might do to the economy. Irene, who was home schooled for her entire education, has parents who fit the stereotype of religious conservatives prone to ignoring or possibly even denying climate change (Monbiot, 2007).

Seven of the student participants pointed to the mainstream media, mainly the publicly-owned national Canadian Broadcasting Corporation (CBC), as sources of information on the changing climate and related concerns.

> **Gajra:** We only get our news from CBC. That's all we listen to in our house.
>
> **Leo:** Every morning my dad is listening to CBC, and so I am usually hearing it, too.
>
> **Olivia:** We watch CBC and CTV in my house. I know some people watch CNN, but I prefer Canadian ones, because we are not American. As for Fox News, well, Fox is nuts in my mind.

It is interesting that Canada's public broadcaster is the main source of news for many of the families of these participants, and that these adolescents appear to appreciate the CBC as well. It is also noteworthy that that there are lots of local commercial radio stations: one is in Nelson itself, and several others are in nearby larger centres such as Kelowna. The CBC would be much more likely to carry stories that discuss climate change as a crisis compared to commercial radio. The reliance on the CBC supports the finding by Asplund (2014) that the biggest influence on Swedish farmers' thinking on whether climate change is natural or anthropogenic is the ideology of the main media source they receive their news from.

Five participants mentioned social media and online news outlets for a source of information. A lot of the articles they read are posted on social media platforms like Facebook. What was particularly striking was the level of scepticism among these students around what they were reading online.

> **Quinn:** The sheer number of people interacting on these sites is outstanding. The number of articles on climate change is huge! The science with climate change is all based on facts and numbers. And I like to see the sources for these numbers. Some don't even have sources, so then it's like, can I even trust what this article is saying? Some sources are made by governments, but even governments are influenced by the

political climate. I remember hearing that the Trump Administration deleted some environmental information off their website. That sort of shows how even they change the information to whatever they want.

**Gajra:** If some random person says something on Facebook, I wouldn't be like, "Okay, I believe you." And I don't know if the news really puts out accurate information either. I don't always believe them. I mostly tend to believe documentaries and stuff that scientists are saying. Anything on the news I don't believe right away, it's just how I am. But now I wonder if I can even believe the documentaries these days. I've heard from my dad that oil company owners pay some scientists to say things they want to be said. I was pretty shocked to hear that.

Both participants are correct with their assertions: The Trump Administration ordered the Environmental Protection Agency (EPA) to remove the term "climate change" entirely or downplay its effects from its website (Davenport, 2018). Some scientists have accepted money from various corporations to deny human-caused climate change (Morton & Smee, 2019). It is also apparent that these participants have an innate understanding of how power influences the social construction of knowledge.

Most people are aware that the massive growth of social media platforms has led to a plethora of fake news stories in many countries, including Canada. Media literacy scholars are beginning to focus on effective ways to distinguish fact from fake news (Goering & Thomas, 2018; Orlowski, 2018). I was pleasantly surprised to learn that these adolescents are already learning how to detect fake news.

**Olivia:** I'm really lucky because at my school the library is always open. And we have a librarian that knows a lot about online news sources, so we have a whole online database on our school website, and we can check how accurate the information is from there. It's an awesome program.

**Ingrid:** I always try to see if the sources are credible. So like for writing school papers, I go onto EasyBib to see if the article is on there. That's a good place to start. And there are other websites to help see if information is accurate or fake news. One of my teachers showed us Snopes.com or something like that. I used it when I had to write a paper on glaciers because some articles said they were shrinking and other ones said they're not.

The students of Nelson were fortunate that they have a school librarian who teaches them how to determine what is fact and what is fake news. Indeed, they are also fortunate to have a school librarian at all – many schools across Canada no longer have full time school librarians because of the underfunding of public education in this era of neoliberalism (Beaudry, 2017).

The majority of participants said that the source of information they trusted the most were their teachers. This corroborates what Corner et al. (2015) found, namely, that adolescents rank teachers very high as a trustworthy source. In fact, nine of them stated that they learned about climate change from teachers mostly at the high school level, and in various subject areas.

**Olivia:** I learned about climate change in my Biology 11 course, but we've also talked about it in my social studies courses … in grades 9, 10, and 11. And oh yeah, in Science 9 and 10, we've been talking about climate change as a major problem.

**Leo:** A big reason for why I know about climate change is because we are taught about it in our school. Science classes mainly, but also in social studies … I think that every science class I've taken has done at least something on climate change. I mean, the science teachers have gone through college and learned about these things, so I find what they say and the websites they tell us to look at are reliable.

**Lynn:** I don't think we learn enough about climate change in the curriculum. For example, in Biology 11 we did learn about it, but it's only for about a week and a half. It should be more! But I am also in the debate club, and we've debated things about climate change. What I really like about debate is that it forces you to open your mind and do research on something you didn't know too much about … We don't debate whether climate change is real or not – everyone knows it's real, where *we* live no one is going to deny it – but we might debate whether the carbon tax is a good idea.

It is a sophisticated high school debate club that delves into the nuances of strategies to combat climate change such as the implementation of a carbon tax. This is not surprising, however, because the notion of someone who denies climate change in Nelson is rare. These two students stated the majority viewpoint of the participants.

> **Rhiannon:** I don't think I know anyone who denies climate change.
> **Leo:** I don't think I've ever met anyone who denies it is happening, but obviously there are some idiots out there.

It is clear that the adolescents of Nelson are very aware and concerned about the climate crisis and the effects it is having on the planet. The smoky conditions created by forest fires in the BC Interior in recent summers are likely a major factor, as several of the participants referred to them in the interviews. This would corroborate studies that suggest personal experiences with climate change effects can lead to increased concern and support for mitigation policies (Lujala, Lein, and Rød, 2015; McDonald, Chai, & Newell, 2015). Mainstream media sources, especially the CBC, offer information that most of the participants consumed and accepted. Social media sites also offered some valuable information, although several participants were rightfully wary of some of the articles and claims they came across. For the main, parents and the overall environmental consciousness of the community itself corroborated what they were hearing elsewhere. Science and social studies teachers were by far the most commonly mentioned sources of information on climate change and related issues. They were also the most trusted source, which supports findings in previous studies (Corner et al., 2015). School librarians were also respected by many of the participants. In fact, the role of the school appears to be of vital importance in helping adolescents understand what is happening to the Earth's atmosphere. The next section addresses what these participants think about the economic discourses they hear most often about, particularly as they relate to combatting climate change.

## Climate change and economic concerns – the political literacy of the participants

For a few years now, mainstream media in Canada (and elsewhere) have altered their focus on the climate science: first they asked whether or not climate change is actually occurring, then it was whether it is anthropogenic, and lately many media reports ask whether humans can do anything about it (Orlowski, 2018). As mentioned in a previous section, neoliberal politicians often pose the situation as a binary, that to deal with climate change will result in a dramatic increase in unemployment rates, and by corollary, there will be many more families struggling to make ends meet. Much of the debate in the media centres around this jobs-versus-environment binary. With corporate media obviously having corporate interests, the bias is most often positioned against the pro-environment position (Orlowski, 2018).

Most of the participants in this study, however, were not buying into the fear-mongering espoused by neoliberal politicians in certain media outlets that the economy was going to crash if governments made it more difficult for fossil fuel companies to continue producing oil and natural gas.

> **Gajra:** I think that the governments need to get rid of their business mindset, and put on an environmental mindset. I mean, maybe this can give a good economy, but for how long? The way things are going, who knows for how long we will be able to even live in the future?
> **Olivia:** The Canadian dollar is not doing all that great right now, but I don't think we need to worsen our planet, the environment, just to improve the economy … Climate change is such a big issue that we have no choice but to deal with it.
> **Danielle:** I think they're looking at it from a short-term perspective … because we won't have *any* jobs if the world burns up.
> **Leo:** I think we can figure out how to get by without relying on fossil fuels, but if the economy suffers as a side effect, it's still gonna be a lot better than half the population dying because it's too hot to grow food.

These four students were clear in their position, namely, that no matter what happens to the economy humanity needs to deal with the climate crisis first and foremost. Olivia stated that perhaps

people will lose their jobs as society take on climate change, but even if this occurs, it is a necessary side effect.

Other participants, however, were not buying into the commonly heard doom-and-gloom scenario of a crashing economy pushed by neoliberal politicians and media pundits.

> **Rhiannon**: Will lots of jobs really be lost? My take on that is we create just as many jobs as we lose by switching to clean energy sources. So we wouldn't really be losing jobs at all.
>
> **Reggie**: I think we should try to wean ourselves off fossil fuels in a way that isn't devastating to the economy, which I don't think can be that difficult. We just need to wean ourselves off of oil and use more renewable resources.
>
> **Quinn**: I've heard many reputable arguments for how green renewables, like wind and solar power, can turn into industries that can be very very large, likely as large as the oil and gas industry … We need to move the economy to more of a green renewable kind of way. The economic impact, I believe, won't be large, and it might even be positive … Look at companies like Tesla making electric cars. We see Ford and Toyota following suit. I see further improvement on cars to use less and less gas until it's just a natural shift into fully electric-powered cars.

The stance of these students also demonstrated a critical reading of the media. Although none of the participants used the term, these three students in particular were espousing an idea encapsulated by progressive politicians like Bernie Sanders, Alexandria Ocasio-Cortez, and Canada's Jagmeet Singh with the Green New Deal. In a nutshell, the Green New Deal is a plan for humanity to completely end the extraction of coal, oil, and gas, and to create a fairer economy with high paying jobs in the alternative energy sectors (Klein, 2019).

For the year leading up to the interviews during the summer of 2018, most Canadians who paid attention to the news were inundated with debates about expanding a pipeline system from the Alberta Tar Sands through BC to a port near Vancouver. The Trans-Mountain Pipeline debate was especially intense at the time of the interviews, with the BC NDP Government unequivocally stating its opposition to its construction, which drew the ire of pipeline supporters, including the pro-pipeline federal Liberal government and the Alberta NDP government. Although I did not ask about the pipeline debate, sometimes the discussion broached that topic. The following opinion summarizes their views on the politics around it.

> **Lynn:** The Paris Agreement had people's hopes up, and the Canadian government signed onto it, and that got people's hopes up as well. But then [Prime Minister] Trudeau decided to sign off on buying this new pipeline … I was very disappointed with this. But I was happy with the BC government fighting back, not wanting this pipeline.

Lynn and some of the other participants expressed confusion over the federal Liberal government's rhetoric in support of the Paris Agreement but then trying its best to expand Canada's oil pipeline system. The views of these students were in keeping with many Canadians' views over the overall ambiguity of the federal Liberal response to the climate crisis. The consensus among these young people to take on this crisis is not only in line with the position of the BC NDP Government's opposition to the Trans-Mountain pipeline, but also corroborates the findings of Mildenberger and Leiserowitz (2017) who found that public opinion on climate issues takes its cue from political leaders.

Five of the 10 participants were aware of another contemporary political issue involving climate change, namely, the federal government's policy of implementing a carbon tax. All five were supportive of this policy, but understood that it would cause a backlash. The following excerpts encapsulate the general stance.

> **Quinn:** I look at climate change as a political issue. So I believe it's up to our federal, provincial, and municipal governments to really push for what it is the Earth needs. We need to elect politicians who really care about the environment … [The carbon tax] is one way to combat the political side of climate change, to ensure a future where companies are responsible for what they pump into the atmosphere. It inevitably will

cause an outrage. But if we look at all the impacts of all these companies, it's huge! Forcing them to take responsibility, it could impact their bottom line. But something has to be done.

**Leo:** Obviously, if you add a carbon tax, the companies that make the oil will suffer, but I say this is a necessary evil.

Once again, it is clear that the Nelson adolescent participants took the side of the environment regarding any aspect of the economy, whether it was about jobs or the profits of the fossil fuel industry. Neoliberal perspectives were not persuasive enough with this group.

Implementing a carbon tax was a role for government that all of the participants saw in a much broader context. For example, when asked what government could do to help deal with the possible economic tensions created by dealing with climate change, six of them responded that the monies collected through carbon taxation should be used to help finance "green initiatives" such as alternative energy industries. Five suggested that the government should subsidize the purchase of electric cars, while four participants said that government needs to build the infrastructure for more public transit in cities. It was interesting to note that nine of the 10 participants were quick to point to a positive role for government in the fight against the climate crisis. (Only the student home-schooled by Christian conservative parents omitted mentioning government as part of the solution.) Here are a few of the ideas the students suggested that government could do to ameliorate the climate situation.

**Danielle:** My friends in Germany tell me that lots of people have solar panels on the roofs of their houses. We don't have very many in Canada. Maybe our government can help out so that more people heat their homes with solar panels instead of using gas.

**Rhiannon:** Government and corporations are tied together in a way. The government can regulate what corporations do. There needs to be more rules, and the government can do that.

**Olivia:** I understand that some people would lose their jobs, and that's very sad, but I think that climate change is such a big issue that we have no choice but to deal with it. If there were strategies that could be deployed to help people who lost jobs, I think it would be great!

All three ideas hold much merit, and it is obvious that these students do not subscribe to the neoliberal discourse that the private sector is more efficient than government for solving societal problems. The first idea suggested subsidizing solar panels; however, that may run into obstacles from the oil and gas industry. When the provincial Liberal government in Ontario attempted to help a German solar company to set up in that province, oil and gas representatives pointed to provisions in international trade deals to successfully stop this (Klein, 2014). Recent research demonstrates that it is not that difficult for a government to regulate greenhouse gas emissions and help alternative energy technologies flourish (Krugman, 2019), but there is a proviso that these trade agreements must not impede the implementation of these policies. The obstacles to combat climate change posed by trade deals are likely little known among the majority of Canadian citizens. It is clear from the preceding discussion, however, that the majority of these adolescent-participants possessed a progressive political consciousness toward climate change, the economy, and the role of government.

## Hope versus despair

As mentioned throughout this article, all 10 adolescents believe that the Earth's atmosphere is warming to alarming temperatures and that this increase is because of human activity, especially the burning of fossil fuels. It would be also be accurate to say, however, that none of the students in this study were consumed by despair. All of them expressed some sort of hope that humanity would somehow get through the climate crisis although there would be some obstacles and suffering. Each of them could be placed on a continuum with total pessimism on one end and total optimism at the other. None of them could be described as being completely consumed with existential bleakness and in possession of a defeatist attitude; nor did any participant proffer uninformed Pollyanna optimism.

One of the interview questions specifically asked how confident each participant was about humanity successfully dealing with the climate crisis. Because this question gets to the heart of this

entire study, namely, how do today's adolescents feel about their futures, I include a statement from each participant. This set of statements indicates a sliding scale of pessimism moving toward optimism about the future of humanity and life on Earth when taking into account the warming atmosphere.

**Gajra:** I'm honestly not that confident because [the atmosphere] is warming up so fast. Every year it's getting worse, and if we keep on going the way we are going now, I feel that soon it'll be too late to deal with it. That's my concern.

**Ingrid:** It's getting so bad, and it seems there are so many things to control to make things better. Last summer I was working at the Rose Garden on the lake here in Nelson, and the smoke from the forest fires was so bad I could not even see across the lake. And I know it's much worse in other places, all over the world. It is happening too rapidly.

**Lynn:** Not very confident, to be honest. I do think that we could reduce the effects of climate change from happening, but we need politicians who want to stop climate change, who are totally committed to stopping it.

These three students expressed the least amount of optimism out of the entire group. It would appear that all three are focused on the remaining short amount of time that some climate scientists claim humanity has to rectify the warming atmosphere problem. Their position is what Capstick and Pidgeon (2013) call *response scepticism*, which is a pessimistic view of the national or international response to effectively deal with climate change.

The next subset of participants was sitting on the fence – they were unsure if society could effectively deal with climate change before it becomes a full-blown crisis.

**Irene:** I consider myself an optimist, so I'd *like* to think we can deal with [climate change]. But I truly do not know if we can.

**Reggie**: I am hopeful, but not very confident … The threat climate change poses is maybe too big for some people to grapple with. It's just too overwhelming. But we need more people to believe that we *can* do it so the government will do its best.

**Rhiannon**: I am on the fence. I think that society *could* do something about climate change, but I do not know if everyone would support it. The problem is habit. Society is set up in such a way that things are the way they are because it is hard to break out of that pattern from a long time ago. People have been using cars for a long time to get to work and other things, so it is very hard for them to just stop driving. The government is in the best place to shift that.

**Leo:** I think we have a 50 percent chance of solving this problem. The biggest concern I have is we have to find a way for people to only buy electric cars or use public transit. So 50/50, that's what I think.

It is interesting that two of the respondents, Reggie and Rhiannon, believed in the role of government to help combat climate change. This stance in itself is in opposition to the neoliberal position that the private sector is more efficient than government. It is noteworthy that Reggie thought that the climate crisis is too overwhelming for some people. This is what scholars refer to as *psychic numbing*. (Gregory, 2003; Lifton, 1982). Rhiannon's response alluded to what Malm (2016) calls the *carbon lock-in*: because humans have been using fossil fuels for transportation for well over a century, many see it as what must continue, at least on an unconscious level. It is perhaps somewhat hopeful that not one participant in the study was influenced by psychic numbing or a carbon lock-in. Some of them, however, perceived these traits in other people.

The next two participants were more optimistic for the future.

**Olivia:** I am hopeful that we will be able to deal with [climate change]. It's being brought to light more and more in the media nowadays. It's kind of bad in some ways, but it is also necessary to make more people aware of how serious this problem is.

**Danielle:** Yes, we can! Like I said before, the government can encourage people to heat their homes with solar panels instead of oil or gas. And carbon tax money can be used for green initiatives, and this will create jobs as well, green jobs. And build more public transit in cities. Get away from gas-powered cars. Build more charging stations for electric cars.

Olivia sees an important role for the mainstream media to play in helping the public understand the gravity of the climate change situation. Danielle is another participant who sees the government as being a major player in helping society effectively manage the looming crisis. Her response indicates a positive perspective on the good that can arise from the carbon tax.

The final participant, Quinn, was the most enthusiastic of the group in terms of believing what people can collectively do to effectively deal with climate change.

> **Quinn:** Once the majority of the world's population understands the severity of [the climate crisis] through education, I believe we can change things for the better. If we manage to educate more and more people, not just in First World countries but around the globe, it will have a positive impact. We need to elect politicians who want to put more and more climate science and things like that into the curriculum. I do believe that we can change things for the better.

Although several participants spoke favourably about the role of teachers in helping students understand the serious situation humanity currently finds itself in, Quinn spoke with more passion about the potential of the curriculum to enhance this process. He also pointed to the importance of electing people to government who understand the climate crisis, who believe in climate science. In fact, Quinn was one of six participants who voiced their opinions, unsolicited I may add, as to how they want people to vote based on their understanding of the environmental platforms of Canada's political parties. All six said it has to be either an NDP or a Green government. Rhiannon added: *Never* vote Conservative.

## Conclusions

If we do not change direction, we will get to where we are heading.
Ancient Chinese Proverb

It is important to situate this study temporally. All of the interviews took place in August 2018 in Nelson BC, mere weeks before Swedish teen activist Greta Thunberg began a global youth movement that became known as the 'climate strikes'. The findings from this study go a long way to explain why the climate strikes have swelled in numbers such that over a few days in September 2019, millions of young people participated in well over 100 countries (Taylor, Watts, & Bartlett, 2019), contributing immensely to a collective awareness about the climate crisis (Klein, 2019). To better understand how the thoughts of the 10 adolescent participants foreshadowed the popularity of the climate strikes, the research question is stated again:

> *How do high school students in British Columbia intellectually process the ongoing public debates around climate change and an uncertain economy?*

It is noteworthy that the participants in this study were senior high school students – they were not quite of voting age but were aware of the gravity of climate change and the world that awaits them for their entire adult lives. They were very adept at articulating their thoughts and concerns. All 10 participants were well informed about the most serious negative effects from an overheating atmosphere, and all believed the cause of climate change was anthropogenic. Nine participants stated that the main culprit was the burning of fossil fuels, especially for transportation purposes.

The participants received their information on the climate from a variety of sources. Parents, social media, and mainstream media, especially the CBC, were frequently mentioned. Of the five participants who said they read about climate change on social media, all said they were sceptical about this information. It is also noteworthy that most of the participants said they always tried to verify what they read and heard to distinguish what is fact and what is fake news. A few of them mentioned that they learned how to do this from the school librarians and teachers. An important finding from this study that corroborates previous studies (Corner et al., 2015) is that the most trusted sources of information on climate change for these participants were science and social studies teachers and what they learned in the classroom.

Each participant stated in no uncertain terms that unless action is taken to address climate change, even more negative consequences lie in store for humanity. Half the participants mentioned potential threats to other life forms, as well, and it is interesting that these comments were unsolicited. It is likely that the forest fires that resulted in smoke-filled air in the Nelson area impacted the students' sense of urgency in dealing with climate change.

Neoliberal influence from the constant rhetoric emanating from right wing politicians and the mainstream media could be discerned among a few of the students, but not to a large degree. This was manifested by three of them who suggested that individual acts are required to fight climate change. The majority, however, strongly believed in the role of government, and the necessity to elect governments that are committed to taking on the climate crisis. Suggestions for the government included regulating fossil fuel industries, developing alternative energy industries, and subsidizing environment-friendly materials such as solar panels for homes and electric cars.

There was some worry among a few of the participants about the economy. All of the participants, however, strongly believed that concerns about the climate greatly outweighed concerns about the economy. This is an extremely important point as there are grave consequences for people in this age demographic around the future of both the economy and the environment. Also of significance is that over half of the participants believe that as society weans itself off fossil fuels, there will be huge employment opportunities in the green sector, primarily in alternative energy fields. In short, neoliberal discourses did not resonate very much with these adolescents.

Collectively, these adolescents are uncertain of what kind of future awaits them. It was clear that they were not succumbing to psychological conditions such as psychic numbing, cognitive accommodation, and epistemic scepticism. Response scepticism, however, was evident among a few of the participants – several expressed doubt that society would be able to effectively deal with the climate crisis, mainly because of a lack of political will. Others were unsure, while a few were optimistic that human ingenuity and progressive politics will eventually triumph. Almost all of the students believed in the importance of voting for politicians and political parties that are committed to prioritizing the environment and the climate crisis over concerns about fossil fuel industries. This is where hope resides. In fact, listening to the Nelson adolescents speak about climate change in an era of economic uncertainty gave me a strong sense of optimism for the future.

## Notes

[1] In the BC provincial election in May 2017, the social democratic (NDP) candidate won in Nelson's riding. The closest runner up was the candidate from the Green Party. The candidate from the pro-corporate BC Liberal Party finished a distant third.

[2] This study is in conjunction with another study that was undertaken in 2018 by a graduate student I supervised at the University of Saskatchewan. The 10 participants for this second study were senior high school students in Saskatoon, Saskatchewan. A forthcoming article will compare the analyses of the two studies as the Saskatchewan economy is much more connected to fossil fuel industries.

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## About the Author

**Dr. Paul Orlowski** is an Associate Professor in the Department of Educational Foundations at the University of Saskatchewan. He received his PhD in the sociology of education from the University of British Columbia in 2004. His research is in Teacher Education, Social Studies Education, Indigenous Issues in Education, Media Literacy, Citizenship Education, as well as Neoliberalism's Effects on Education, Democracy, and the Environment. Paul's teaching always focuses on political consciousness, particularly as it pertains to neoliberalism's influence on social, political, and economic relations. He is the author of *Teaching About Hegemony: Race, Class, and Democracy in the 21st Century* (published by Springer in 2011), and the co-author of *Media Literacy for Citizenship: A Canadian Perspective* (published by Canadian Scholars' Press in 2018). Paul acknowledges his (unearned) privilege as a white, able-bodied male, and teaches as an advocate for racial justice and as an ally for other oppressed social groups in Canada.

# Covert Aggression and Gifted Adolescent Girls

**Connie Phelps [1]; Ashley Beason-Manes [2]; Amy Lockman [3]**

[1] Elementary Education, Early Childhood, and Special Education Department, Emporia State University, USA

[2] Kansas Legislative Division of Post Audit

[3] Olathe Public Schools

## Abstract

While considerable research exists on bullying in P-12 schools, few empirical studies address bullying and gifted students. Moreover, the field of Gifted, Talented, and Creative Education lacks single construct studies on covert aggression and gifted students. Also known as *relational aggression*, covert aggression purposefully manipulates relationships and damages reputations through less obvious or hidden forms of bullying. This exploratory study in a Midwest state analyzed quantitative and qualitative data gathered from 27 gifted adolescent girls on covert aggression instances with intellectual and non-exceptional female peers during 6th, 7th, and 8th grades. Participants tallied incidents of covert aggression, provided short written comments, and participated in structured group interviews. Of 1037 incidents, covert aggression occurred most prevalently during 7th grade. Participants indicated fewer incidents with their intellectual peers than with non-exceptional peers. Academic topics of intelligence, grades, and name calling formed a cluster of incidents most frequently experienced with intellectual and non-exceptional peers. Participants attributed covert aggression to their differentness from non-exceptional peers. Covert aggression topics of intelligence and grades with intellectual peers seemed linked with negative aspects of competition. Participants found support from intellectual peers at school who provided empathy for their advanced abilities. Prevalence and subjective experience results from both groups indicated gifted adolescent girls encounters with covert aggression impeded development of their giftedness and full inclusion in secondary school environments. Peer support groups that recognize covert aggression behaviors and practice intervention strategies might ameliorate its harmful effects and improve the social-emotional wellness of gifted adolescent girls.

**Keywords:** Covert aggression; relational aggression; bullying; gifted girls; adolescents.

## Covert aggression and gifted adolescent girls

Intervention and prevention programs to counter bullying behaviors in P-12 education proliferated in the new millennium, perhaps due to media attention that captured specific instances across the United States. Cross (2001a) found the media portrayed schools as unsafe places in the minds of children. Olweus (2003) observed bullying prevention gained momentum in the United States during the 1980s and 1990s. Despite interventions, some particularly persistent forms of bullying such as cyberbullying continued to rise (Rigby & Smith, 2011). Due to the ongoing concern of bullying in P-12 schools and its detrimental effects on students and the learning environment, administrators, counselors, and teachers worked together to prevent, identify, and eliminate bullying in P-12 schools. While research addressed prevalence, participants, and impact of bullying, few studies informed practices on bullying and gifted students in P-12 schools.

Instances of bullying involve a bully and a victim when an imbalance of power dynamic exists. According to Olweus (2003), a bully "intentionally inflicts, or attempts to inflict, injury or discomfort on someone else" (p. 12). The recipient of the injury or discomfort then becomes the victim. Definitions of "bullies" vary in their inclusiveness of aggressive behaviors. For example, Cross (2001b) provided a comprehensive definition of a bully as "a person who uses any approach including, but not limited to, intimidation (physical, emotional, verbal), positional authority, relational authority, or societal authority to create limiting effects on another's behaviors, thoughts, or feelings" (p. 36). Olweus (2003) described bullying as "negative actions" that might include physical contact or verbal interactions, but it also occurred through more indirect means such as "making mean faces or gestures, spreading rumors, or excluding someone from a group" (p. 13).

In 1995, Crick and Grotpeter coined the term *relationship aggression* "to capture behaviors that used relationship manipulation to hurt or harm others, such as malicious gossip, social exclusion, and threats of friendship withdrawal" (as cited in Cicchetti & Murray-Close, 2014, p. 557). In this study, we limited bullying to indirect forms of negative behaviors known as *covert aggression* or *relational aggression.* We defined covert aggression as incidents when individuals manipulate relationships as an attempt to control power among peers. Specific examples of covert aggression included talking behind someone's back, spreading rumors, and the pretense of friendship.

Research on bullying in P-12 school environments examined entire student groups by age, grade level, or gender from the perspective of social science, education, psychology, and counseling. Most studies proposed preventative interventions in schools for general education student populations. Peterson and Ray (2006a, 2006b) examined literature on bullying and found no studies on gifted students. Given the need for empirical studies on gifted students and relational forms of bullying, we examined gifted adolescent girls and covert aggression with intellectual and non-exceptional peers during 6th, 7th, and 8th grades. As a result, we hoped to increase awareness of harmful covert aggression behaviors in both groups and gain insight on ways to create safe and inclusive environments in secondary schools where gifted adolescent girls can achieve their academic potential.

## Literature review

Studies on bullying within the general student population often sampled a wide range of grade levels, including lower elementary, upper elementary, middle/junior high, and high school age groups. Estell et al. (2009) found "late elementary school years are a time when classroom social dynamics may be particularly important to bullying and victimization" (p. 136). They found social dynamics played an important role in the culture of bullying since popularity often determined social groups and the subsequent victimization of classmates. Students who identified with aggressive peers increased the possibility of others considering them bullies because of those associations.

Given few empirical studies on bullying and giftedness, our review includes literature on bullying and adolescents as contextual background for gifted adolescent girls and covert aggression. Our literature review includes bullying and adolescent girls, bullying and gifted adolescents, and covert aggression and gifted adolescent girls. We conclude this section with recommended prevention and intervention strategies for covert aggression and gifted adolescent girls.

## Bullying and adolescent girls

Coloroso (2011) compared bullying to a tragic play with three characters who act in bully, bullied, and bystander roles. Bullies initiate aggression supported by bystanders who actively support actions against the target. Although bullying generally begins with verbal aggression, boys may escalate violence through physical behaviors while girls advance to relational aggression as a more powerful form of bullying (Coloroso, 2015). Girls as young as four and a half to five years old use gossip, rumor, exclusion or shunning intentionally as relational aggression. In a 1995 study cited more than 3000 times, Crick and Grotpeter found girls frequently used relational aggression, and they targeted peers through relational rather than physical aggressive behaviors (as cited in Cicchetti & Murray-Close, 2014).

According to Pipher, adolescent girls "come of age in a poisonous girl hurting culture" (Gilliam, 2012). Based on her clinical practice with adolescent girls, Pipher (1994) examined case studies of adolescent girls in *Reviving Ophelia.* She described adolescent girls with unmet needs in the American culture that left them vulnerable to negative effects of peer and societal pressure. For example, when "Monica" experienced bullying about her weight at school, she became depressed. Pipher counseled Monica to maintain her true self and adjust to adolescence by joining clubs and exercising. Former high school teacher Wellman took inspiration from Pipher's work and founded the *Ophelia Project* to change the "girl-poisoning culture" (Jarvik, 2004). As Wellman listened to adolescent girls, she discovered they experienced relational aggression, both as perpetrators and victims. Consequently, the Ophelia Project offered the Kids in the Middle training program to

empower up to 80% of middle school students to disrupt bullying dynamics between perpetrators and victims.

The 25th anniversary edition of *Reviving Ophelia* (Pipher & Pipher Gilliam, 2019) described adolescent girls as digital natives who experienced depression, isolation, and anxiety. Coming of age during public school shootings and lockdowns, this generation expressed concerns about personal safety. As heavy social media users, they felt a need to remain connected and kept their personal devices on all night (Martin, 2019).

Tabor and Woloshyn (2011) examined bullying within popular adolescent literature. They noted characters presented in television shows, movies, and books often associated female beauty with cruelty and meanness. Their study showed "popularity is largely defined by social status which is a primary concern for all the main characters … the most popular characters are those who are physically attractive with an ideal body image" (p. 230). They found striking similarities between the characterization of adolescent girls and school social structures in fiction where adolescents girls encountered bullying behaviors ranging from relational to physical aggression in schools.

Although the traditional definition of bullying might conjure up the physicality of older boys stuffing younger boys in school lockers, girls engage in bullying as well. Peterson and Ray (2006a) reported, "a higher percentage of gifted males than gifted in this study were bullied and were bullies" (p. 160). However, their study included nine types of overt aggression including name-calling, pushing/shoving and teasing with fewer covert types of aggression often associated with female bullying behaviors. Peterson and Ray found overt bullying and gifted girls peaked in 5th grade through 8th grade at 38%-39% prevalence rates. Instances of traditional bullying of gifted girls peaked with two to three experiences in 6th through 8th grades with prevalence rates of 15%-16% (p. 155).

Tabor and Woloshyn (2011) examined bullying portrayed in adolescent literature and indicated boys and girls engaged in and responded to bullying experiences differently. Male characters engaged primarily in overt, physical types of bullying. However, *mean girls* engaged in both overt bullying such as tripping and shoving as well as covert aggression by making snide comments, excluding certain girls, and humiliating their victims. Tabor and Woloshyn examined fictional characters who seemed to reflect adolescent culture today:

> … bullying by boys and girls is represented in very different ways, with the boys engaging in physical bullying that polices the way boys should act (i.e., tough, strong, not girly) and the girls in exclusion and humiliation that polices the way girls should look (i.e., attractive, fashionable). This bullying has pervasive effects on the self-esteem and self-concepts of the main characters, leaving them feeling vulnerable and self-conscious. These representations very much mirror contemporary popular discussions about bullies and mean girls. (p. 239)

> Underwood (2003) researched socialization experiences of girls from infancy through adolescence. She found the developmental process of girls demonstrated relational aggression behaviors such as gossip, manipulating friendships, and social exclusion as expressions of anger and aggression. Moreover, social aggression may occur as indirect and direct forms, and these behaviors serve proactive purposes such as improving one's social standing or entertainment value of manipulating others (p. 31).

## Bullying and gifted adolescents

Peterson and Ray (2006a, 2006b) conducted quantitative and qualitative studies on bullying with 8th grade gifted students that examined their roles as both bullies and victims. According to Estell et al. (2009), gifted students "tend to have patterns of social behavior, peer acceptance, and peer affiliations that are distinct" (p. 137) from their chronological age peers in general education. Peterson and Ray (2006a) found the gifted student victimization related more to *differentness* than intellectual ability (p. 258). For example, a gifted student participant in the subjective experience study suggested jealousy as a possible cause for bullying gifted students faced compared when to their non-exceptional peers (p. 257). They found "teasing about intelligence and grades was at its peak in 7th and 8th grades, reflecting the literature and perhaps reflecting increasing awareness of achievement

differences in the peer culture" (2006b, p. 160). Moreover, emotional impact peaked in 5th (13%) and 6th (11%) grades with ratings of *a lot* and statistical significance for intelligence highest in 7th grade (p. 155). Peters and Bain (2011) suggested different reasons for the victimization of gifted students and their non-exceptional peers, as "gifted students were rated as less aggressive and less likely to be victims of aggression compared to the non-gifted students" (p. 628).

Wood and Craigen (2011) found gifted students faced a choice between embracing their intellectual ability and enjoying social popularity among their peers. They stated gifted students might "experience frustration, anger, and disappointment in their quest to find like-minded peers or in response to being misunderstood and rejected by the same-age peers" (p. 844). Estell et al. (2009) indicated gifted students as likely to bully or to experience bullying by their intellectual peers, and their non-exceptional peers as more likely to bully and to encounter bullying. Moreover, teachers tended to view gifted students more prominently within the school's social culture and considered them less likely to bully than their non-exceptional peers. Peterson and Ray (2006b) reported, "[G]iftedness is associated with a unique vulnerability to bullying … but [gifted victims] assume responsibility for resolving it themselves" (p. 257). Their intellectual ability to resolve conflicts and apply coping strategies may explain why educators often perceived gifted students either less likely as perpetrators or as victims of bullying behaviors.

## Covert aggression and gifted adolescents

Research suggests gifted students use relational aggression skillfully as a preferred strategy due to their advanced cognitive abilities (Ogurlu, 2015; Peairs et al., 2019; Pelchar & Bain, 2014). Ogurlu investigated the relationship of ostracism and intelligence with middle school gifted students using the Ostracism Experience Scale for Adolescents and the Wechsler Intelligence Scale for Children (Revised Form). Results in this preliminary study indicated higher ostracism in 8th grade than 6th and 7th grades and showed similar results for girls and boys. However, he found a positive correlation between intelligence and ostracism. Underwood (2003) suggested subtle and complex relational aggression behaviors may require high intelligence. Moreover, according to Kaukiainen et al., indirect aggression correlated with social intelligence in adolescents (as cited in Underwood, 2003, p. 186). Lee et al. (2012) researched interpersonal competencies and peer relationships of gifted adolescents and reported intellectually gifted students, particularly girls, lost earlier popular social status by age 13 as peers increasingly devalued their intellectual accomplishments throughout high school. These students reported more difficulty making and maintaining friendships than during elementary school years (p. 92).

## Covert aggression and gifted adolescent girls

Early studies on peer victimization limited topics to bullying among boys and overt aggression (Crick & Bigbee, 1998). However, using peer and self-report instruments, Crick and Bigbee found girls more often suffered from relational than overt aggression. Although covert aggression occurs in all student groups, few studies examine relational or covert aggression and its consequences in schools. A possible explanation for the lack of studies might relate to the less obvious and non-physical form of bullying that parents and school officials might miss. Olweus (2003) considered less overt forms of bullying "as harmful and distressing as more direct and open forms of harassment" (p. 13). Olweus found physical bullying occurred far less frequently among all groups of school-aged girls as they more often engaged in negative behaviors such as excluding individuals from social groups or occasions, manipulating friendships, and spreading rumors about one another. Peterson and Ray (2006b) stated 8th grade gifted students seemed reluctant to classify nonphysical teasing and name-calling as bullying; however, gifted students reported extreme distress from nonphysical aggression with the realization that verbal bullying took its toll (p. 259).

## Prevention and intervention strategies

Studies on bullying in grades P-12 populations often recommended prevention and intervention strategies for homes, schools, and communities. These strategies included increasing awareness that could make a difference in the lives of students who experienced bullying. Cross (2001b) recommended an expanded and more inclusive definition of bullying with both overt and

covert negative behaviors and both intentional and unintentional victimization. Peterson and Ray (2006a) found the most helpful coping strategies, in descending order, included "family, friends, self, no one, teachers, personal belongings, God, and counselors" (p. 159). Their responses indicated gifted students often coped with their bullying experiences without the assistance of teachers or counselors. Their prioritization suggested school officials need to increase vigilance that prevents covert aggression and intervene more effectively when it occurs. Peairs (2011) emphasized heightened intervention for victimized gifted adolescents, especially needed as a safe learning environment to develop their extraordinary potential.

Grade level transitions from elementary to middle school and from middle school to high school may further layer bullying experiences for children and adolescents. Peterson and Ray (2006a) reported the most prevalence of bullying occurred during 6th grade, traditionally the first year in middle school. Pelchar et al. (2014) used the Reynolds Bully—Victimization Scales (BVS) to measure bullying behaviors from the past month with 4th and 5th grade students who transitioned from elementary to middle school. Although their mismatch with traditional transition years yielded inconsistent results, school support staff could implement the BVS to screen for bullying issues that occur during grade level transitions from elementary, middle, and high schools.

Peterson and Ray (2006b) observed, "… only adults have the power to address the power imbalance inherent in bullying and to create prevention programs" (p. 265). They suggested gifted facilitators and school counselors establish small groups or support groups that address issues for both bullies and victims in safe environments. These groups "can help children to improve interpersonal skills, acknowledge the perspectives of others, solve social problems, express feelings, feel heard, and interact more effectively with peers" (p. 162). Cross (2001b) recommended gifted facilitators, classroom teachers, school counselors, principals, and parents recognize their intervention role with bullying both inside and outside of school because victims of bullying needed adult advocates to help them cope with experiences of victimization.

Allen (2020) used journey maps combined with interviews during case study research on bullying with six middle school gifted students. Student journey maps illustrated bullying as complex lived experiences. Interview questions clarified previous responses with students' bully histories. For example, all students found relational aggression problematic at their middle school, and their experiences with covert aggression included cyberbullying and gossiping (p. 168). In one instance, the interview disclosed instances of gifted students bullying teachers (p. 169). Allen suggested the process could help introverted gifted students who internalize harm from bullying that might go undetected (p. 32).

## Purpose of study

Despite media attention from the *Mean Girls* movie and *Queen Bees and Wannabes* self-help book (Wiseman, 2016), little research on bullying addressed P-12 gifted populations. Moreover, few studies examined covert aggression in broadly defined student groups. Some researchers (Robinson & Noble, 1991; Webb, 2016) expressed concern with gifted students at risk for developing internalized disorders such as depression and anxiety in response to social stressors. Two landmark studies (Peterson & Ray, 2006a, 2006b) researched gifted students and traditional forms of bullying. Although gifted facilitators shared informal, anecdotal observations suggesting gifted adolescent girls experienced covert aggression at school, the research literature lacked studies on gifted adolescent girls and their subjective experiences with covert aggression in secondary schools.

To explore the covert aggression phenomenon among gifted adolescent girls, we asked two research questions. The first question examined the prevalence of covert aggression in 6th, 7th, and 8th grades, and the second question evaluated the subjective experience of gifted adolescent girls with covert aggression:

(a) How many instances of covert aggression did gifted adolescent girls report for eight specific topics between gifted girls and gifted girls (GG/GG) and non-exceptional peers (GG/NG) during 6th, 7th, and 8th grades?

(b) How did gifted adolescent girls view their subjective experience of covert aggression with GG/GG and NG/GG during 6th, 7th, and 8th grades?

We anticipated (a) lower prevalence of covert aggression between GG/GG than GG/NG groups, and (b) the subjective experiences of gifted adolescent girls with covert aggression targeted intelligence and grade topics in GG/GG and GG/NG groups.

# Methodology

The primary investigator invited two graduate students enrolled in a university Gifted, Talented, and Creative program while employed full-time as gifted facilitators to participate in field research. The primary investigator required co-researchers to secure written school administrative approval from their respective middle and high schools, then applied to the university institutional research board to work with human subjects. When approved, the gifted facilitators distributed informed consent forms that stated the purpose of study, explained the research procedure, and ensured privacy for each participant. The consent form assured participants that could withdraw from the study at any point without reprisal or penalty. Participants under the age of 18 returned consent forms signed by their parent or guardian prior to the study.

## Participants

Given the less physical nature of covert aggression and its association with adolescent girls, we selected gifted adolescent girls only for the study. The two gifted facilitators invited all identified gifted girls in two schools located in the Midwest to participate in the study. All participants received an equal chance of selection. Although 30 subjects planned to participate, due to absences, this study reports results for 27 subjects who completed both the Reflective Questionnaire and participated in a Structured Group Interview. A suburban middle school of approximately 1000 students included only 7th and 8th grades, and 11 identified gifted girls participated in the study. A suburban high school with about 550 students included identified gifted girls in 9th, 10th, 11th, and 12th grades. The 27 participants ranged in age from 12 to 18 years. The two study samples came from suburban schools located in two different parts of the state.

## Procedure

The quantitative study consisted of participant tallies to number of instances for eight topics of covert aggression, both observed or experienced, in 6th, 7th, and 8th grades with GG/GG and GG/NG groups for items one and two. The qualitative component included short written responses for items 3 through 10 followed by Structured Group Interviews to probe item responses. Participants contributed item comments optionally, and they engaged in group discussions voluntarily without pressure to do so.

The gifted facilitators supervised their groups of participants who completed the Reflective Questionnaire individually and anonymously in the resource room during their seminar class period. All participants received the same definition and explanation of *covert aggression*, and all participants received the same instructions to complete the Reflective Questionnaire. Participants tallied instances between GG/GG and GG/NG for items 1 and 2, respectively, and wrote optional comments for items 3-10. The gifted facilitators checked questionnaires for completion of demographic information and items one and two. They then coded individual questionnaires by grade level and participant number.

The research team analyzed Reflective Questionnaires items 1 and 2 for quantitative prevalence of covert aggression and items 3-10 as the basis for the qualitative subjective experience. The gifted facilitators from each school arranged Structured Group Interviews where participants sat in a semi-circle of chairs in the familiarity of their resource room with a closed door. They spoke without coercion or identifying information other than their grade level and school name. To encourage open discussion on potentially sensitive topics, the primary researcher asked questions while the gifted facilitator typed participant comments on a notebook computer without identifying information than the coded grade level and participant number.

# Instruments

## *Reflective questionnaire*

The primary researcher requested and received an electronic copy of the Peterson and Ray survey (2006a, 2006b) as a guide for the present study. Because covert aggression occurs less openly and possibly more frequently than traditional bullying, we included eight potentially covert topics: grades, intelligence, name calling, personal appearance, family, social status, possessions, and other (specify). Given the smaller participant size, we specified grade levels represented in the two secondary level schools: 7th and 8th grades in the middle school, and 9th, 10th, 11th, and 12th from the high school. The study targeted reflective covert aggression incidences experienced during 6th, 7th, and 8th grades as viable developmental periods from a social perspective. We distinguished prevalence for two groups, GG/GG and GG/NG, in items one and two, respectively.

The Reflective Questionnaire required only the participant's age, grade level, and gender without physical descriptions or family member status. The introduction defined *covert aggression* as incidents "when individuals manipulate relationships as an attempt to control power among peers." Specific examples of covert aggression included talking behind someone's back, spreading rumors or gossip, and pretended friendship. The written instructions asked participants to tally the number of instances of covert aggression, both experienced and observed, as separate columns that implied bullied and bystander roles to gain a broader sense of prevalence. Subjective written response items three, four, and five identified the worst instance of covert aggression; its effect on their lives; and whether they told anyone and the subsequent response, if any, to their telling someone. Items six, seven, eight, and nine explored patterns and trends and similarities and differences for incidences of covert aggression between GG/GG and GG/NG groups. Participants could add other information for item 10, if they wished to do so. The primary researcher tested the Reflective Questionnaire for understanding of covert aggression behaviors, the eight topics, and clarity of procedure with two groups of identified gifted students from a local middle and high schools. Both groups completed the questionnaire voluntarily and followed the protocol appropriately.

## *Structured group interview*

The Reflective Questionnaire gathered qualitative data on participants' subjective experience from items 3 through 10 as the basis for Structured Group Interview questions. The primary researcher and gifted facilitators probed these responses for the worst incident, effect on their lives, and coping strategies. Questions also addressed patterns and trends and similarities and differences between GG/GG and GG/NG groups. For example, an interview question that emerged from short written narrative responses related to hazing in the GG/GG group at the high school level when new girls arrived from another school and began gifted services with an established group of gifted girls.

# Results

Our first study question examined the prevalence of covert aggression in eight topics between GG/GG and GG/NG groups in 6th, 7th, and 8th grades. In this exploratory study, we aggregated observed and experienced tallies to capture the magnitude of covert aggression rather than distinguishing bullying, bullied, and bystander roles (see Appendix A items 1 and 2). We analyzed prevalence by topic, group and topic, and group and grade level (see Figures 1-3).

## Prevalence by topic

We aggregated incidents in GG/GG and GG/NG groups during 6th, 7th, and 8th grades for a total of 1037 instances. The most prevalent topics included intelligence ($N$ = 187), name calling ($N$ = 187), and grades ($N$ = 185). With a combined 54% prevalence in this academic ability triad, topics highlighted differentness in intelligence and academic ability in the GG/NG group and academic competitiveness in the GG/GG group. At 42% prevalence, social status ($N$ = 170), appearance ($N$ =158), and possessions ($N$ =111) addressed more traditional bullying topics among girls unrelated to academics or intelligence. Family ($N$ = 39) scored lowest with 4% prevalence, perhaps as a less observable in schools (see Figure 1).

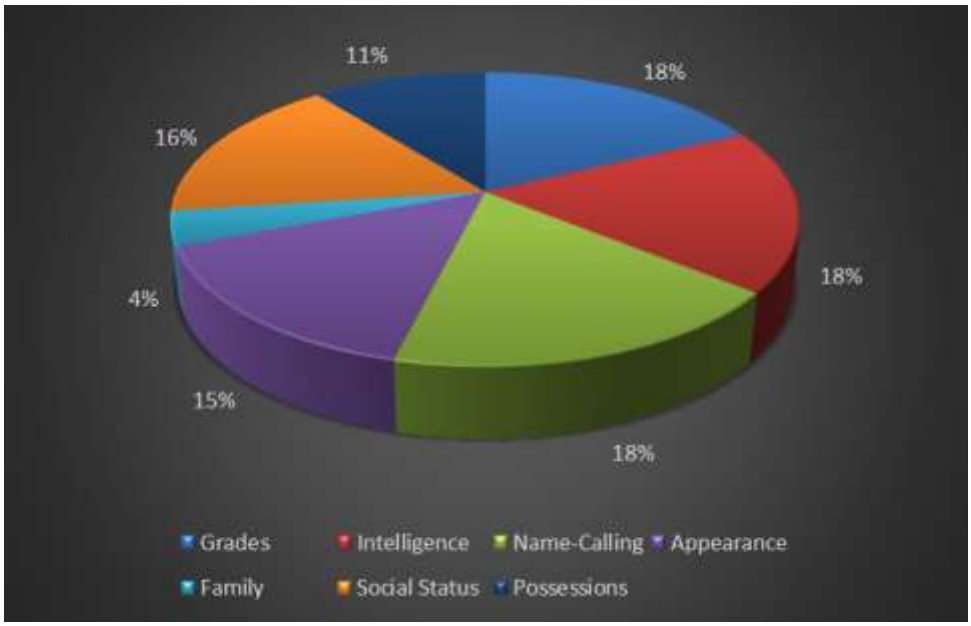


**Figure 1:** Prevalence by topic.

## Prevalence by group and topic

We examined 1037 incidents by topic and group. The GG/NG ($N$ = 672; 65%) group showed prevalence with nearly twice as many instances as the GG/GG group ($N$ = 365; 35%). Name-calling ($N$ = 126; 19%) scored highest in the GG/NG group, and intelligence ($N$ = 85; 23%) tallied the most incidents in the GG/GG group. Social status ($N$ = 123; 18%) ranked next in the GG/NG group, and grades ($N$ = 67; 24%) scored second in the GG/GG group. A distinction between GG/GG and GG/NG groups emerged with intelligence and grades topics ($N$ = 153; 53%) prevalent in the GG/GG group, and name-calling and social status ($N$ =249; 37%) more prominent in the GG/NG group. Traditional topics of appearance, possessions and family topics ranked lowest. When combined by group, GG/GG ($N$ = 105; 34%) and GG/NG ($N$ = 203; 66%), traditional topics showed 30% prevalence (see Figure 2).

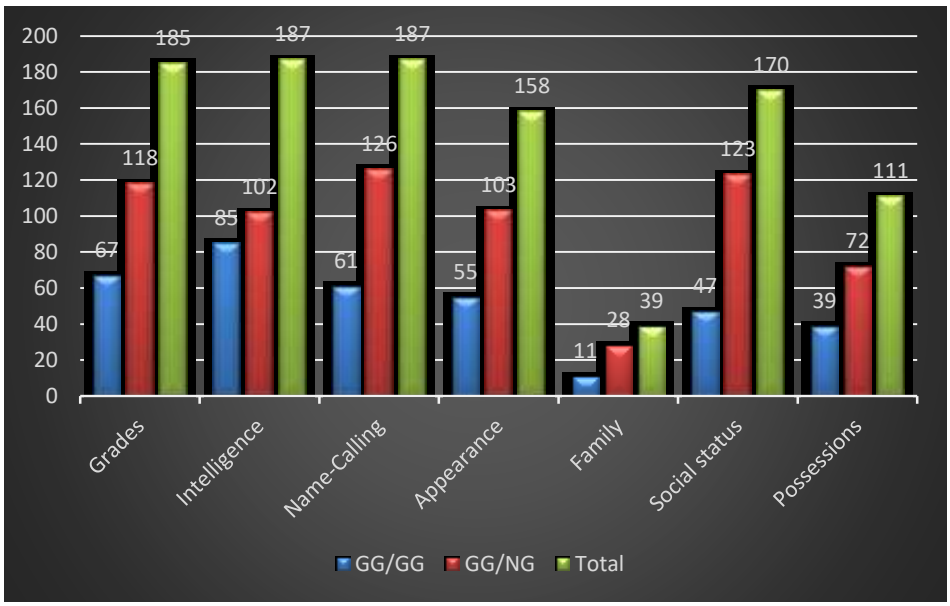


**Figure 2:** Prevalence by group and topic.

### Prevalence by group and grade level

We investigated covert aggression experienced during 6th, 7th, and 8th grades in GG/GG and GG/NG groups. Participants reported the most incidents during 7th grade ($N$ = 393; 38%) in both GG/GG ($N$ =138; 35%) and GG/NG ($N$ = 255; 65%) groups. Sixth grade ranked second ($N$ = 329; 32%) in the GG/GG ($N$ = 110; 33%) and GG/NG ($N$ = 219; 67%) groups. Eighth grade ($N$ = 315; 30%) showed the lowest prevalence in GG/GG ($N$ = 117; 37%) and GG/NG ($N$ = 198; 63%) groups. The prevalence of incidents showed consistency with more incidents reported in the GG/NG than GG/GG group in all three grades. Percentage differences between the GG/GG and GG/NG groups ranged from 30% to 34% and 26% in 6th, 7th, and 8th grades, respectively (see Figure 3).

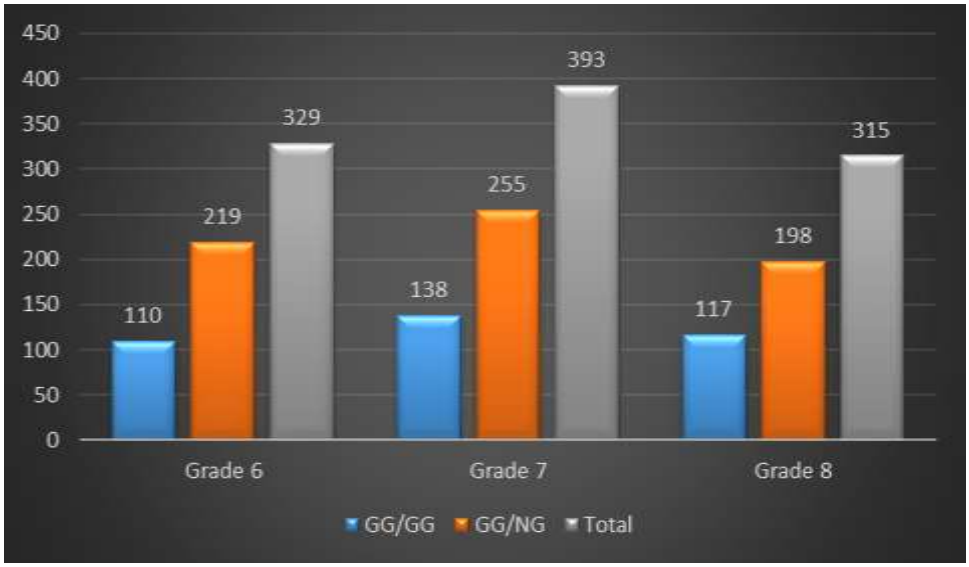


**Figure 3:** Prevalence by group and grade.

## Subjective experience

Our second question examined how gifted adolescent girls viewed their subjective experience of covert aggression with GG/GG and NG/GG during 6th, 7th, and 8th grades. We explored the subjective experience through Reflective Questionnaire short written responses for items 3-10 and Structured Group Interview comments based on short written responses. We organized short written responses by participant from 7th grade to 12th grade. Reflective responses addressed 6th, 7th, and 8th grades from participants in 7th through 12th grades (see Appendix A).

### *Reflective questionnaire*

**Item Three.** Participants identified the worst instance of covert aggression experienced in GG/GG and GG/NG groups during 6th through 8th grades. Four participants from 7th and 8th grades related feelings of awkwardness or embarrassment when going to or coming from the resource room. "The automatically think you're in ISS [In School Suspension] or in trouble if you have to leave the lunchroom. My friends and I joke that I'm on my way to ISS each time I go for gifted." Seven participants from 7th and 8th grades indicated "nothing really bad" or "the normal stuff." An 8th grade participant stated, "I didn't really see anything that bad. I came from a different school, and it wasn't that bad there either." Six participants from 7th, 8th, and 9th grades reported name-calling such as *geeks*, *nerds*, or *retards* and talking about people behind their backs in the GG/NG group. A 11th grade participant observed gifted kids who ganged up on another gifted girl by calling her names in French that she was unable to understand. A 11th grade participant commented that popular girls asked, "Why'd all the nerds dress up for Nerd Day?" Another 11th grade participant indicated, "[N]ew kids to the program were hazed if they were too weird. Regular kids were instantly liked." A 12th participant experienced jealousy from non-exceptional peers "who accused us of getting to do special stuff and extra activities."

**Item Four.** Participants commented on the effect of the worst experience of covert aggression on their lives. A 7th grade participant specified "talking behind people's backs" and felt glad that "good friends who don't do that to me." An 8th grade participant indicated she and her friends talked about the embarrassment they felt when they "had to walk in front of everyone to leave and go to gifted." However, another 8th grade participant and her friends learned to "joke that I'm on my way to ISS each time I go for gifted." Other grade eight girls felt hurt because "some popular girls called us retards." Another 9th grade gifted girl stated, "I've been called a nerd before, and it wasn't meant nicely." A 9th grade participant felt embarrassed by her giftedness and tried to hide her intelligence. A 10th grade gifted girl "learned not to push the gifted things onto people and to not identify myself as gifted." Another 10th grade girl stated, "I have breakdowns when I don't perform as well as some other students."

**Item Five.** Only one participant in 7th grade told anyone about the worst incident of covert aggression. She talked casually to her mother at home who "helped me think about what I would do in that situation." Four participants in grades seven and eight indicated they talked among themselves without reporting covert aggression incidents. A 10th grade participant stated, others "may have known, but I would only tell if asked."

**Items Six Through Nine**. This set of four items explored patterns and trends and similarities and differences in GG/NG and GG/NG groups. Item 10 asked for further comments on an optional basis, all participants left this item blank. Participants in high school commented more frequently on these items than middle school participants. A grade 10 participant stated, "[W]e [gifted girls] understand that other kids have talents in other areas." Another 10th grade participant found if "you do badly on schoolwork with gifted girls," they empathize with feelings of failure because they've been there before too." A 12th grade participant summarized trends and patterns in covert aggression as whoever is smarter in the GG/GG group and more personal or material things in the GG/NG group. Another 12th grade participant stated, "[A]ggression between gifted girls is usually a challenge over who is smarter." Another 12th grade gifted girl found "gifted boys and girls were always recognized as the 'smart kids,' and we all stuck together." A 12th grade gifted girl stated, "[M]y gifted friends were always around to help me with any problem."

Regarding GG/NG interactions, an 8th grade participant stated, "[M]y friends and I aren't cool." When hearing from her friends of name-calling incidents, she stated, "[T]hey don't realize how much it hurts people's feelings." A 12th grade participant stated, "[N]on-gifted girls seem to experience more drama." Another grade 12th grade gifted girl observed, "[G]ifted and non-exceptional girls, the aggression is over more personal or material things." Yet another 12th grade girl found "non-exceptional girls would always compare their grades to ours. If someone got a higher score than you on a test or worksheet, they would brag about it" (see Appendix B).

### *Structured group interviews*

**Middle school grades 7-8.** Nearly all middle school participants responded during the Structured Group Interview. Their comments provided personal details about covert aggression experiences, compared experienced between the two groups, and provided reasons for differences between the two exceptional groups. For example, one middle school respondent philosophically attributed differences between the two groups to common interests. When GG/GG formed groups with common interests, they might avoid other groups; however, they did not fight.

The transition from elementary school to middle school seemed to place more distance between the gifted girls and their non-exceptional peers. Most respondents attributed incidents between GG/NG to perceived academic difference. However, exclusion and general unfriendliness surfaced in both groups with the observation that "gifted girls are better at not showing their aggression obviously." Participants approached the subject practically as, "saying mean things and spreading rumors happens." Social groups formed in middle school based on popularity because "you can't like everyone at school." Although respondents indicated they enjoyed the camaraderie with their intellectual peers, "the pressure brought on by grades creates more competition. … We all get picked on, no matter what."

**High school grades 9-12.** Participants in the high school Structured Group Interview perceived incidents between GG/NG occurred because the non-exceptional girls "didn't understand the purpose of [the] gifted program, and they thought it was unfair that we got to do special things." Newness to high school created difficulties for a gifted girl and her non-exceptional peers: "No one would talk to me for weeks … the only thing they knew about me was I was going to the gifted classroom. They thought I was a smarty-pants and stuck up." When the primary investigator inquired about hazing new girls in the gifted classroom, the girls laughed. "We were a group, and we didn't always include new kids in gifted class. This one girl was just ditzy. We liked things the way they were." The new student found "even the gifted kids constantly questioned and second-guessed me. I had to prove myself to be associated with the gifted."

High school participants viewed themselves as very competitive yet supportive of each other in the gifted classroom. However, one participant stated, "gifted girls do participate in bullying. Looking back, they feel bad." They found boys liked smart girls, although some boys felt intimidated by gifted girls. One participant recalled experiences from 7th grade when her behaviors caused concern.

> I was not the perfect student … gifted girls started asking me if I really belonged in here. I undermined myself and never thought I was really good enough. I still don't. The high school gifted girls understood academic expectations and acted accordingly. Since I wouldn't let anyone cheat off me, I was called stuck up.

Another high school girl was "called the teacher's favorite. Girls would tell me you don't even work hard, and the teacher gives you a good grade just because she likes you. I told them I work hard for my grades." A high school girl inquired, "[I]s bullying the same as covert aggression? Girls are supposed to be nice and not get physical, so girls are sneakier." It appeared GG/GG experienced incidents of covert aggression related to how well they fit into the resource room while incidents in the GG/NG group related to academic achievement or perceived privilege related to placement in the gifted program.

# Discussion

We selected "covert aggression" (Olson et al., 2013; Simon, 2010) to emphasize the indirect and hidden nature of these externalizing behaviors while associating them with the harmful effects of overt aggression in traditional forms of bullying. However, research studies also use "social" (Underwood, 2003) and "relational" (Crick & Bigbee, 1998) to describe purposeful manipulative aggression. Beginning in the cradle, girls experience cultural and socializing influences on the expression of anger and aggression that support social aggression as purposeful behavior during adolescence to gain social status or enjoyment of manipulating relationships (Underwood, 2003). Underwood also suggested that more subtle and complex aggression may require high intelligence. Grade level transitions from elementary, middle, and high schools may pose additional vulnerability for adolescents (Pelchar et al., 2014; Peterson & Ray, 2006a, 2006b). Popular literature (Colaroso, 2011; Pipher, 1994, 2019; Wiseman, 2016) associates relational aggression with adolescent girls. However, Nishioka et al. (2011) found 41-48% of girls and 31-42% of boys reported relational victimization during the previous month, and 21-28% of girls and 20-24% of boys perpetuated acts of relational aggression during the past month.

## Prevalence of covert aggression

Based on the Peterson and Ray (2006a, 2006b) results, we anticipated higher prevalence of covert aggression between GG/NG than GG/GG groups. Our sample group reported covert aggression topics most often emphasized their differentness from non-exceptional peers and competitiveness with intellectual peers, i.e., intelligence, name-calling, and grades (54%).

### *Targeted academic strengths*

According to Wiseman, grown women vividly recount the meanness of adolescent girls from 7th grade as if those things had happened yesterday (as cited in Tawa, 2002). Clustered as academic

topics (54%), name calling such as "geek" and "nerd," intelligence, and grades targeted "differentness" during middle school grades. A traditional bullying topic cluster of appearance, social status, possessions, and family collectively occurred less prevalently (46%). How might 599 incidences referencing the academic topic cluster occur for 27 participants during 6th, 7th, and 8th grades? On average, participants would experience 21 academic cluster topics during middle school grades. Schools could anticipate an average of 6 academic topic cluster incidents each week throughout 6th, 7th, and 8th grades. Prevalence by topic suggests gifted adolescent girls will experience externalizing covert aggressive behaviors during their middle school years. These purposefully manipulative behaviors target the academic strengths that distinguish intellectually and academically gifted adolescent girls in both GG/GG and GG/NG groups (see Figure 1).

### *Harmful social interactions*

Simmons (2010) described the verbal and mental torment of "extreme bullying" when adolescent girls bullied "friends" who otherwise feared isolation and rejection. Thwala et al. (2018) advocated urgent intervention for adolescent girls susceptible to bullying in schools as places of loneliness and isolation. As anticipated in this study, participants reported more incidents of covert aggression between GG/NG than GG/GG classmates in all eight topics. Moreover, all eight topics ranked similarly within both groups. With 346 academic cluster topic incidents in the GG/NG group, participants could average 13 incidents compared to 213 academic cluster topic incidents averaging 8 incidents in the GG/GG group during middle school. When averaged for a 36-week school year, schools could anticipate 3 academic cluster topic incidents in the GG/NG group and 2 incidents in the GG/GG group during middle school grades. Prevalence by group and topic highlighted harmful social interactions with name-calling (36%) the most prevalent academic cluster topic in the GG/NG group and intelligence (40%) ranking highest in the GG/GG group. Since covert aggression topics cluster around academic strengths in both groups, social interactions with intellectual and non-exceptional peers could threaten development of academic potential in special education and general education settings (see Figure 2).

### *Vulnerability during transitions*

Olson et al. (2013) reported externalized behaviors including covert aggression significantly increased from kindergarten through 2nd grade, 3rd to 5th grade, and 6th to 8th grade developmental periods. In this study, prevalence of covert aggression peaked during 7th grade ($N$ = 393; 38%) with 65% ($N$ = 255) in the GG/NG group and 35% ($N$ = 138) in the GG/GG group. The middle school in our study included only 7th and 8th grades, so this prevalence may reflect the social disadvantage adolescents experience as the new kids on the block. It also supports previous research (Pelchar, 2014; Peterson, 2006a, 2006b) cautioning vulnerability during grade level transitions between elementary and middle school. Hurley (2018) found girls experience higher rates of relational aggression in 5th through 8th grades; however, these behaviors also trickle downward to younger grades as early as preschool.

## Subjective experience of covert aggression

Our second research question explored how gifted adolescent girls experience covert aggression with their intellectual and non-exceptional peers in 6th, 7th, and 8th grades. We anticipated covert aggression experiences targeted academic strengths of intelligence and grades. Jumper (2009) suggested gifted adolescents experience bullying differently than other children due to their unique characteristics and sensitivities. For example, high levels of intelligence, advanced verbal ability and critical thinking skills often characterize giftedness. We found participants tended to minimize instances as a social norm – "nothing really bad" – and rarely reported incidents, and then only to friends, a mother, or if asked. This trend suggests gifted adolescent girls might rely on their intelligence, verbal skills, and problem-solving abilities to mitigate academic difficulties, problems, and challenges they faced without seeking external assistance from teachers, counselors, or administrators. A common theme throughout subjective experience comments in this study referenced the academic ability triad of intelligence, name calling, and grades topics.

### *Devaluing academic strengths*

Reflective Questionnaire short written comments and Structured Interviews indicated participants felt embarrassed entering and leaving the lunchroom for gifted services. While some girls joked among themselves about going to In School Suspension, others tried to hide their intelligence and avoid identifying with gifted classmates. Some participants possessed sufficient awareness and insight by attributing covert aggression incidents with non-exceptional peers to their differentness in terms of academic strengths. Despite negative consequences of stress, alienation, and labeling, participants seemed content with existing coping skills and strategies. Participants in both Structured Interview groups seemed interested and engaged comfortably in discussions. However, their responses lacked a request or need for additional support, helpful information, or available resources to cope with covert aggression.

### *Exclusion and hazing*

Despite the assertion of "nothing too bad," an issue of concern surfaced in the short ritten comments that we explored during the high school Structured Group Interview. Although the most comments indicated an overall sense of safety and support in the gifted resource room, *hazing* of new gifted girls in the resource room occurred. Typically, identification of gifted students occurred at the elementary school level with fewer referrals at the secondary level. However, when gifted students transferred from another school into the gifted resource room, the change required acceptance into an otherwise established group. When gently probed during the Structured Group Interview, the high school girls laughed and indicated difficulty accepting a "ditzy" new gifted girl. During the group interview, one high school participant stated gifted girls "constantly questioned and second-guessed her," and that she needed to "prove [herself] to be associated with the gifted girls."

## Limitations and future studies

### *Gifted adolescent girl participants*

We selected gifted adolescent girls for our study based on their gender preference with covert aggression. Ogurlu (2015), however, found gifted adolescent boys also use covert aggression. Moreover, social aggression begins early (Olson 2013), and developmental patterns of covert aggression intensify from kindergarten through 8$^{th}$ grade (Olson et al., 2013). Hurley (2018) reported indirect externalizing behaviors increasing reach downward into lower grades. In addition to small sample size, our study lacked participants from racial, linguistic, and culturally diverse groups. Given these limitations, the primary researcher conducted a similar exploratory study with gifted Hispanic elementary boys and girls after the present study. A larger sample size could increase reliability and generalizability of prevalence findings by topic, grade level, and group and further enhance insight from the subjective experience.

### *Covert aggression prevalence*

Although we found participants intuitively seemed to understand covert aggression terminology, a revised instrument might include an expanded definition of covert aggression (Cross, 2001b). Additional terminology might include "microaggression" and "marginalization," particularly with high school students. Younger children might view simple illustrations of behaviors to solidify understanding of covert aggression. Although the Reflective Questionnaire only implied bullied and bystander roles to encourage open discussion, future studies could distinguish the bully role as well. Our questionnaire simply tallied observed and experienced incidents to gain a broader sense of prevalence. However, future studies could examine prevalence and subjective experience from the perspective of all three roles. A revised questionnaire could also include facial gestures, body language, gossip, rumors, lying, exclusion, ostracism, hazing, and cyberbullying as viable topics of covert aggression. An improved questionnaire could also eliminate less relevant topics of family and possessions. Short age-appropriate lessons on covert aggression with specific examples taught prior to the study could further ensure full participation.

### *Subjective experience methodology*

Although we triangulated self-reported incidents, literature on bullying, and collective expertise of the three researchers, future studies might include additional perspectives from parents, friends, and general education teachers to further validate findings and increase reliability of self-reported responses. We avoided recorded group sessions to encourage full engagement and ensure confidentiality during Structured Group Interviews. However, individual interviews could yield more in-depth subjective experience responses and ensure privacy on sensitive topics. Zoom video recordings of individual interviews could generate conversation transcripts for conversational analysis. Zoom interview sessions would also permit notation of body language and capture subtleties such as voice volume, nuances of tone, and expressiveness to further understand the subjective experience.

## Conclusion

Research literature and anecdotal evidence indicates adolescent girls engage in a more covert or relational form of aggression while adolescent boys tend to use overt and physical aggression. The data collected on prevalence and subjective experience supported both research questions, as we found more prevalence of covert aggression between GG/NG peers than GG/GG classmates. Incidents peaked during 7th grade with fewer incidents in 6th grade, and the fewest during 8th grade. Incidents clustered into an academic ability triad of intelligence, name calling, and grade topics. The remaining five topics formed a cluster of traditional bullying behaviors. The name calling (i.e., "nerd" or "geek") topic prevailed in the GG/NG group while grades and intelligence topics ranked highest in the GG/GG group. Perspectives from the subjective experience minimalized prevalence yet participants indicated they "paid a price." Gifted adolescent girls relied on intellectual peers to cope with covert aggression experiences. If they shared a covert aggression experience, they did so selectively with trusted persons. Educators, administrators, support personnel, and parents need to monitor grade level transitions when changing schools for potential incidents of covert aggression, particularly hazing practices at the high school level. Simon (2017) suggests covert aggression behaviors carry into adulthood and the workplace with devastating effects. We hope this exploratory study sparks awareness and insight on the reality of covert aggression in schools and its harmful effect on gifted adolescent girls. Peer support groups that recognize covert aggression behaviors and practice intervention strategies could ameliorate its harmful effects and improve the social-emotional wellness of gifted adolescent girls.

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## About the Authors

**Connie Phelps**, *Ed.D.* directs the Gifted, Talented, and Creative program at Emporia State University. In 2019, she received the inaugural Dr. John E. King Endowed Professor award recognizing impact on students. Prior to her university appointment, she taught middle school gifted students language arts and social sciences; provided consultation services for high school gifted students; and identified elementary gifted students on an itinerate basis in the Wichita Public Schools. She completed doctoral studies in Elementary Education at the University of Arkansas and graduate degrees in Elementary Education at East Texas State University and Gifted Special Education at Emporia State University. She also directs the Great Plains Center for Gifted Studies where she conducts research on creativity, social and emotional issues, gifted girls, and innovative teaching and learning practices. She leads Gifted Program accreditation reviews and serves as a lead site visitor for the Council for the Accreditation of Educator Preparation.

**Ashley Beason-Manes**, *Ph.D.* is a performance auditor with the Kansas Division of Legislative Post Audit. She previously taught in public schools for 12 years, during which time she earned her Master's degree in Gifted Education from Emporia State University and her doctorate from the University of Arkansas in Gifted Education and Secondary English education. Her years in the classroom gave her experience with a variety of age groups teaching gifted education, social studies, English language arts, and scholastic journalism. Her research interests include gender in gifted education, creative problem solving, and community activism through gifted programming.

**Amy Lockman**, *MS* is a gifted facilitator for USD 233 in Olathe, Kansas. She facilitates gifted pull-out programs in four different elementary schools. She works closely with fellow educators to provide differentiation and enrichment opportunities for gifted students in the regular education classroom. She's actively involved in the Multi-Tiered System of Supports (MTSS) to help identify gifted students and advocate for their specialized needs. Her teaching priorities are addressing the social-emotional needs of the gifted and analyzing standardized district and state scores with respect to gifted identification.

**Notes:**
**Connie Phelps:** cphelps@emporia.edu
**Ashley Beason-Manes:** ashleybeason@gmail.com
**Amy Lockman:** amlockman@olatheschools.org

This study originally appeared in *Emporia State Research Studies, 52*(1), pp. 31-53 (2019). Authors and editors consented to this condensed and revised republication.

# Appendix A
## Prevalence of Incidents

**Reflective Questionnaire**

Date: _____ Age: _____ Grade level: _____ Gender: _____

*Covert aggression occurs when individuals manipulate relationships as an attempt to control power among peers. Specific behaviors may include talking behind someone's back, spreading rumors or gossip, pretended friendship, etc. This study explores the covert aggression experiences of gifted adolescent girls with intellectual and age peers.*

1. Please place a tally mark indicating the frequency of specific covert aggressive behaviors related to the suggested topics listed which you experienced or observed between gifted girls and other gifted girls in the respective grade level.

| **TOPICS** | **Grade 6** | | **Grade 7** | | **Grade 8** | |
|---|---|---|---|---|---|---|
| | **Observed** | **Experienced** | **Observed** | **Experienced** | **Observed** | **Experienced** |
| Grades | | | | | | |
| Intelligence | | | | | | |
| Name Calling | | | | | | |
| Personal Appearance | | | | | | |
| Family | | | | | | |
| Social Status | | | | | | |
| Possessions | | | | | | |
| Other (specify) | | | | | | |

2. Please place a tally mark indicating the frequency of specific covert aggressive behaviors related to the suggested topics listed which you experienced or observed between gifted girls and their non-exceptional age girl peers in the respective grade level.

| TOPICS | Grade 6 | | Grade 7 | | Grade 8 | |
|---|---|---|---|---|---|---|
| | Observed | Experienced | Observed | Experienced | Observed | Experienced |
| Grades | | | | | | |
| Intelligence | | | | | | |
| Name Calling | | | | | | |
| Personal Appearance | | | | | | |
| Family | | | | | | |
| Social Status | | | | | | |
| Possessions | | | | | | |
| Other (specify) | | | | | | |

PLEASE CONTINUE TO THE NEXT PAGE

3. What was the worst instance of covert aggression you experienced or observed between gifted girls and their intellectual or non-exceptional girls age peers in grades six through eight?

   _____
   _____

4. What, if anything, was the effect of that experience on your life?

   _____
   _____
   _____

5. Did you tell anyone about the instance? ____ Yes ____ No If yes, what was the response?

   _____
   _____
   _____

6. What patterns or trends, if any, did you experienced or observed differences between gifted girls and other gifted girls in grades six through eight?

   _____
   _____
   _____

7. What patterns or trends, if any, did you experienced or observed differences between gifted girls and their non-exceptional girl age peers in grades six through eight?

   _____
   _____
   _____

8. What similarities, if any, do you see in the covert aggression instances between gifted girls and other gifted girls and between gifted girls and their non-exceptional girl age peers?

   _____
   _____
   _____

9. What differences, if any, do you see in the covert aggression instances between gifted girls and other gifted girls and between gifted girls and their non-exceptional girl age peers in grades six through eight?

   _____
   _____
   _____

10. What further comments might you make these experiences or observations?

    _____
    _____
    _____

# Appendix B
## Reflective Questionnaire

### Grade 7
I haven't seen anything really bad, but I've seen people talking about people behind their backs. I only talked about it with my mom, just casually at home. She helped me to think about what I would do in that situation. It made me glad that I have good friends who don't do that to me.
I just notice the normal stuff like people talking about other people. I've talked to my friends about it but didn't really report it.
I feel awkward when I go to the [gifted] room from the cafeteria during lunch because you walk in front of everyone with your tray. They ask you where you're going or look at you weird. They automatically think you're in ISS or in trouble or something if you have to leave the lunchroom. My friends and I joke that I'm on my way to ISS each time I go for gifted.

### Grade 8
I haven't seen anything really bad.
I haven't noticed anything, really. Haven't told anyone.
There wasn't anything really bad that I noticed.
There was a special dress-up day (spirit day) where not a lot of people dressed up, but some did. It was Nerd Day. The popular girls said, "Why'd all the nerds dress up for Nerd Day?"
I've been called a nerd before, and it wasn't meant nicely. Now that the new cafeteria has the kitchen in the back, you have to walk in front of everyone to leave and go to gifted. Before, the kitchen was outside the cafeteria so no one really noticed if you left … they couldn't see you leave. It's sort of embarrassing. We talk about it a lot.
Nothing too bad. It's not a huge deal, but it does feel weird when we go to the [gifted resource] room. Sometimes people ask you where you're going and you tell them, but then it's not such a big deal. Sometimes it's a little embarrassing.
I didn't really see anything that bad. I came from a different school, and it wasn't that bad there either.
My friends and I aren't cool, and some popular girls called us retards. I didn't hear it, but my friend said she did. They don't realize how much it hurts people's feelings. Didn't really tell anyone, just talked about it with my friends.

### Grade 9
I've experienced name calling because of being gifted. I felt embarrassed and tried to hide my intelligence.

### Grade 10
I learned not to push the gifted things onto people and to not identify myself as gifted. Others may have known, but I would only tell if asked.
We [gifted girls] understand that other kids have talents in other areas.
I have breakdowns when I don't perform as well as some other students.
If you do badly on schoolwork with gifted girls, they empathize with feelings of failure because they've been there before too.

### Grade 11
Some gifted kids ganged up on another gifted girl calling her names in French that she didn't understand. It made me feel guilty for not telling her what was going on.
New gifted kids to the program were hazed if they were too weird … or ditzy. Regular kids were instantly liked.

### Grade 12
Aggression between gifted girls is usually a challenge over who is smarter. Gifted and non-exceptional girls, the aggression is over more personal or material things.
The gifted boys and girls were always recognized as the "smart kids," and we all stuck together.
My gifted friends were always around to help me with any problem.
Non-gifted girls seem to experience more drama.
Other non-exceptional girls would always compare their grades to ours. If someone got a higher score than you on a test or worksheet, they would brag about it.
A few kids were jealous and accuse us of getting to do special stuff and extra activities. I kind of felt like being gifted was a privilege.

# Appendix C
## Structured Group Interview

## Middle School Grades Seven and Eight

**1. What was the worst instance of covert aggression between GG/GG or between GG/NG?**

The worst covert aggression happens because girls think that being in gifted makes you geeky or nerdy. They also do covert aggression a lot when it has to do with guys. Once people get to know me, they don't think I'm nerdy. I stay away from the drama over guys so it doesn't really affect me. There aren't really problems between the gifted girls, but if there are, it's because they hang out with different groups outside of gifted. Sometimes people act timid towards you when you come from or go to the gifted room, like you're different. Girls hang with girls with the same interests. Girls might avoid other girls, but there are no fights or anything. Covert aggression is less in gifted girls and gifted girls probably because they know they have at least one thing in common. The relationship between gifted girls and non-exceptional girls changes from elementary to middle school – it seems more distant.

Saying mean things and spreading rumors happens. People just think different than you think. Gifted girls all get along because we're all on the same intellectual base. Usually if someone doesn't like someone outside of gifted or because that person did something, but that rarely happens. Girls in lower social rank or that appear different usually get picked on in the non-exceptional category. The occasional "popular" kid has a rumor about them, too. All girls hear things, but girls from both parties may not spread them. With a smaller group like gifted, you have less feuds because you aren't mixed with kids you dislike. With all peers, you find people you like and dislike. I've never been made fun of for being smart. Actually, people and teachers depend, trust, and look up to you more.

Sometimes teased about my facial appearance. I asked my friends how to clean (for acne) my face better. I haven't noticed as much making fun in the seventh grade. There is more covert aggression between gifted girls and non-exceptional girls. People make much more fun of your intelligence than much else no matter who or where you are.

I have never experienced or observed any specific bad covert aggression. Most of the gifted girls tend to stay together, except for a few who are considered popular. Some of the non-gifted girls don't like that we get to leave [school] sometimes. The gifted girls sometimes like to brag, but when they're with other gifted girls, they're quieter.

I saw one girl was getting called names pretty badly behind her back by her "friends." I then decided that I would never do that. A lot of girls do that at this age, and you can't control it. Other girls would pick on each other for no reason based on if they liked them. In both [gifted and non-exceptional], girls still get picked on for their looks and status. But gifted girls don't pick on anyone based on grades or how smart they are. With non-gifted girls, the bullying is much stronger.

Haven't really experienced or observed a lot of covert aggression. Gifted girls never really picked on each other. In seventh and eighth grade, they tease you about being smart, but not really in sixth grade.

A lot of exclusion and general unfriendliness. This happened especially the second semester of seventh grade. The first time I saw it happen, I was shocked. Gifted girls tend to want to hang out with other gifted girls. The ones who dress nicely with the trends tend to be higher in social status than with non-gifted girls that dress similarly. It all comes down to popularity, though there's not a spoken word about who is and who isn't. This is both in gifted and non-gifted. Gifted girls are better at not showing their aggression obviously. It's harder to spot than with non-exceptional girls. Gifted girls don't use Facebook to post aggression, mostly texting. Gifted girls are more comfortable with other gifted girls.

My biggest thing is probably walking through the lunchroom when everyone is staring at you. It is just really awkward and embarrassing, and it makes you feel nerdy. Me and my gifted friends talk about it all the time; it's just one of those what can you do. It wasn't a big deal in sixth grade, but in middle school it is considered nerdy to be in gifted. In gifted, we are all friends. Deep down you're still dealing with the core issues of popularity and status, and that's what leads to aggression in both instances. Among your gifted friends, it isn't a big deal to be gifted, but it is sort of uncool to be gifted in middle school. Sometimes it's like two different worlds. Overall it's a great experience.

When someone asks where you're going or what you're doing, and you [say] "Oh, it's a gifted thing," it makes you feel awkward. Most of the gifted girls are all friendly with each other. Everyone can be a little judgmental and judge each other. A lot of the girls in gifted are friendly to each other but it varies a lot when

you're with the rest of the girls in our school. A lot of the girls in gifted are really nice and aren't mean to each other, but it's different when it's with everyone because you can't like everyone in the school.

**2. What, if anything, was the effect of that experience on your life?**

The pressure brought on by grades creates more competition. It might not be a giant competition with other people, but it's a race with yourself. When grades or achievements are publicized, girls compare themselves to others who don't get the recognition or who didn't achieve. Gifted girls are kinder to the non-exceptional girls.

Some of the popular girls call me a retard behind my back. I really couldn't care less what they think of me. I told my friends, and they reacted the way I did. I know one girl who will give me a weird look, but that's all. I'm "not cool," so I get picked on more than some other girls. We all get picked on, no matter what. I think all girls pick on each other a lot. The mean girls need to know what they're doing hurts people.

**3. What patterns or trends, if any, did you experience between GG/GG or between GG/NG?**

The pressure brought on by grades creates more competition. It might not be a giant competition with other people, but it's a race with yourself. When grades or achievements are publicized, girls compare themselves to others who don't get the recognition or who didn't achieve. Gifted girls are kinder to the non-exceptional girls.

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The gifted boys and girls were always recognized as the "smart kids," and we all stuck together.

## High School Grades 9-12

**1. What was the worst instance of covert aggression between GG/GG or between GG/NG?**

Kids always thought we got to do special things in [gifted] like take field trips and get out of the class. They would say we were privileged. They didn't understand purpose of gifted program.

They thought it was unfair that we got to do special things.

"Is bullying the same as covert aggression?" Girls are supposed to be nice and not get physical so girls are sneakier.
Since I wouldn't let anyone cheat off me, I was called stuck up.

I was called the teacher's favorite. Girls would tell me you don't even work hard and the teacher gives you good grades just because she likes you. I told them I work hard for my grades.

I hated working in groups and doing all the work just to get a decent grade. Kids would act like they wanted me in their group, but they just wanted me to do all the work.

No one would talk to me for weeks when I moved here. I didn't know anyone and the only thing they knew about me was that I was going to gifted classroom. They thought I was a smarty-pants and stuck up.

**2. What, if anything, was the effect of that experience on your life?**

When I was in seventh grade, I remember I used to get in trouble a lot. I was not the perfect student … gifted girls starting asking me if I really belonged in here. I undermined myself and never thought I was really good enough. I still don't.

[The girls were reminded this was a safe place to talk and asked to self-reflect.]

Gifted girls do participate in bullying. Looking back they feel bad.

**3. What, if anything, was the effect of that experience on your life?**

We are all very competitive. Usually it's a positive competition, mostly good and supportive … but it's difficult to be new in here (gifted class).

[When asked about hazing, all the girls laugh.]

We were a group and we didn't always include new kids in gifted class. This one girl was just ditzy. We liked things the way they were.

We didn't appreciate new kids either … interacting is hard.

When I came here, even the gifted kids constantly questioned and second guessed me. I hang out with different groups that have strong personalities. I had to prove myself to be associated with the gifted.

Most [boys] like smart [girls] since we can handle things. Some [boys] are intimidated though.

# The Implementation of the Schoolwide Enrichment Model in Italian Schools

**Lara Milan; Sally M. Reis**
University of Connecticut, Storrs, USA

## Abstract

In this article, we describe the results of a research study investigating the effects of a programming model specifically designed to apply the pedagogy of gifted education to the overall process of schoolwide enrichment, *The Schoolwide Enrichment Model* (*SEM,* Renzulli & Reis, 2014). The specific factors examined during the implementation included student attitudes toward learning, teacher attitudes toward teaching, students' creative productivity, and the processes involved in the implementation of *SEM.* The study also investigates SEM adaptability to the Italian education system as the first pilot project implementing The Schoolwide Enrichment Model in Italian public schools. Positive changes were found in both student and teacher attitudes toward educational approaches to talent development, and more favorable attitudes toward special programming on the part of parents were also noted, suggesting new and more positive perspectives about gifted education and talent development in Italy.

**Keywords:** SEM; gifted; positive change; creative productivity; Italy; attitudes.

## Introduction

The field of gifted education is based on the almost universally accepted reality that some learners demonstrate outstanding performance or potential for superior performance in academic, creative, leadership, or artistic domains when compared with their peers (Renzulli & Reis, 2014). This agreed-upon conception justifies an examination of differentiated models and strategies to develop students' talents and gifts in schools. A robust body of international research demonstrates that many other children also benefit from participation in research-based programs like the Schoolwide Enrichment Model (SEM) for talent development to develop their gifts and talents (Reis & Peters, 2020).

Among the many theories about the history of gifted and talented education, three broad schools of thought that apply to education defined the three major approaches to teaching and learning, and they include differentiation, acceleration, and enrichment. A review of research that characterized the history of gifted education in the United States during the past five decades suggests that these three main approaches should be considered when urging Italian policy makers to promote ~~of~~ educational policies that support students in Italian schools who have 'a potential to excel' (Pfeiffer, 2013). The professional training available suggests that the choice of a whole-school approach should be implemented in Italian schools to promote talent development. This approach, also used in many other countries, is The SEM (Renzulli & Reis, 2014). The SEM offers a combined approach to talent development, adopting acceleration, enrichment and differentiation strategies, as illustrated in Figure 1.

The SEM is an infusion based approach that provides differentiated learning experiences that take into account each student's abilities, interests, learning styles, and preferred styles of expression. Applying acceleration, differentiation and enrichment for students, this model also addresses depth, rather than breadth of content. The major components of the SEM can be adapted to either provide general enrichment opportunities for all students (Enrichment Clusters) and simultaneously ensuring the opportunities for more advanced work for highly able and motivated students (The Triad Model) who can pursue their own interest in small groups or individually. Moreover, Curriculum Compacting is an instructional differentiation technique designed to make appropriate curricular adjustments for students in any curricular area and at any grade level. The Compactor enables high ability students to

progress across the curriculum at a faster pace compared to their peers, avoiding the repetition of already mastered content.

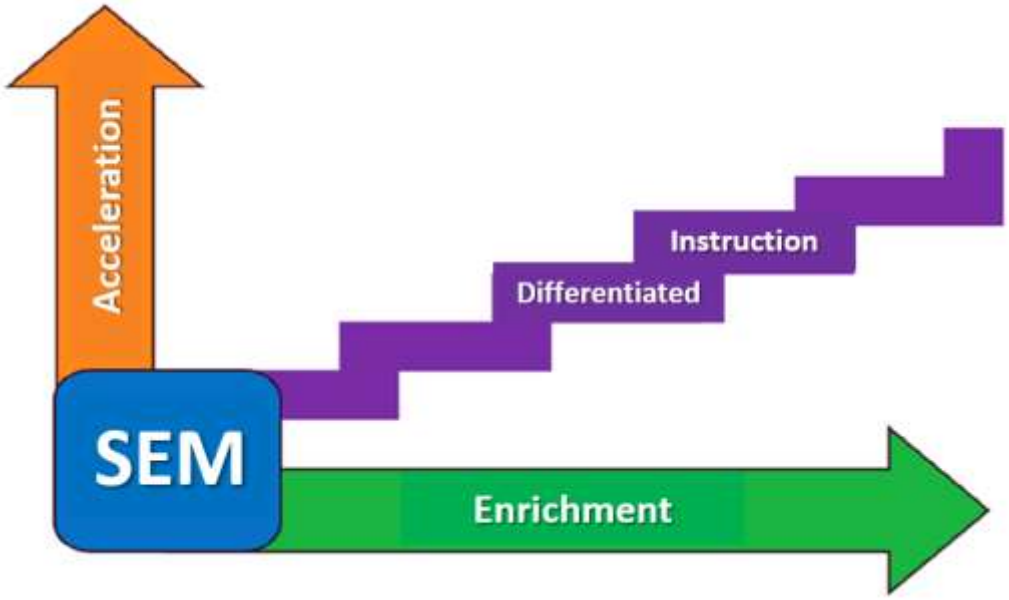


**Figure 1:** A Combined Approach to Talent Development (Milan, 2019)**.**

The SEM is based on a broadened conception of giftedness, the Three Ring Conception of Giftedness (Renzulli, 1978), and extends the pedagogy of gifted programs to a wider pool of advanced students. Renzulli and Reis (2014) believe that gifted behaviors occur in certain people (not all people), at certain times, under certain circumstances, meaning that students are not gifted, in creative productive ways, all of the time, but rather when an interest develops and they are given the opportunity to pursue that interest, and also develop their creative ideas. This process also enables them to develop their above average abilities, creativity, and task commitment.

Using the SEM, teachers can create a safe and challenging teaching and learning environment for the creative process to emerge and be developed. This perspective emphasizes the process of developing students' individual talents, as well as the need to adopt a multi-criterion approach for identifying talent, with the resulting development of flexible educational programs that respond to the different characteristics of the students. The fundamental criterion that guided the researcher's choice of a model to be implemented in Italian schools responds also to the European favorable attitude towards inclusive approaches, which avoids creating elite school paths for gifted children. The SEM (Renzulli & Reis, 2014) applies the pedagogy of gifted education to the talent development of all students, offering enrichment activities to all students and, simultaneously, ensuring advanced activity opportunities to those highly motivated students with high performances (Renzulli & Reis, 2014). A collective body of research on the SEM suggests that the model is effective at serving high-ability students in a variety of educational settings and in schools that include diverse ethnic and socio-economic populations (Reis & Peters, 2020; Reis & Renzulli, 2003). These studies also suggest that the pedagogy of the SEM can be applied to various content areas, implemented in a wide variety of settings, and used with diverse populations of students including high-ability students with learning disabilities and those who underachieve. In particular, studies in the research literature show highly favorable results for underachieving gifted students (Baum et al., 1995) when the Three Ring Conception of Giftedness (Renzulli, 1978) and the Enrichment Triad Model (Renzulli, 1977) are used as a direct intervention for counteracting underachievement.

## The current research study

This study examines the effectiveness of a two-year study in which the SEM was implemented in two schools in Vicenza, in the northern part of Italy, using teachers who agreed to participate in the study and their students. The schools involved in the pilot project are located in an

urban area and serve both urban and suburban populations with similar socioeconomic levels, school attendance, staff educational levels, and regular education programs as most public Italian schools in the Vicenza area. Vicenza is one of the country's wealthier cities. The treatment and the control school involved in the research project are located in downtown Vicenza.

Treatment School A has a population of approximately 500 students, divided in 25 classes ($6^{th}$, $7^{th}$, $8^{th}$ grades), and each class accommodates more or less 20 students. Treatment School B has a population of approximately 600 students, divided in 27 classes ($6^{th}$, $7^{th}$, $8^{th}$ grades), and each class accommodates more or less 22 students. The control school is located in a separate building in the same urban area.

The Italian school system does not provide Gifted and Talented (G&T) programs and services and regular classroom teachers are not asked to provide any acceleration, enrichment, or differentiation strategies to meet the educational needs of advanced students. Moreover, teachers do not receive any training or professional development on G&T programs, due to a lack of regional or national regulations. Indeed, in Italy there are no national guidelines on gifted education, nor is there a national or local identification system. No mandatory professional training on G&T exists in the country, and there are no graduate courses in gifted and talented education. There are no specialists in gifted education in Italy. This situation suggests that gifted education is a nascent field in Italy. Personalized or differentiated instruction is only provided to children with learning disabilities and is usually delivered by trained teachers, in keeping with the myth that high ability students don't need help as they'll do fine on their own persists. The school in which the SEM was implemented for two consecutive years includes middle school students, as displayed in Table 1. During the first year, 68 $6^{th}$ and $7^{th}$ grade students participated. During the second year, the SEM implementation continued in School B and two students joined this school and the SEM implementation, resulting in a total of 45 students: 22 $7^{th}$ graders and 23 $8^{th}$ graders. As noted, the school serves both urban and suburban populations with similar socioeconomic levels.

**Table 1:** Participants in the Research in the first year of SEM implementation.

| | **Middle School A** | **Middle School B** | |
|---|---|---|---|
| **Classes** | **$6^{th}$ Grade** | **$6^{th}$ Grade** | **$7^{th}$ Grade** |
| **Participants** | 25 | 20 | 23 |
| **Male** | 12 | 14 | 10 |
| **Female** | 13 | 6 | 13 |
| **TOT Participants** | .68 | | |

All students involved in the project participated in enrichment clusters, as well as in Type I, II and III enrichment activities. Moreover, the SEM was particularly effective in accommodating the needs of special needs students, thus proving its inclusive approach in talent development. At the beginning of the study, no students at all were identified as gifted. Students with learning disabilities actively participated and participated in all enrichment activities. In Italy, there is no universal screening to identify gifted students, and national regulations mandate that special programs for students with special needs (ADHD, autism, dyslexia, for example) participate in regular learning experiences. Accordingly, all SEM activities were offered to all students participating in grade levels included in the study.

## Assessment

The SEM offers alternate pathways to identify students' talents, as some creative students don't always test that well on standard testing achievement and aptitude scores. Profiles of the students involved in the research study were created, using adapted instruments to measure interests

and preferred modes of learning, as well as achievement test scores, Raven's Progressive Matrices , the Renzulli Learning System, and the Renzulli Rating Scales (Renzulli et al, 2013) as suggested in the SEM. A cognitive evaluation test, the Raven Progressive Matrices (RPM , Raven, 2003, 2004) was also administrated to students collectively and simultaneously in class as a screening measure of aspects of general ability. Data analysis was carried out by psychologists from the University of Pavia who treated data on a collective and anonymous basis to provide a general overview of the students involved in the study, as displayed in Table 2.

**Table 2:** Participants in the Research in the second year of SEM implementation.

| | **Middle School B** | |
|---|---|---|
| **Classes** | **7th Grade** | **8th Grade** |
| **Participants** | 22 | 23 |
| **Male** | 16 | 10 |
| **Female** | 6 | 13 |
| **TOT Participants** | 45 | |

The data summarized in this table relates to tests administered in School B at the beginning of the pilot project, during the first year of SEM implementation. The 6th and 7th grade students, during the second year of the implementation, progressed respectively to 7th and 8th grades.

**Table 3:** Scores on Raven's Progressive Matrices.

| | HIGH ≥26 | AVERAGE from 25 to 4 | LOW ≤3 | INVALID | ABSENT |
|---|---|---|---|---|---|
| Number of students in 6th Grade | 1 | 14 | 0 | 4 | 1 |
| Number of students in 7th Grade | 2 | 18 | 1 | 1 | 1 |

## The Renzulli Learning System

The senior researcher was given free access to the *Renzulli Learning System* for research purposes, which made the implementation of the SEM much easier. This research-based enhancement of the SEM (Field, 2009) is an innovative software product that creates a personalized profile of each student's academic strengths, interests, learning styles, and preferred modes of expression. The profile acts like a compass for the second step, which is a differentiation search engine that examines thousands of resources that relate specifically to each student's profile.

The heart of the SEM is the identification and nurturance of student interests, because talent flows from interest development. Therefore, students' interests and talents were assessed at the beginning of the school year. The SEM (Renzulli & Reis, 2014) provides many ready-to-use forms to survey a student's unique interests and talents. The Enrichment Specialist used If I Ran the School, Parent's Questionnaire, and The Profiler. Students involved in the research project were given the opportunity to take the Renzulli Profiler, which consists of an online diagnostic assessment that takes about 30 minutes. All the data collected, computed into files, and tallied electronically together with the student's academic results in the previous year, were assembled to create each student's profile.

The interests surveyed resulted in the ability to identify students' top three interest choices. Figure 2 shows students' first top interests, as follows: media, reading, technology, and the performing arts. Knowing that these interest areas exist could be helpful to planning appropriate interest development and enrichment opportunities for students in the school. All students were able to participate in their first choice enrichment activity. It is interesting to note that when students' top three interest areas were tallied, there are areas that were not included as highest interests, such as social action and the arts.

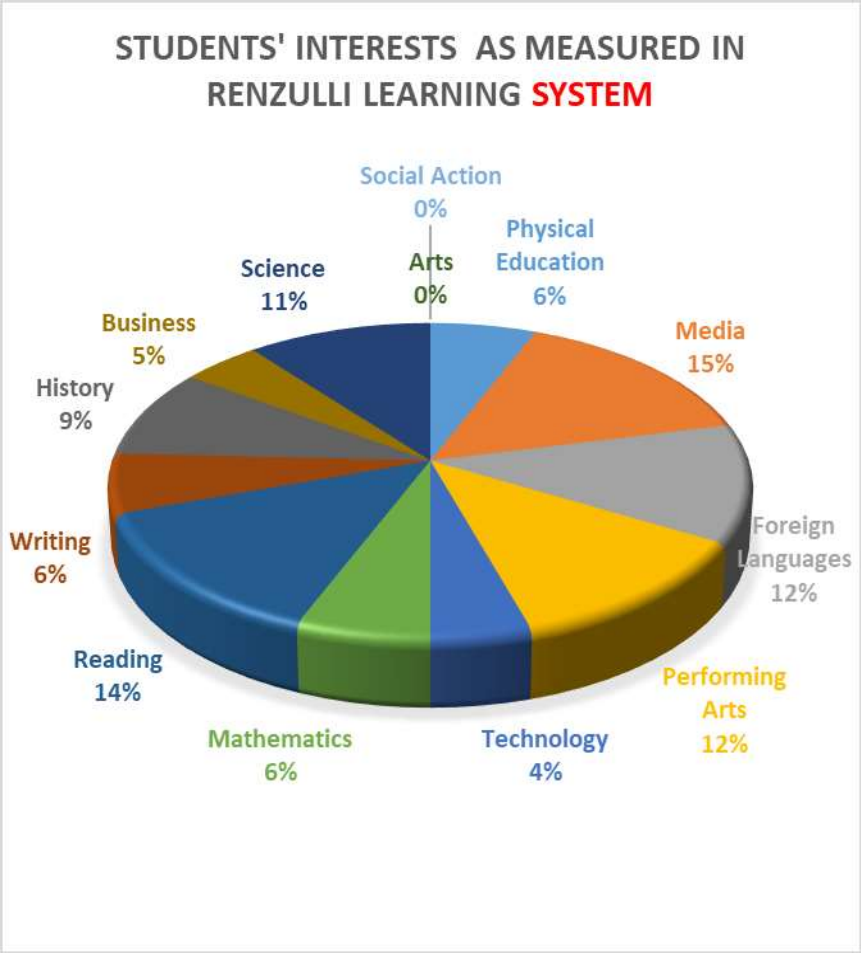


**Figure 2:** Students' Interests at the beginning of the second year of SEM implementation.

## Enrichment opportunities

The goal of the SEM is to enrich the school experience with creative activities that enable students to explore their skills and talents. Enrichment clusters, one component of the SEM, focus on the acquisition and development of practical skills. They are usually scheduled once each week, offering students the opportunity to engage in real activities, with the goal of creating an original product to be presented to an authentic public. Enrichment clusters bring together groups of students who share a common interest; they meet weekly to pursue their interests in a dedicated space and in a specially designated school timetable. Group work is supported by an adult, usually the facilitator of the clusters or a mentor who shares a particular interest and has a certain degree of competence and experience in the subject. The only requirement to participate in these activities is personal interest, both for students and facilitators.

The Enrichment Specialist started a pilot Enrichment Cluster program during the second school year at Middle School B (N = 23) and organized six different enrichment clusters, that took place in two different sessions. All students were placed in the cluster of their first choice. Mentors were enlisted among parents, teachers and professionals in the local community, namely, an account manager, two professional authors, a professional dancer and choreographer, a drama teacher, a tech engineer. Enrichment clusters usually result in the creation of services or products. All the original products produced in the clusters contributed to the creation, planning and staging of a Musical which reproduced the TV format of a talent show. This creative and stimulating musical project involved students in the process of creative writing, musical composition, performance, recording, video production techniques of the SEM experience, as well as managerial and organizational tasks. The end of the year event was fully arranged by the students participating in the research study. All creative products made a decisive contribution to the success of the musical.

Individual Type III Enrichment activities are also offered in the SEM and were completed in this research project. The Enrichment Triad Model (Renzulli, 1977) is the core curriculum for the SEM and the Triad model was used during SEM implementation to enable students to understand how one's interests can evolve into more advanced and self-selected follow-up studies (Type III). Various individual Type III creative projects spontaneously emerged during the implementation process.

**The effectiveness of the Schoolwide Enrichment Model on school change**

The SEM provides several instruments to assist with assessment and evaluation components of the enrichment activities. Questionnaires were also submitted to the students, parents and facilitators in the school using the SEM in order to collect data about the enrichment experience. Data analysis reveals positive changes in the attitudes of students, parents and teachers. Student creative products were numerous and exceeded the norm of typical student creative output in Italian schools, as there are no special services offering either enrichment, differentiated and accelerated opportunities to students with high abilities.

Most notable in the qualitative data analysis were the following general comments. Respondents noted increases in student centered enrichment activities and work on self-selected interests. They also noted greater cooperation between classroom teachers and parents, as well as their appreciation for the contributions of the gifted education specialist for the support of classroom teachers in schools. They also discussed the more favorable attitudes toward special programming on the part of both the teachers and the principal. The respondents also explained that parents displayed a new perspective on the possibility of having special enrichment programming in Italian public schools. They also noted a general new awareness and understanding of enrichment programs and gifted education goals, that is to provide more opportunities, resources, and encouragement for enrichment in the schools. The principal and teachers also identified remarkably favorable changes in attitudes toward education, as well as to the emotional and educational needs of the gifted on the part of classroom teachers.

## The control school

The control group was in the same school district as the experimental school and served both urban and suburban populations, with similar socioeconomic levels, school attendance, staff educational levels, and regular education programs. Teachers and parents in the control school were asked to complete surveys about enrichment activities and opportunities. Teachers acknowledged that students' interests were not surveyed at the beginning of each school year. Moreover, teachers admitted that students had few opportunities to pursue their interests during the regular school time. Parents' responses also confirmed that their children's interests were not surveyed at the beginning of each school year, and that parents were not asked to disclosure potential interests and talents their children display at home. Nonetheless, parents' beliefs that their children have the opportunity to pursue their interests during the regular school time was more positive than what teachers reported. The teachers and parents in the control school reported little if any enrichment or talent development opportunities offered in the school.

## Analysis of student productivity

Creativity is one of the most important goals in education, career planning, and the traits sought by employers in all walks of life and is a major goal of the SEM. The measurement of creative potential or ability is, however, expensive and time consuming as most widely used assessment instruments are paper-based and scored manually. The major aim of this research was to examine students' creative products that emerged as a result of enrichment clusters (i.e., small group studies for the creation of an original product or service to be presented to an authentic audience) and Type III activities at the treatment schools. This research examined this issue by examining students' creative work in the Schoolwide Enrichment Model activities. Calculation of a simple mean from the tallies yielded the mean number of original products that emerged from number of tallies produced in the SEM school. Due to the absence of training in Schoolwide Enrichment opportunities and

processes, the control group students were not expected to produce creative products, so comparison to the control school was not conducted on this aspect of the study. This SEM implementation process resulted in a total of 11 enrichment clusters initiated that were implemented as students completed products and three individual Type III enrichment activities. In Table 4, the number of enrichment clusters offered and the creative products or services completed are summarized.

**Table 4:** Production of original products during the second year of SEM implementation at School B.

| Treatment Site | N. of Clusters offered | N. of Products completed on Clusters | N. of Type III Activities | N. of Products completed on Type III Activities | Percent |
|---|---|---|---|---|---|
| Middle School B | 6 | 6 | 3 | 3 | 100 |

## Discussion

The specific factors examined in this research study were student attitudes toward learning, teacher and parent attitudes toward enrichment programs, the extent and quality of students' creative productivity, and the processes involved in the implementation of SEM. The three initial goals of this study about the SEM included the following:

- to determine if a school's participation in this type of program would result in specific and quantifiable indicators of schoolwide change;
- to examine whether students' participation in enrichment opportunities would result in more favorable attitudes toward the entire concept of gifted education; and,
- to determine the extent and quality of students' creative productivity.

The implementation of the SEM in this school, the first time in Italy that students in a public school were exposed to the SEM, was successful. Despite the initial reluctance of participating teachers, toward the end of the pilot project the benefits of the SEM in this school were evident, and the administrators decided to be at the forefront of a new trend in talent development in Italy. In order to be successful, they will need to gain all teachers' commitment to continue the SEM at the treatment school. Another positive outcome is that another school will be designated a SEM Elementary School in the same city as the treatment school. Another important result is that the SEM project is beginning to multiply across the country and more teachers and principals are becoming interested in the SEM, resulting in additional gifted and talented and SEM training sessions for groups of teachers across the nation.

## Conclusion

This study implemented the Schoolwide Enrichment Model (Renzulli & Reis, 2014), to promote talent development in Italian schools. The results of this study suggest that the students' attitudes toward learning were positively enhanced by participation in the SEM. The descriptive data found that students became increasingly positive about school and the variety of opportunities offered for learning. This was particularly evident in terms of students' beliefs that their interests were considered in determining the nature of the enrichment activities in which they would become involved. The results also indicated that, after initial reluctance about participating in training sessions, these negative attitudes were ameliorated after the stress related to implementation of new programming subsided, and as the SEM began to provide positive outcomes for students. Research on school change (Berman & McLaughlin, 1979; Hord et al., 1987; Loucks, 1982; Sarason, 1982) has found that teachers tend to be slow in altering attitudes toward large-scale aspects of education and using the SEM requires whole school buy-in. In the end, teachers participating in the treatment project developed a more positive impression of gifted education which resulted in their willingness to become the first Italian teachers of the first SEM class ever inaugurated in an Italian public school. The local press was very positive about this first attempt to adopt a talent development approach in an Italian school, even if regulations and funding do not exist for this initiative at this time. This positive press resulted in administrators gaining a more positive feeling of being at the forefront of educational change.

The results of the present investigation raise several important points about using enrichment programs for students and teachers. First, students' attitudes toward school learning processes were positively enhanced by SEM implementation and they started to view school as a place that more accurately addressed their personal needs by providing them with opportunities to pursue their interests that they might not have ever had in school. The logical consequence is that heightened levels of student attitudes toward learning would ultimately enhance both the quantity and quality of pupils' learning. Perhaps, even more important were the positive attitudinal changes that emerged in the qualitative data in this research. A general finding was that the pursuit of individual interests should be acceptable and encouraged in Italian schools. A second finding was that enrichment provides a means for obtaining opportunities for greater exploration, training, and creative production within topics based on one's interests. In addition, both parents and students came to believe that schools should enable students to become more attuned to their own personal needs and interests while acquiring the skills necessary for successful adulthood.

In light of the many critics of education and the many different approaches adopted in Europe, this study using the SEM appears to offer a solution that could contribute significantly to lower Italy's rate of student drop-out, which is one of the highest among European Countries. Engagement in enrichment opportunities may help to increase engagement in school (Renzulli & Reis, 2014). Second, the implementation of a system of Schoolwide Enrichment activities contributes to the revival of teachers' enthusiasm toward teaching. The SEM implementation in the treatment school demonstrated that as talent development began, students, parents, teachers, and administrators viewed their school in a different way. Students became more excited and engaged in what they are learning; parents found more opportunities to become involved in various aspects of their children's education; teachers began to find and use a variety of resources that, since the start of the project, seldom have been used in classrooms; and administrators started to make decisions that affect positive outcomes in learning opportunities conducive to implementing the SEM.

## Implications and future research

It seems evident in 2021 that we should adopt different strategies to ensure that our most able students will solve the problems that threaten our societies. As educators, it is our responsibility to do everything possible to nurture and develop higher thinking skills in our students**.** Despite a 50 years gap and a lack of expertise in the G&T field, this research on SEM implementation in Italian Public Schools suggests that Italian schools can adopt programs and strategies to enhance students' gifts and talents. It also suggests that a talent development model originally created and implemented in American schools can be integrated in the Italian School System. Another positive aspect of this research study is that, in absence of national dispositions on how to identify high ability students, the SEM can assist teachers by providing them with useful tools. Expanded methods of identification, such as rating scales can be valid instruments for screening students for identification and subsequent participation in the gifted and talented programs which, however, do not yet exist in Italy.

The research study also suggests the need to invest in professional development in gifted education in Italy to help teachers learn how to implement teaching strategies to develop students' individual strengths and interests. This could help give voice to teacher concerns and needs, enabling them to learn and contribute to capacity building of differentiation and enrichment practices in Italy. These strategies, integrated into the SEM, may also enable teachers to respond to the special educational needs of gifted and twice exceptional students in Italian schools. These findings may also point to the need for teacher and student support that could be provided by a new professional figure in Italy, namely an Enrichment Specialist. These individuals can help to guarantee that future national provisions and best practices will be put in place in both public and private schools. Opportunities are offered to promote talent development and creativity in all young people, and especially in talented students. Recent controversies over the elimination of gifted education programs in urban areas such as New York City (Brody, 2019) must be viewed in the larger context of the role that schools need to play in changing world conditions, career development opportunities, the job market and the ways in which we can better prepare all of our young people for happy and productive futures (Renzulli & Reis, 2019).

Traditional gifted education activities are made available to a restricted number of students, and the unfortunate by product of this 'elitism' approach has been negative attitudes toward gifted education on the parts of many people in general education. Renzulli and Reis suggest that if educators want to rethink educational opportunities for talent development intelligently, the conversation should not be about eliminating gifted programs, but rather, about extending the opportunities, resources, and support that characterize gifted programs to more students. The hope is that Italy will be able to take advantage of the experiences and waves of trend that characterized the G&T field in the past fifty years in the United States, and learn how to broadly apply the pedagogical spirit of many gifted education programs to the school population.

Regardless of existing differences in terminology, definitions of giftedness, identification systems, the fundamental task of gifted education is how to cultivate human potential and help create productive and fulfilling life trajectories and pathways for those showing great promise, which are beneficial to society as well as individuals. (Dai, 2018). The talent development approach that emerged in the late twentieth century thanks to the pioneering work of Joseph Renzulli and Sally Reis, has become a major force in gifted education, and the new understanding of the nature and nurture of high potential that they generated has helped to guide new pathways of gifted and talented programming (Dai, 2018).

As Robert Sternberg put it, "The field of gifted education has had many scholars to work in it, but there have been two giants in the field - Lewis Terman and Joseph Renzulli" (Reis, 2015, page xiv Preface). Renzulli's Three-Ring Conception of Giftedness (1978) with its emphasis on the importance of talent developments revolutionized the field of gifted education and ushered in an era marked by more inclusive approaches to gifted identification and services. This will hopefully also begin a new movement in Italy.

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## About the Authors

**Lara Milan**, *Ph.D.* in Psychology, Neuroscience and Medical Statistics at the University of Pavia, implemented the Schoolwide Enrichment Model in the Italian public school for the first time in Italy. Specialist in Gifted Education and Talent Development, she earned the Graduate Certificate in Gifted Education and Talent Development at the University of Connecticut, USA. Founder of SEM Italy, promoting talent development in Italian schools. She is the co-author with Joseph Renzulli and Sally Reis, of the Italian edition of the *Schoolwide Enrichment Model*, will publish the first Handbook on Gifted Education and Talent Development in Italy.

**Sally M. Reis** is the Former Vice Provost of Academic Affairs and a Board of Trustees Distinguished Professor at The University of Connecticut. She is past Department Head of Educational Psychology Department, where she also serves as a Principal Investigator for the National Research Center on the Gifted and Talented. She was a teacher for 15 years, 11 of which were spent working with gifted students on the elementary, junior high, and high school levels. She has authored or co-authored over 250 articles, books, book chapters, monographs and technical reports. Her most recent work is a computer-based assessment of student strengths integrated with an Internet based search engine that matches enrichment activities and resources with individual student profiles. Dr. Reis is the Co-Director of Confratute, the longest running summer institute in the development of gifts and talents. She is co-author of The Schoolwide Enrichment Model, The Secondary Triad Model, and Dilemmas in Talent Development in the Middle Years. Dr. Reis serves on several editorial boards, including the Gifted Child Quarterly, and is a past President of the National Association for Gifted Children. She recently was honored with the highest award in her field as the Distinguished Scholar of the National Association for Gifted Children and named a fellow of the American Psychological Association.

## Addresses

**Sally M. Reis**;
Renzulli Center for Creativity, Gifted Education, and Talent Development Neag School of Education;
University of Connecticut; 2131 Hillside Road Unit 3007;
Storrs, CT 06269-3007; USA.

**e-Mail:** sally.reis@uconn.edu

**Lara Milan**;
Contra' Orefice 9;
36100 Vicenza – Italy.

**e-Mail:** lara.milan@semitaly.com

# The Catch-A-Wave Theory of Adaptability: Core Competencies for Developing Gifted Behaviors in the Second Machine Age of Technology

**Joseph S. Renzulli**
Distinguished Professor of Educational Psychology
The University of Connecticut, Storrs, Connecticut, USA

## Abstract

In this article, I describe a series of Five Core Competencies that gifted education specialists should consider integrating into their teaching to respond to the many changes that are taking place in technology, work, and career preparation. Although the focus of this theory is on high- level jobs usually pursued by college graduates and advanced degree students, this work also has relevance for the general-education community because future employment at all levels will require various degrees of proficiency in the Core Competencies discussed below. Students who will pursue college degrees and professional level jobs will need to attain advanced levels of these skills, have the opportunity to explore a wide range of skills, and be able to learn them more rapidly. Students should be placed in learning situations that require the adaptability that is the theme of this article so that they will learn to apply the skills in ways that will lead to success in job-transformational situations. Leadership and advanced-level positions require high levels of both performance and flexibility in the competencies that will be discussed below. The Catch-A-Wave Theory of Adaptability will be introduced with the presentation of background information and a rationale for the theory. The theory itself along with the five Core Competencies included in the theory will follow and then be supplemented with a section that provides strategies and resources for developing those competencies.

It is not the strongest that survives, nor the most intelligent.
It is the one that is most adaptable to change.
Those that have learned to collaborate and improve will prevail.

**Charles Darwin**
(Author of Origin of Species in the Struggle for Life (1859))

**Keywords:** Thinking skills; research and investigative skills; creativity; talent development; technology.

## Part I. Background and underlying rationale

The job market in industrialized countries around the world is changing, with profound implications for instruction in our general-education classrooms and in programs designed to develop gifted behaviors and high levels of talents in our most advanced students. The Organization for Economic Cooperation and Development published a recent study (OECD, 2019) concluding that today's educators are lagging in preparing students for tomorrow's jobs. The 41-nation study found that students' career aspirations do not reflect the dramatic technological and social changes transforming the workplace. In fact, teenagers' "dream jobs" today are nearly identical to those in 2000. Many of these jobs, however, are at risk of being eliminated or dramatically transformed, placing many individuals at a disadvantage in the rapidly evolving job market and shifting economy. For example, according to a recent survey of economists, business and industry leaders, and human resource specialists, 47% of U. S. jobs at all levels are at risk for elimination in the next two decades (Singapore Ministry of Education, 2018). Further, the report pointed out that only 40% of employers believe that new college graduates are adequately prepared for the future workforce, as they have not learned advanced technology skills and the so called "soft skills" necessary for jobs in the future.

In a comprehensive Rand Report (Zaber et al., 2019) describe employers' difficulty in finding employees with the skills necessary for the 21st century work force. They conclude that a majority of today's curricula (including college and university level courses) are almost totally inadequate for meeting the needs of the rapidly changing job market. They further emphasized that the term "workforce preparation" doesn't apply only to routine job preparation, but also includes the education of persons for the highest-level positions in all career categories and professions.

The purpose of this article is to address a mainly ignored new challenge that will have an important impact on gifted education programs, general education, and college and university curricula around the world. The Industrial Revolution created the world's first machine age and the advent of computers resulted in what is now referred to as the First Information Age. Artificial Intelligence (AI), the ability of computer systems to perform tasks that normally require human intelligence, such as visual perception, speech recognition, decision-making, and translation between languages, has now ushered in what is being called The Second Machine Age (Brynjolfsson & McAffee, 2016).

The rationale for the viewpoint offered here is compelling. The Industrial Revolution, and even the First Machine Age, influenced occupations that were mostly routine and carried out by people who possessed either physical strength or the easily taught skills needed to perform them. The types of college-dependent occupations and careers to which many high ability students aspire (doctors, lawyers, architects, engineers, writers, etc.) were thought to be "safe" from being taken over by machines. Brynjolfsson and McAffee (2016) and Frey (2019) provide examples of how AI has now made dramatic changes even in the most advanced level professions. For example, in the legal profession, a new software program can analyze an infinite number of court cases on a given issue, tease out precedents, formulate arguments, and draft briefs at a pace no human could ever hope to match (Levy & Murnane, 2004). In the field of medicine and health care, psychotherapists are providing telehealth services, and surgical robots that can be controlled from far-away places are now being used to treat a variety of conditions (Autor, 2010). Their use has resulted in less pain and infection, faster recovery periods, and a reduction in scars. Furthermore, new tele-ultrasound systems in radiology at major medical facilities enable hand-held devices to capture and transmit real-time medical diagnosis and treatment information that will reduce the need for local facilities and technicians (Rimm, 2011). Artificial Intelligence applications to creative writing and journalism now allow sports writers, for example, to enter a series of facts about a given game or event into Google's Watson Authoring Program and receive a fairly accurate completed first draft of an article for the writer (IBM Watson, n.d.). The advent of AI has even resulted in people working in the creative design of technology to face new challenges.

Computer Vision Software (Computer Vision, n. d.), for example, is a discipline within artificial intelligence and an application that allows a computer to see and understand what it is seeing. This application allows designers to generate HTML code directly from a hand-drawn image. These recent and exciting advances in technology should provide a wake-up call and a challenge to rethink both general and gifted education in ways that enable students to be more mentally agile and adaptable to the ongoing and inevitable future developments in technology.

Wireless technology has revolutionized the world, and now even the most remote areas on earth have access to resources that affect their economy, education, health care, communication, and social and cultural contexts. These technologies are already enabling people around the globe to access resources with the potential to create a brighter future in even the remote corners of the earth. A major mission of education at all levels, therefore, should be to equip young people with the Learning-How-To-Learn Skills as described in the Core Competencies in Part III of this paper. Teachers, administrators, and policy makers who fail to learn these skills themselves and create opportunities for students to learn how to gain advanced skills, are placing the future relevance of our educational institutions at all levels in jeopardy.

Although nearly two decades have elapsed since the turn of the 21st Century, the American approach to education, training, and workforce development still largely operates on a 20th century

model. Workforce preparation, a linear pipeline from K–12 education to possible college and career options, is similar to what it was several decades ago – high school, college, in some cases graduate or professional school, and then on to a job. Labor-market policies designed for the Industrial Age prevail, and the information that flows between members of the current and future workforce, education and training institutions, and employers have not kept pace with the revolutionary changes taking place in society.

Recognizing the value of interdisciplinary collaboration and systems thinking, RAND Corporation researchers (Zaber et al., 2019) conducted a study to develop a systems-level, unrestricted brainstorming approach to conceptualizing and visualizing a 21st-century U.S. workforce development and employment system. This report is the first step in moving the United States to a system that accounts for workers' needs for lifelong learning, employers' continuously changing workforce requirements, rapid and often disruptive changes in technology, and the ever-evolving nature of work. These changing career conditions should be of interest to educators, business leaders, policymakers, researchers, and other stakeholders who are engaged in issues relating to workforce preparation, career education, and any of the new certificate programs being developed for training that relates to the future of work. The following theory provides a framework for educators in gifted and talented programs to help their students develop these skills.

In a recent report published by the Organization for Economic Cooperation (OECD) and Development entitled Schools of the Future (OCED, 2019 the authors recommend the following eight high-quality learning experiences to prepare students for what they call the Fourth Industrial Revolution:

1. Global citizenship skills: Include content that focuses on building awareness about the wider world, sustainability, and playing an active role in the global community.
2. Innovation and creativity skills: Include content that fosters skills required for innovation, including complex problem-solving, analytical thinking, creativity and systems analysis.
3. Technology skills: Include content that is based on developing digital skills, including programming, digital responsibility, and the use of technology.
4. Interpersonal skills: Include content that focuses on emotional intelligence, including empathy, cooperation, negotiation, leadership, and social awareness.
5. Personalized and self-paced learning: Move from a system where learning is standardized, to one based on the diverse individual needs of each learner, and flexible enough to enable each learner to progress at their own pace.
6. Accessible and inclusive learning: Move from a system where learning is confined to those with access to school buildings to one in which everyone has access to learning and is therefore inclusive.
7. Problem-based and collaborative learning: Move from process-based to project- and problem-based content delivery, requiring peer collaboration and more closely mirroring the future of work.
8. Lifelong and student-driven learning: Move from a system where learning and skill acquisition decrease over one's lifespan to one where everyone continuously improves on existing skills and acquires new ones based on their individual needs. (pp. 7–8).

Although it is difficult to make predictions about good education for the future, the recent worldwide COVID-19 pandemic might actually give us a hint on how the creative use of technology has shown its usefulness and practicality. From preschool to graduate school, online learning experiences were delivered in different ways from traditional schooling and a good deal of the business of the world; in addition, social interactions took place through a variety of on-line web - conferencing programs. But even before this unintended "field test" of alternative resources for the delivery of learning, several vehicles for different learning systems began to make their way into education and the workplace.

## Part II. The Catch-A-Wave Theory of Adaptability

The Catch-A-Wave Theory of Adaptability provides a possible foundation for teaching and learning based on emerging technologies. It enumerates an expanded range of competencies required to meet the changing skill requirements for new and evolving careers. Adaptability in the Catch-A-

Wave Theory is the ability to adjust to any given learning or working situation at any given time. Theories are nothing more than systems or sets of ideas intended to explain something, provide a rationale for practices advocated by the theory, and generate research based on those practices. The true value of any theory ultimately rests on its implementation in practical situations; it is hoped that this theory will generate other applications for interested researchers to produce findings that shed light on the value of these ideas. Sternberg (2019), for example, discussed how humans are unique in their high ability to adapt to environments by selecting environments and by making changes that suit their needs. This theory focuses on five sets of Core Competencies specific to adaptability within the skilled job market, along with and the academic and practical resources necessary to inform and guide teachers and students in learning these competencies.

The motivation for the development of this theory has been discussed above. The Catch-A-Wave Theory of Adaptability was designed to address the concerns raised by the studies mentioned above and describes strategies for developing Second Machine Age Core Competencies in K–12 schools and higher education. The name of the theory is a metaphor from the sport of surfing. Catching a wave and riding it well is analogous to the first step in surfing (see Figure 1). But when the wave runs its course or the surfer crashes in a "wipe out," it becomes necessary to paddle back into the surf and catch a new wave.

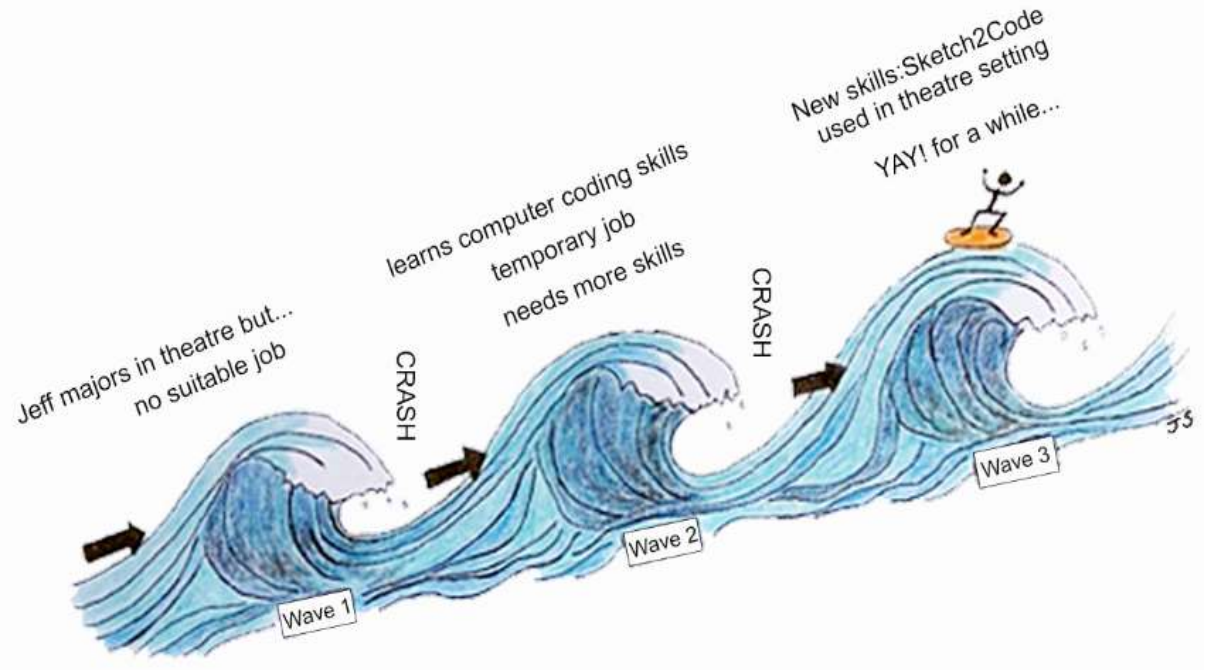


**Figure 1:** Figural representation of the Catch-A-Wave Theory of Adaptability.

The theory can be described quite simply: learners must not only acquire knowledge and skills, they must also learn how to acquire new knowledge and skills, continuously and independently, and to flexibly adjust their goals flexibly as opportunities arise and falter. The Catch-A-Wave Theory of Adaptability rests on an important distinction between two sources for the acquisition of knowledge and skills. It is generally agreed that a strong knowledge background in basic concepts within a given field of interest and study, research methods in that field, and application options and opportunities in that field are necessary for understanding and making contributions to a field (Renzulli, 1982; 2016). The old cliché, "You can't be analytic or creative with an empty head," emphasizes this point. The first source of knowledge, "To-Be-Presented" knowledge, is that which drives traditional teaching practices, textbooks, and standardized curriculum; and these approaches have certainly demonstrated their value in preparing young people with basic knowledge for advancement in both schooling and the job market. But today's technology-driven world, with its instant access to information, has made another kind of information acquisition readily accessible for learning and problem solving.

This second approach to the acquisition of knowledge focuses on what is immediately relevant to a given challenge or project upon which one is working. This type of information can be labeled "Just-In-Time" (JIT) knowledge (as distinct from To-Be-Presented knowledge), and although determining the relevance of found JIT knowledge is dependent on an understanding of the basics, the ability to determine what you need to know and where to find it are necessary skills for developing the Core Competencies discussed below. Thus, learning-how-to-learn skills for acquiring JIT knowledge might be the most important basic skill needed in developing adaptability necessary for 21st Century learners at all levels. These skills are exactly what researchers and innovative practicing professionals have employed for years. Unfortunately, many, if not most schools (including colleges and universities), continue to place major focus on acquisition of To-Be-Presented knowledge using didactic and prescriptive approaches to instruction (Brynjolfsson & McAffee, 2016; Frey, 2019).

The underlying idea of the Catch-A-Wave Theory of Adaptability is perhaps best understood through an example. Jeff, a college graduate who majored in theater, found that opportunities for work in this area were few and far between, even for a graduate from one of America's best fine arts universities. In other words, he crashed on his first wave and needed to catch another wave to continue to advance in his career. He decided to take a course in computer coding and quickly obtained a position that employed his new technological skills in the entertainment sector. The position didn't last long because of the need for more sophisticated technology, so he had to swim out again and catch another wave. This wave required advanced training in a program called Sketch2Code, which uses artificial intelligence to convert hand-written drawings into working HTML prototypes. Designers share ideas through the Internet on a whiteboard, and each person's contributions and changes are shown instantly in their browser. Armed with these advanced new skills, Jeff immediately landed a new job. In other words, when the first wave he was riding crashed, he "swam out" by learning new skills and then caught a new wave so he could continue to be productive in his field. He will undoubtedly need to continue this process as new changes in technology continue to emerge at a rapidly growing pace. Jeff explained how he manages his constant upskilling as follows, "For example, if I wanted to learn how to integrate remote data into a software application, I would try to create a small tool that fetched the latest tweets from <https://twitter.com> and displayed them. After completing that activity, I would likely see what the next incremental step would be, and I could plan a small project to get me there" (personal communication). While it is difficult to determine how long a wave will last, an understanding of the data associated with job information in one's respective career areas is essential for all aspiring professionals. Burning Glass Technologies (2019) is a useful source for following career changes and developments in several fields.

## Part III. Core Competencies for Adaptable Learning

The elimination of jobs at all levels and the uncontested recognition of major changes that will be required to perform effectively in higher level careers have thus become the focus of this theory. *Five* **Core Competencies** *or general areas of proficiency are critical for preparing young people to successfully make decisions about career choice and for preparing them for the inevitable job market changes that will define all future high-level professions and careers.* There is no particular order of importance in the list of Core Competencies either across the competencies or within each competency. The Core Competencies are as follows:

- Higher Level Analytic Thinking Skills
- ***Creativity Skills***[1]
- Basic Investigative Research Skills
- Executive Function Skills
- Learning-How-To-Learn Skills in Technology

[1] Creativity Skills are sometimes considered as part of Higher Level Thinking Skills but treated as a separate category here because of the predominant emphasis being placed on them in high level career paths. The same argument could be made for Executive Function Skills. In the model developed here, the first category focuses on Higher Level *Analytic* Skills.

A figural representation of the five Core Competencies is presented in Figure 2. This figure is purposefully designed to emphasize the interaction between and among these five competencies. In other words, no single competency will equip a person to progress in his or her career path or to seek new career options; all will be required, and they will need to be fluently used together. It is important to reflect on the overlap among the skills. For example, creativity shares some of the skills for higher-level analytic thinking, investigative research skills, and executive functions.

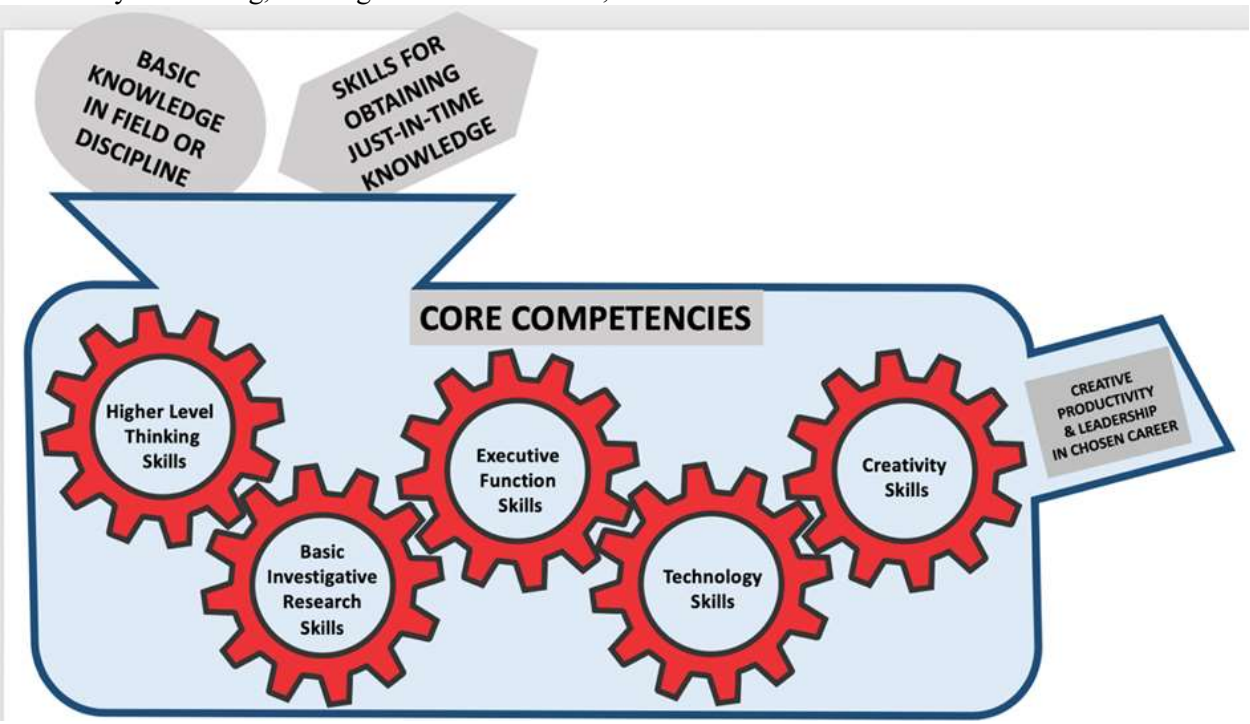


*Figure 2:* ***Core Competencies for the Catch-A-Wave Theory of Adaptability.***

***The Core Competencies*** are discussed in greater detail below and should be considered priorities in designing programs for high ability and talented youth, as for well as other students with high aspirations and goals for future engaging and challenging work. Some of these ***competencies*** are already well known to many educators but are included here to call attention to the overall or "big picture" of what the adaptability theory is all about. Teachers must understand how to find the resources and practical implementation strategies to guide students in acquiring the five Core Competencies described below.

- **Higher Level Analytic Thinking Skills (The Traditional Goals of Gifted Education):** Critical Thinking, Problem Solving, Decision Making, Analysis, Synthesis, Evaluation.

This category of Core Competencies is well known to gifted-education specialists and persons interested in infusing more thinking skills into the regular curriculum. A number of authors have helpful information, and research relating to this competency that can guide teachers and other professionals in selecting relevant skills for their classrooms (Bloom, 1956; Halpern, 1996, 1998; Sternberg, 1996). Practical teaching resources are listed in Appendix A: Resources for Teaching Core Competencies.

- ***Creativity Skills:***
  ***Curiosity, Brainstorming,*** Substituting, Questioning, Reframing, Imagining, Modifying, Combining, Adapting, Eliminating, Reversing, Magnifying, Minifying, Putting to Another Use.

This set of skills is also fairly well known to gifted-education specialists. Vast numbers of books and articles have been devoted to studying just about every aspect of both the research and

theoretical nature of creativity and on the practical strategies for creativity training for young people (e.g., Kaufman & Beghetto, 2009; Kaufman & Sternberg, 2019; Renzulli & de Wet, 2010). Although creativity is almost always included alongside Higher Level Thinking Skills, it is regarded as a separate set of major ***Core Competencies*** because of the overwhelming emphasis that all writers on this topic and almost all employers have placed on the importance of creativity for the promotion of the kinds of career-related adaptability that is the focus of this article. Practical teaching resources can be found in Appendix A.

- **Basic Investigative Research Skills**
  Developing a Hypothesis or Research Question, Reviewing Relevant Research, Planning and Scheduling, Finding or Developing Data Gathering Instruments or Techniques, Organizing and Classifying Information. Analyzing Data, Drawing Conclusions, Writing Reports and Communicating Results

Most teachers have had a course that covers the basic concepts and procedures for conducting the research skills listed above. This set of Core Competencies is essentially how most people in the sciences go about creating new knowledge, and even people in other areas such as business, entrepreneurship, public service, and the arts follow similar patterns to develop new ideas, products, services, and forms of entertainment. These skills obviously differ in sophistication by age levels, backgrounds and experiences in selected areas of study, as well as the tools and resources are at the disposal of investigators. This Core Competency is listed separately from the more general Higher Level Thinking Skills because of the applied nature of these skills; one can use analytical skills to compare and contrast two readings or objects in an isolated practice scenario, but investigative research, even at a junior level, involves putting the more abstract skills to work together. General information for professionals on topics related to investigative research skills can be found in Borg and Gall, (2018), Efron and Ravid, (2019), and Plano-Clark and Creswell, (2015). Some excellent materials that teachers can use to develop these skills in young people are listed in Appendix A.

- **Executive Function Skills:**
  Action Orientation, Realistic Self-Assessment, Optimism, Social Interaction, Awareness of the Needs of Others, Altruistic Leadership.

Executive functions are the skills needed to successfully execute the skills of higher-level thinking, creativity, and research in school and in the careers that are an outcome of our education system. These important skills, listed in greater detail in Figure 3 below, are sometimes referred to as the "Soft Skills." They have been widely discussed in publications in recent years, because of a growing concern about the important role they play for career development and professional growth in today's rapidly changing job market. These skills are also sometimes labeled as "co-cognitive skills" because they are not intended to replace the traditional cognitive skills described above as higher-level thinking skills or creativity. Rather, they are intended to enhance traditionally labeled thinking skills such as knowledge acquisition, comprehension, analysis, synthesis, and evaluation. The acquisition of these traditional or "hard skills" is usually documented by report cards, college transcripts, and formal tests (IQ, State Achievement Tests, SAT, GRE, LSAT, etc.), and include the kinds of information that employers evaluate in ensuring that prospective employees have the technical skills to pursue a particular job or career competently.

However, it is the "soft skills" that enable a collaborative and altruistic work environment (Seligman, 1990)). The Executive Functions detailed in Figure 3 are not as easily or objectively identified. Their value has rapidly grown in importance as more and more employers also look for information about whether or not prospective employees bring imagination, creativity, innovation, and effective leadership to their organization. They seek these kinds of leadership skills to fulfil positions that will grow their organizations, businesses, government or non-profit agencies, and groups promoting commercial products, ideas, beliefs, values, or other fundamental principles of their organizations. Among the five categories of ***Core Competencies*** discussed in this article, the Executive Function skills are best acquired through work on projects and any other activities that

require teamwork, collaboration, the application of knowledge and thinking skills, and the pursuit of a product or outcome that has an impact on a targeted audience.

Two major books in this area (Hoerr, 2016; Seligman, 1990) provide a general introduction, orientation, and numerous references to the many studies that have been conducted on executive functions. Seligman offers many techniques to develop optimism and the other types of personal skills listed above that contribute to engagement in one's work, working effectively with others, and developing meaningful life skills. Hoerr's work is designed to help students develop attributes that aren't typically measured on standardized tests, but that help students develop self-control, see the world through others' perspectives, recognize and appreciate human differences, and prepare themselves for a future education and career in which the only constant is change.

| | |
|---|---|
| **A. Action Orientation**<br>Goal setting<br>Decision Making<br>Networking<br>Organization<br>Perseverance & Persistence<br>Time Management<br>Delegation of Responsibilities<br>Focus<br>Attention to Details<br>Creativity• | **B. Realistic Self-Assessment**<br>Appraisal of Personal Strengths and Weaknesses<br>Confidence in Leadership Skills<br>Willingness to Accept and Act Upon Constructive Feedback<br>Optimism<br>Self-Management<br>Self-Motivation<br>Sense of Humor |
| **C. Social Interaction**<br>Listening<br>Written, Verbal, and Non -Verbal communication<br>Friendliness<br>Respect for the Opinions of Others<br>Cooperation and Collaboration | **D. Awareness of the Needs of Others**<br>Empathy<br>Tolerance<br>Generosity<br>Kindness<br>Patience<br>Calmness<br>Trust |
| **E. Altruistic Leadership**<br>Teamwork<br>Positive Reinforcement<br>Recognition of Other's Strengths<br>Negotiation and Mediation<br>Openness to Idea Exchange | |
| • Creativity is treated as a major Core Competency category in this article, but it also used in the Executive Function Taxonomy when the Taxonomy but is used for other purposes. | |

**Figure 3:** Taxonomy of Executive Function Skills.

- Learning-How-To-Learn Skills in Technology:
  Identify Trustworthy and Useful Information, Selectively Manage Overabundant Information, Organizing, Classifying, and Evaluating Information, Use Relevant Information to Advance One's Work, Communicating Information Effectively, Planning One's Own Learning by Setting Reasonable and Incremental Goals, and Conceiving and Carrying Out Self-Driven, Hands-On Projects That Operationalize Those Goals

Most of the early work on learning-how-to-learn skills focused on the acquisition, storage, and retrieval of knowledge with resulting lists of skills that include reading, note taking, outlining, summarizing, and related skills such as underlining, highlighting, creating note cards, and using graphic organizers. The advent of the Internet and the Second Machine Age have radically improved the speed and efficiency for acquiring the Information-Age skills necessary for young people to learn new material quickly and easily. The new kind of learning-how-to-learn, however, is not a one-shot phenomenon. Rather, it requires a lifelong learning frame of mind that can adapt to and keep

pace with the never-ending changes in technology. The works of Brynjolfsson and McAfee (2016) and Frey (2019) are comprehensive overviews that contain numerous references for persons who want to delve deeper in the dynamic changes taking place in technology and the impact technology is having and will continue to have on all levels of education institutions. Because of the importance of upskilling in this a particular category of learning, the practical resources for teachers in Appendix A have been supplemented with numerous web sites on coding in Appendix B.

Teaching technology skills is a relatively new addition to general-education teachers' repertoires of responsibilities. More attention is given to this Core Competency because of the critical role that technology plays in the Adaptability theory and the necessary how-to resources that teachers need in order to pursue this topic with their students. Some of the references listed in Appendix B have been included in the recommendations for both teachers and students because of their general treatment of the topic and the practical information necessary to acquiring skills in technology.

Although some educators have included technological skills? ( in their programs for many years, one type of technological skill that is fairly new for most general educators is programming or coding. These logical thinking skills allow a programmer to use code to convert human ideas into instructions that a computer can understand (International Society for Technology in Education and the Computer Science Teachers Association, 2011). Even in work that does not involve coding, an understanding of how a computer "thinks" with code may help users of technology to understand how their devices function, which in turn should enable them to solve related problems.

Professions that require coding skills are prevalent across industries and are expected to become more common in the future (Burning Glass Technologies, 2019). Coding, or programming, requires clearly defining the problem at hand, knowing what types of actions the computer can take, and correctly writing or arranging instructions (the "code") that tell the computer to do those actions. Other transferable and "soft" skills can also be developed by learning to code. For example, coding is usually an iterative process, as programmers develop a partial solution, get feedback from users (or from their own examination of the output), and then revise the program or continue to build extensions of it. Iteration is a key part of all complex investigations, creative endeavors, and problem-solving processes. It requires patience, frustration tolerance, and acceptance of critical feedback. Learning to code is one way that children can learn these soft skills (Popat & Starkey, 2019; Strawhacker & Bers, 2019).

## How Children Learn Coding Skills

When learning to code, students typically learn to use simplified, visual programming tools that allow them to build programs with pre-made blocks of codes that can be stacked together to form a sequence of instructions. Some toys have even been developed for very young children that enable them to code without a screen by physically arranging objects or by pushing directional buttons that are used to create a sequence of movement directions. For primary-grade children, Scratch (<https://scratch.mit.edu>) is an example of a computer-based programming tool that uses blocks of different colors and shapes that represent different types of functions. Older children and teenagers can learn to use professional, text-based programming languages in a game-like environment on sites like https://code.org.

Once children understand that the computer will follow their written instructions, they can begin to apply that knowledge to higher-level processes. Even beginning coders can animate, solve puzzles, and create interactive games once they learn the basic commands. These coding experiences also involve the logical thinking and problem-solving process discussed above in the Core Competency section on thinking skills; and when students embark on an innovative project such as designing a new video game, they also must employ many of the previously discussed creativity skills. Coding also helps to develop some of the executive-function skills mentioned above such as perseverance and time management, as well as collaboration and cooperation when students are coding in groups (Popat & Starkey, 2019; Strawhacker & Bers, 2019).

## Resources for teachers

Resources for helping teachers get started with coding in the classroom abound. For example, Free Code Camp (https://www.freecodecamp.org) has curated hundreds of resources that students might use to develop advanced technology skills. The host website of the "Hour of Code", http://www.code.org/, offers brief introductions to block-based and text-based coding that are tailored to different ages and interests. For teachers who want to begin coding lessons, one reference that is helpful is Common Sense Education (https://www.commonsense.org/education). This organization curates and creates materials to help educators identify and make use of the best educational technology tools, including tools for teaching coding. They also offer helpful guides, such as their Get Started with Coding tip sheet (Common Sense Media, 2017).

Another useful resource that guides teacher instruction in technology is a series of columns that Del Siegle, Professor of Educational Psychology at the University of Connecticut, has contributed to *Gifted Child Today* magazine for many years. Each column provides detailed descriptions on how to teach a specific topic in technology. Examples of topics covered in this series are Student Animated Projects in Technology, Using Virtual and Augmented Reality to Enhance Student Learning, and Drawing Pictures with Big Data.

## The pedagogy for developing adaptability skills

Any discussion of developing advanced level skills should also consider the pedagogy that will most effectively prepare young people to pursue these skills. The 21st Century thinking skills movement (National Research Council, 2012; Prensky, 2008) has certainly called attention to the importance of higher-level thinking skills, creativity, and collaboration. It is important, however, to examine teaching strategies for infusing these skills into the curriculum that differ qualitatively from the prescribed and presented pedagogy that has dominated the content-based and standards- driven curriculum. In other words, canned worksheets on thinking skills or didactic lectures are not the best way to teach the Core Competencies, especially since the several competencies are highly interactive and therefore require a more holistic approach. Learning the skills discussed in this article should be embedded in creative–productive endeavors rather than simply presented and assessed sequentially, as one might with arithmetic (Renzulli, 1982). Creative productivity is defined as "the development of original ideas, products, artistic expressions, and areas of knowledge that are purposefully designed to have an impact on one or more target audiences."

At the risk of over- simplifying the "learn by doing" work of John Dewey (1910, 1963) and other "hands-on" learning theorists such as the pedagogy developed by F. Paul Brandwein's (1955) to guide young science students, it is recommended that an individual investigative project or a group project-based learning approach be the major way that we present opportunities for the Core Competencies. These skills are most effectively learned and used in real-life learning situations rather than through formal instruction (Renzulli, 1982). Real-life learning situations are similar to tasks presented in project-based learning; however, their focus is on accommodating student interests, encouraging creative outcomes, and applying knowledge and thinking skills to problems that meet the following four requirements:

1. Personalization of Interest. Students have some choice in selecting and pursuing the problem because of a personal or even passionate interest in the topic;
2. Use of Authentic Methodology. Students go about investigating the topic or solving the problem using the methods of a practicing professional, even if this methodology is at a more junior level than that of adult scientists, writers, film makers, etc.;
3. There is No Existing Solution or "Right" Answer. Students simply do not "find out" what is already known, but rather use existing knowledge, information, and core skills to form their own hypotheses or their desire to create something new. (e.g., a new story, poem, playground design, or a study that examines the amount of pollution in a local pond or river); and,
4. Student Products Are Designed to Have an Impact on Selected Audiences Other Than or in Addition to the Teacher. The raison d'être for all creative work throughout history has been to have an impact on one or more desired audiences, whether that audience be one child who is

being bullied in school or all of the persons attending a conference on environmental protection.

Efforts to promote the manifestation of adaptability in young people should be based on the modus operandi of a creative practicing professional and guided by the above four requirements of what makes a problem real as detailed in the Enrichment Triad Model (Renzulli, 1976). In other words, experiences should be provided that that encourage young people to think, feel, and do things like the practicing professional.

## Conclusion and implications

What implications do all of the remarkable changes in technology, global economic conditions, and workplace and career planning have for the education system? While we should continue to use a good deal of the content that currently comprises the standards- driven curriculum followed by schools, colleges, and universities, a major related goal of our education system should be instilling the adaptability skills necessary for lifelong learning and frequent and flexible upskilling. This change will not take place overnight, but as it begins to evolve, it will certainly diminish the endless criticisms about our schools being stuck in an Industrial Revolution orientation for the educational preparation of our young people. Maria Montessori once said, "Teachers are the unacknowledged legislators of the world." As we begin to think about preparing our most able young people for a creative and productive future, it is time for educators at all levels to initiate the inevitable changes that are necessary to fulfill Montessori's vision.

While forecasting the future is always a risky business, bold steps to prepare students for a future of fast and effective reskilling are clearly indicated by the conditions that have created the Second Machine Age (Brynjolfsson & McAfee, 2016). The brightest minds need to develop groundbreaking solutions for teaching the five Core Competencies discussed above so that we can push the boundaries of career development at all levels of the occupation continuum. This theory may be ambitious, but we need to build an education system that moves beyond the Industrial model. Based on both what current information tells us about the kind of education system we must create and the technology that is now available to build such a system, the future can be full of creative opportunities for everyone.

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## About the Author

**Joseph S. Renzulli** is Director of UConn's National Research Center on the Gifted and Talented and Board of Trustees Distinguished Professor of Educational Psychology at the Neag School of Education. A leader and pioneer in Gifted Education, Dr. Joseph S. Renzulli was named among the 25 most influential psychologists in the world by the American Psychological Association. He received the Harold W. McGraw, Jr. Award for Innovation in Education, and was a consultant to the White House Task Force on Education of the Gifted and Talented. His work on the Enrichment Triad Model and curriculum compacting and differentiation were pioneering efforts in the 1970s, and he has contributed hundreds of books, book chapters, articles, and monographs to the professional literature. Dr. Renzulli established UConn's annual Confratute Program with fellow Educational Psychology Professor Sally Reis; the summer institute on enrichment-based differentiated teaching has served more than 25,000 teachers from around the world since 1978. He also established UConn Mentor Connection, a summer program that enables high-potential high school students to work side by side with leading scientists, historians, and artists, and is the co-founder of the Joseph S. Renzulli Gifted and Talented Academy in Hartford, which has become a model for local and national urban school reform.

## Address

**Joseph S. Renzulli**;
Renzulli Center for Creativity, Gifted Education, and Talent Development Neag School of Education;
University of Connecticut; 2131 Hillside Road Unit 3007;
Storrs, CT 06269-3007; USA.

**e-Mail:** joseph.renzulli@uconn.edu

# Appendix A
# Practical Resources for Teaching Core Competencies

### *Thinking Skills*

Francis, E. M. (2016). *Now that's a good question! How to promote cognitive rigor through classroom questioning.* Association for Supervision and Curriculum Development.
Seale, C. (2020). *Thinking like a lawyer: A framework for teaching critical thinking to all students.* Prufrock Press.
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### *Creativity Skills*

Eberle, B. (2008). *Scamper: Creative games and activities for imagination development* (Combined ed., Grades 2–8). Prufrock Press.
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### *Basic Investigative Research Skills*

Bemiss, A. (2018). *Hands-on STEAM explorations for young learners: Problem-based investigations for preschool to second grade.* Prufrock Press.
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### *Executive Function Skills*

Bean, S. M. (2010). *Developing leadership potential in gifted students.* Prufrock Press.
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Mussey, S. (2019). *Mindfulness in the classroom: Mindful principles for social and emotional learning.* Prufrock Press.
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White, D. A. (2001). *Philosophy for kids: 40 fun questions that help you wonder about everything!* Prufrock Press.

***Learning-How-To-Learn Skills in Technology***

Housand, A. M., Housand, B. C., & Renzulli, J. S. (2017). *Using The Schoolwide Enrichment Model with technology.* Prufrock Press.

Housand, B. C. (2018). *Fighting fake news! Teaching critical thinking and media literacy in a digital age (Grades 4–6).* Prufrock Press.

LaGarde, J., & Hudson, D. (2018). *Fact vs fiction: Teaching critical thinking skills in the age of fake news.* International Society for Technology in Education.

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# Appendix B
# Free or Inexpensive Web Sites for Teaching Coding

Many websites and apps are available to introduce the principles of coding to children, often by having fun solving puzzles. The following lists includes several of the most popular sites.

## Free Sites

### *Block-based Coding*

1. SCRATCH (https://scratch.mit.edu) – Kids use blocks of code, some of which are editable, to create programs. Multiple programs can run simultaneously or in sequence to create animations or interactive games. Premade graphics are available, and artistically-inclined kids can also design their own or edit the premade graphics in a pixel-art editor.
2. BotLogic.us (https://botlogic.us/) – Players use block-based directional codes to direct a robot in this puzzle game.

### *Multiple Coding Styles*

1. Code.org (https://code.org) – This organization promotes computer science education at all levels and in all formats, including coding. They curate and create content to introduce coding skills and to get kids excited about computer science. Their content is organized by grade level and includes information about careers in computer science. They also offer professional development for educators who seek to learn more about computer science and teaching coding, and advocacy resources to help educators and families bring the importance of computer science to the attention of school boards and legislators.
2. Blocky (https://developers.google.com/blockly) – Blockly is a block "translation" tool developed by Google. It could be used to help students transition from a tool like Scratch to a real programming language, because the user creates codes with blocks and Blockly translates the code into the selected code language.

### *Language-based Coding*

1. Khan Academy (https://www.khanacademy.org) – This site teaches introductory courses in several popular coding languages. They also have an introduction to digital animation and storytelling offered in partnership with Pixar.
2. CodinGame (https://www.codingame.com/start) – This site for advanced coders enables coders to play turn-based games to improve their skills and to compete with other players. It is also a recruitment site for employment. Much like recruiting varsity football players to the NFL, recruiters contact the best performers in the arena to offer them a job in software development.

## Paid Sites

### *Block-based Coding*

1. Mblock & Sons (https://www.mblock.com) – This website builds on the https://scratch.mit.edu platform; expanded functions include compatibility with MakeBlock robots, Arduino, Internet of Things devices, and an artificial intelligence engine. The parent company MakeBlock is also the host of a robotics competition called MakeX, which has four levels of entry for students from kindergarten through college.
2. Kodable (https://www.kodable.com) – This game is both web-based and available in a tablet app. It is a block-based curriculum designed for K–5 students to learn the very basics of computational thinking and coding.

### *Language-Based Coding*

1. CodeMonkey Studios (https://www.codemonkey.com) – This subscription-based site is designed for teachers to use with entire classes of students. Each student works at their own pace to solve

coding challenges to help the monkey get a banana. The teacher interface enables progress monitoring.

2. CodeCombat (https://codecombat.com) – This site includes two games, Code Combat and Ozaria. Code Combat is more game-like, while Ozaria is designed as a course. Both programs adapt automatically to the player to keep the puzzles challenging but achievable. The class platform includes assessment tools, premade project-based learning experiences, and progress monitoring functions.

### *Multiple Coding Styles*

1. Tynker (https://www.tynker.com) – This website offers three levels of coding courses that are designed for children and teenagers. The youngest coders use directional buttons to solve puzzles, the middle group uses a block-based coding tool similar to https://scratch.mit.edu, and the most advanced use real coding languages. The teacher interface includes progress monitoring and assessment tools, and also offers premade project-based learning modules.
2. Codemoji (https://codemoji.com) – This site uses "emojis" to create lines of code in the format of code languages. The use of emojis speeds up the process of creating code for students who are not proficient at typing, and also eliminates the potential for typos to interfere with success.

# Extreme Intellectual Ability and the Dynamics of Social Inclusion

**Roland S Persson**
Jönköping University, Sweden

## Abstract

While it is easy to include gifted into society individuals representing the social functions of maintenance or entertainment, it is much more challenging to fully include brilliant intellectuals, who can potentially change society and its power structure by their insights. This paper presents the theory and research underpinning various aspects social evolutionary dynamics in relation to many years of giftedness and talent scholarship to understand the dynamics of social inclusion; and the social inclusion of gifted and talented individuals in particular. As based on well-established empirical research from a multitude of disciplines, the conclusion of this paper was that societal attitudes toward the intellectually gifted may, to some extent, certainly be influenced for the better by social policy as well as by the education of the general public. However, importantly, existing research suggested that educating the gifted and talented themselves is also necessary. They too need an understanding of who they are in the light of social evolutionary dynamics; they need to learn why the world around them sometimes reacts aversively even though they are brilliant, and generally benevolent and socially responsible and they constitute considerable, yet often ignored, assets to all of society as a whole.

**Keywords:** Intellectual giftedness; social inclusion; social function; social cohesion; ability climate.

## Introduction

For as long as an attempt has been made to study high ability systematically, researchers have not only marvelled at the extraordinary abilities of a relatively small group of individuals in any population, they have also been baffled by their frequent reluctance to demonstrate their prowess to others. It is not uncommon for this group to both hide their abilities and at the same time refuse to accept that they are different from almost everyone else (Foust, Rudasill & Callahan, 2006).

While this phenomenon has been known for some time no-one has yet investigated why this is the case. If the assumption is that being different by way of extraordinary skills and abilities, and that being extraordinary is attractive to society and therefore easily included in any social context for its benefits, then why do such remarkable individuals try to deny their own nature and pretend to be someone they are not? This is a phenomenon paralleled in any instance where an individual perceives him or herself as too dissimilar to the majority of their social context such as, for example, is the case with gay and lesbian lifestyles, where 'feeling different than others' is a common theme prior to finally accepting one's identity (cf., Savin-Williams & Cohen, 1996). Hence, the phenomenon is *not* unique to the gifted and talented. The common denominator of individuals hiding or refusing to accept certain aspects of themselves is the perception of being *unacceptably* different. It also does not matter how they are different.

Although social inclusion a difficult aspect of modern society to fully implement, it is nevertheless a basis for a democracy proper (Canal, 2010; Fotopolous, 1997). This paper is an effort to explain this behavioural phenomenon on the basis of social evolution as we currently know it, particularly in relation to the extreme skills and abilities that constitutes to gifted and talented behaviour. Understanding the dynamics which govern our unaware desire to be like most others throws important light on extreme behaviour and the issue of inclusion into the social fabric of mainstream society.

## *Defining social inclusion*

Importantly, social inclusion is *policy*. The World Bank (2013) describes social inclusion as a political act of *affirmative action,* defining it as 'the process of improving the terms for individuals and groups to take part in society,' and also as 'the process of improving the ability, opportunity, and dignity of people, disadvantages on the basis of their identity, to take part in society' (p. xxiv). Policies, however, no matter how well-intended and morally justified, all share one fundamental aspect. They express ideology which rarely, if ever, originates in first asking whether a policy objective is fully attainable. Yet, without striving for evidence-based decisions and guidelines, policies are regularly enshrined into law, leaving the disconcerting possibility of establishing a legal canon that is not necessarily based on normal human behaviour. If so, policies cannot be fully upheld in practical terms no matter how hard well-intending citizens try (cf. Walsh & Ellis, 2003). For a policy to actually work, it needs to be based on principles generating social cohesion; that is, known behaviours and aspects of everyday life that are able to generate togetherness. One indication that social inclusion might be a good policy regardless, is that society appears to function optimally if rules of equality always apply (Wilkinson & Pickett, 2010; 2018), but social inclusion is also a vision of society that does not always pan out as envisioned. Consider the many published reports on how complete social inclusion can disrupt schoolwork and present teachers with formidable, and not infrequently unsolvable, challenges (Kaufmann & Hallahan, 1995).

## *Social cohesion and the challenge of the extreme*

Even though cultures vary in their orientation toward collectivism and individualism-an orientation at least in part influenced by national wealth (Gorodnichenko & Gerard, 2011; Hofstede, 2001)- humans constitute a social species functioning to varying degrees by co-operation. Our most fundamental prerequisite for survival over time is to belong to, to be able to identify with groups large and small, and also to be able to co-operate with one another in a variety of ways for the benefit of everyone associated with the group (Baumeister, 2012; Bowles & Gintis, 2011). To co-operate social cohesion is necessary. The factors that make groups stick together are well known. They are, for example, conformity, shared values and norms, maximum group size, group success in comparison to other groups and perceived common threats (see Persson, 2018, for a literature review). In addition, it is also well known that what makes a group feel threatened, dissolve or change, namely when members do not conform with, or even ignore, commonly respected norms, as well as when groups grow too large (Crocker & Quinn, 2003; Dunbar, 1992). Detrimental to cohesion is also any form of cheating, competition or rivalry between members of the same group (see Persson, 2020, for a literature review). This is often also true if one group member is perceived by others as being much more intelligent than the others are. This is at least the conclusion of scholars investigating the effect of extreme IQ and group cohesion (Judge, Colbert & Ilies, 2004). 'It is dysfunctional for a leader's intelligence to substantially exceed that of the group he or she leads,' they concluded; 'this suggests that group intelligence moderates the relationship between leader intelligence and leader effectiveness … group members simply do not like leaders whose intellect far exceeds their own' (p. 549).

In short, one inescapable requirement of every member of any group is that in order to become, or remain, a full and accepted member, is to be reasonably *similar* to everyone else, or at least not to be too dissimilar. Even if groups and cultures vary in regard to what is permissible behaviour there are always limits to what is considered unacceptable. One example of how different certain behaviours are construed between cultures is the perceived value of individual achievements. In much of the Western World, and particularly in an American context, individual efforts of self-interest tend to be revered, even required at some point in everyone's career (Stewart & Bennet, 1991).

In many parts of Asia, the opposite is true. Such self-interest is frowned upon and is perceived as selfish and foreign to the social fabric of society. This is not to say that there is no individual self in collective cultures, but individual achievements must always aim for the benefit of others rather than for the sole benefit of the single individual (Greenwood, 2003; Kitayama, Markus, Masumoto & Norasakkunkit, 1997; Plath, 1980).

If similarity, then, is key to acceptance and tolerance in any society, and if social cohesion is a fundamental requirement of any co-operating group, what bearing has this on understanding the social inclusion into mainstream society of highly able individuals with extreme abilities and skills.

## *The functional differentiation of high ability*

There are numerous labels used to categorise the highly able, the reason being that there exists no general consensus on how to define and explain what talent or giftedness are or, indeed, how they should be used to benefit society (e.g., Dries, 2013). The many labels applied by which to identify these extraordinary individuals vary considerably with culture, academic creed, ideology, and no less important, also on which societal stakeholder has a vested interest in them (O'Boyle & Aguinis, 2012; Persson, 2014). Whichever label is used, they all represent extraordinary skills and abilities, be they physical, cognitive, emotional, creative, practical or any combination of these. To understand high ability and its value to society, and therefore also its social status, it is imperative to know that different abilities are differently valued by different countries and cultures. By necessity, high ability is a *differentiated* notion. Some skills and abilities are perceived as uncontroversial, welcomed and encouraged by mainstream society, but others are tolerated at best, perhaps frowned upon, unwanted or, in some social contexts, even regarded as an existential threat. History is replete with fair-minded and well-intending dissidents who paid dearly for exposing injustices and publicly pointing to the corruption of governments and their leadership (see Szulecki, 2019). This was observed by American psychologist Leta Hollingworth (1942) already in the 1940s. She concluded that (p. 259):

> a lesson which many gifted persons never learn as long as they live is that human beings in general are inherently very different from themselves in thought, in action, in general intention, and in interests. Many a reformer has died at the hands of a mob, which he was trying to improve in the belief that other human beings can and should enjoy what he enjoys. This is one of the most painful and difficult lessons that each gifted child must learn, if personal development is to proceed successfully.

It is surprising that such an important observation has had so little impact on giftedness and talent scholarship in general. It is far more common to embrace the highly able as heroes of an envisioned future, destined to save a World in dire straits (e.g., Shavinina, 2009; Sternberg, 2017). The fact that 'smart people hurt', to use Maisel's (2013) phrase, has been systematically ignored by most scholars and practitioners in the field.

Countries and their cultures are characterised by *ability climates*; that is, there is a population-level pattern defining how knowledge and abilities tend to be valued (Persson, 2011). Intellectual academic pursuits in Sweden and Norway, for example, are not perceived as particularly valuable or worth striving for by most citizens, but athletic and musical pursuits certainly are. In the German-speaking world all pursuits tend to be considered more nor less equally valued, whereas intellectual quests and careers are construed as more worthwhile than other types of interests in several Eastern European nations.

Extreme skills and abilities, therefore, have—or are given—a social *function* by society, which has a potential impact on social cohesion and societal structure. Skills and abilities can be used or abused, and the highly able can be ignored, harassed or even punished, depending on their function in any given cultural context. Note, that the negative impact of individual extreme deviation from mainstream behaviour is by no means unique to the human species (e.g., Nishida, Hosaka, Nakamura, & Hamai, 1995; Shultziner, Stevens, Stevens, Stewart *et al.,* 2010). This raises the interesting question: which pattern describes acceptable or unacceptable behaviour in terms of social function and its biologically programmed aim to generate togetherness?

Social function can be divided into at least three primary domains: *Maintenance*, *Entertainment* and *Change*, which all relate to how individual high ability can impact a social context in relation to social cohesion (Table 1). Such a function is not planned or strategically and purposely implemented. It is initially not even known to society or, indeed, to the highly able individuals themselves. Social Function is brought about by evolutionary dynamics in a population. It is

genetically driven in response to the social environment, with an aim to adapt for greater chances of group and species survival (cf. Sumpter, 2010).

***A maintenance function*** *signifies permanence; that is, no or little change—or controlled change in an intended direction—aiming at strengthening and confirming what already is by whatever means are available.*

***An entertainment function****, on the other hand, often has a compensatory function for the individuals seeking diversion. When a situation is unpleasant for whatever reason, we seek to cope by maintaining as positive an outlook on life as we possibly can. We turn to positive experiences offering a reprieve from a harsher external reality. We listen to music, read an engaging novel, watch a good film or engage in sports, either as an athlete or as a spectator not only out of interest, but also because it can provide a temporary alternative reality.*

The function of change, finally, is the function that can potentially impact society the most and is therefore the function that is the most critical to social equilibrium. All knowledge and understanding are not always acceptable to society, to its leadership and not even to universities, for example when they yield academic freedom to political correctness, no matter how objectively true research results. This has been systematically demonstrated, for example, by Scholars at Risk (2919) Change in terms of strengthening and confirming group identity and societal structure is welcomed by most, but change that potentially weakens existing societal structures, leadership and group identity tends to present a threat.

Note that an individual may have several social functions. An author or an actor, for example, may well be admired by most and their skills much sought after as well as exorbitantly rewarded, but once they decide to take a public stand on something that has political significance, and put their charismatic appeal to the population behind it, they become agents of change. If their public views are contrary to political leadership, and they gain support by the population, they threaten an entire power structure. It matters little whether the political system is democratic, authoritarian or a combination of the two. Tolerance is mediated by the "ability climate"; that is, how different types of knowledge and skill are valued by the political system and its cultural values mediated and fostered by educational systems.

For these reasons, it is impossible to generalise the prospects of gifted and talented individuals in society in relation to social inclusion. Inclusion will always relate to the prevailing social function of an ability and its perceived value. While it is easy to include individuals admired by a majority of people who look up to them as heroes or role models, it is difficult, if not impossible, to fully include the intellectually extreme into any mainstream society.

It is telling that Simonton (1994) discovered that there is an optimal intelligence level for any leader to be successful; that is, an abstract thinking level of approximately IQ 119. If less intelligent than this, leaders risk not comprehending the complexities of society, and if higher a majority of people will not be able to understand or relate to them. Hence, they have no future in a democracy where they have to rely on a popular vote to be elected. Simonton elegantly demonstrated that the higher their intelligence the fewer their followers, and therefore also the less successful they were. The same holds true also for adults in working life. The intellectually gifted may objectively represent astounding assets to whoever employs them, but few employees understand their behaviour. For this reason, these extraordinary individuals tend to fare badly in organisations unaware of their uniqueness, ignorant of their motivation and perhaps even uninterested in how they tend to communicate (Lachner, 2012; Nauta & Ronner, 2008; Persson, 2009b). Being unable to communicate and to identify with someone you meet or work with, at least on some level, will automatically trigger suspicion, which in turn is detrimental to social cohesion (e.g., Eibl-Eibesfeldt, 1989).

There are those in any population, of course, who will not readily accept the mainstream culture in which they exist; or vice versa, individuals who will not readily be embraced by society around them but nevertheless remain tolerated. Such individuals sometimes create a subculture

together with other likeminded to satisfy their need for collective identity and togetherness, but on a much smaller scale in comparison to the surrounding main culture (cf. Cohen, 2005). In this understanding, high-IQ societies constitute subcultures, of which Mensa is likely to be the most internationally well-known.

**Table 1:** A taxonomy of gifted or talented behaviour, their social function and the common response of mainstream society to this behaviour (adapted from Persson, 2009a).

| **Primary social function** | **Skills, abilities and knowledge domains** (Examples) | **A probable universal social response** |
|---|---|---|
| **Maintenance** | • Medicine<br>• Technology<br>• Practical skills<br>• Problem-solving and creativity within social acceptance | Acceptance and encouragement (Supports social cohesion) |
| **Entertainment** | • Music<br>• Theatre and drama<br>• Literature<br>• Art<br>• Sports | Acceptance and encouragement (Supports social cohesion) |
| **Change** | • Intellectual skills<br>• Understanding causality<br>• Acting on perceived injustice<br>• Problem-solving and creativity beyond social acceptance | Resistance and challenge (Has the potential to threaten social cohesion) |

Hence, deviation from similarity is viewed as positive *only* if it strengthens collective identity, does not threaten social structures or leadership and always reinforces a feeling of togetherness. This dynamic is true both of mainstream cultures and the subcultures within them.

## *The engineering of social inclusion*

To live in a society where there is room for everyone, no matter where they come from, what they look like, which identity they prefer, which their lifestyle is or, indeed, their type and level of skill and ability, is a given objective for any democracy proper (e.g., Canal, 2010). This is a difficult objective to achieve in full, since it clearly flies in the face of evolutionary social dynamics dictating that *similarity* is inevitably the socially cohesive cornerstone of every social group. There is, however, a paradox here. While diversity has proven to boost national economies (Ottaviano & Peri, 2006; Trax, Brunow & Suedekum, 2015), diversity also tends to erode trust within any given social context (Stolle, Soroka & Johnston, 2008). It is easier for us to accept generalised trust in an entire diverse society (Hooghe, Reeskens, Stolle & Trappers, 2009), than it is in a smaller community or in a local neighbourhood (Gijsberts, van der Meer, & Dagevos, 2012). Nevertheless, there are clearly many diverse societies and communities in the world, and diversity seems to be less of a problem in some rather than in others. While there are a number of universal values forged by our genetic heritage and shared by all known cultures in recorded history (Brown, 1991), we are as humans, also able to assimilate values by learning them. A diverse society is strategically engineered by legislated policy and, importantly, by learning social norms from an early age (cf., Knight, 2001). This is not a perfect system. It frequently breaks down since we cannot change our most fundamental and biologically motivated human nature (Persson, 2016). We can ameliorate its impact at best. The same holds true of intellectually extreme individuals in any society. Legislating policy and educating the population about intellectual giftedness represents the only feasible effort by which to make this extraordinary group of individuals more acceptable, or at least more tolerated, in mainstream society, irrespective of culture. As discussed above, skills and abilities which function socially as maintenance and entertainment do not have this problem. Mainstream society's intolerance is unique to highly intelligent individuals. As British psychologist Joan Freeman (2005) has so succinctly has phrased it: They need permission to be gifted; permission by their social context. However, it goes both ways.

There is not only a need for policy and general information, the exceedingly bright ones also need to be educated themselves. They need to understand who they are and why the world around them may sometimes react aversively as they demonstrate their prowess openly. They need to understand their place and function in the light of social evolutionary dynamics. They do not generally fit into the social fabric, as Persson (2007) observed (p. 31):

> *not* because they lack empathy, social skills per se, societal concern and interest, or that they are in anyway psychiatrically morbid, but their social context finds it difficult to accept them because they find no way of relating to them. The gifted individual's reaction to this is not infrequently one of isolation and alienation. While there is no way for the world around them to ascend to their level of abstract thinking or fully understand their sensibility, the extremely gifted individual has no choice but to learn how to interact with others outside his or her range of communication. This is likely to be the greatest challenge of their life. They will have to approach the ones who for many years perhaps, have shunned them, ridiculed them, ignored them and so on, accept their slower ways and more limited understanding. And this, they have to do largely alone.

It is worth noting that while mainstream society and its formal institutions are to varying degrees reluctant to embrace the intellectually gifted and accept their frequently brilliant insights, the same is no longer true of an increasing number of businesses. These have understood that employees with extreme talent need to be managed differently than other employees, and the effort of doing this pays off greatly for everyone involved. With the emergence of Information Technology it has become increasingly common to build the organisation around the intellectually and creatively gifted, rather than trying to fit them into a predetermined formal structure, which has been the traditional norm for some time (Lachner, 2012; Schmidt & Rosenberg, 2014).Paradoxically, the formal structures of society, including education at all levels, do the opposite. They increase control and formal standards in the belief that this will also increase quality and productivity, much to the detriment of work force mental health, and particularly so to their employed extremely intelligent and creative.

## Conclusion

The inclusion of intellectually extreme individuals into mainstream society, therefore, is anything but an easy objective, but even if this is difficult and largely contrary to social evolution, we can influence general views and attitudes to increase acceptance or, at the very least, to make tolerance possible. In order to bring this about it is first necessary to establish legislated policies, as well as to educate the general population in these matters. However, the intellectually gifted must be educated as well, and not only to increase their skills and abilities where their interests lie, but *also* provide them with an understanding of themselves and their inevitable impact on social dynamics in whatever social context they exist. To promise them a guaranteed future as heroes and world problem-solvers, as so much of current gifted education literature does, is a considerable problem. These individuals most certainly are extraordinary but their future, like everyone else's, is never guaranteed, and it is unlikely that they will be allowed to become the public heroes of the future.

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## About the Author

**Roland S. Persson**, *Ph.D.*, is professor of educational psychology at Jönköping University, Sweden, trained at Karlstad (SE), McGill (CA) and Huddersfield (UK) universities, and is currently assigned to the Jönköping University Human Resources Programme. Once a Western classical piano performer interests developed into music behaviour, talent and giftedness, as well as universal and cross-cultural behaviour. Formerly consultant to Swedish and Hungarian governments on issues of talent and giftedness in education; current member of the International Centre for Innovation in Education (ICIE) as well as an active member of several scholarly journal boards The International Journal for Talent Development and Creativity (IJTDC), for example, and one of few scholars devoted to giftedness, rather than talent, as a constituent of talent management.

## Address

**Prof. Dr. Roland S. Persson**;
Jönköping University, School of Education & Communication;
Box 1026, SE-55111 Jönköping, Sweden, Europe.
**e-Mail:** roland.persson@ju.se

# Minimizing the Familiar and Maximizing the Diverse: Emergent Pedagogy and Self-Differentiation in a Post-Covid World

**Christine Boyko-Head**
Mohawk College of Applied Arts and Technology, Hamilton, Canada

**Keywords:** Creative, critical thinking; democratized learning; transferable skills; differentiated instruction; 3D-Briefing; pedagogy.

## Part One: Introduction

As a creative educator, I work with and against classroom expectations to embrace the surprises, inspirations and ah-ha moments indicative of emergent pedagogy. For me, this conscious choice to accept change and spontaneous interruptions stems from a time when I was not so accepting or flexible.

In 1995, I gave a two hour lecture on the role of Canadians in World War II to 500 Canadian Studies undergraduates. At that same moment, Canadians from across the country were travelling on buses to Quebec, a province in Canada that was having a referendum on separation. The travelling citizens wanted to show their support for Quebecers and to encourage them to stay within the Dominion. My reluctance to stray from the recipe, and my desire to protect the podium was costing my learners an opportunity to learn through action. Half way through the lecture, I moved from behind the lectern, stepped down from the elevated stage, sat among the crowd and facilitated a rich conversation about how I had failed them by remaining in our lecture hall, and how real-world events affected us. It was a teachable moment demonstrating the fullness of being responsive to emotions in the room and following an extemporaneous, or emergent pedagogy model.

Some creative educators embrace change and demonstrate an increased agility in teaching and learning that is responsive to learners' needs and to the unpredictability of the greater social-political context. This disposition is not something that came naturally to me until I realized I could teach despite the way I was taught. Over time, I accepted and welcomed uncertainty as a common element of responsive teaching. Through consistent reflection and a pedagogical crisis in Israel (Boyko-Head, 2020) the concept of emergent pedagogy developed. I came to appreciate the unexpected in the classroom as chances to demonstrate that these unpredictable moments were about perspectives and were easily addressed through open conversation. Ironically, this rising inclination toward the unexpected prepared me for the educational crisis resulting from a global pandemic.

The 2020 pandemic generated a disruptive environment, accelerating an educational restructuring that has been discussed for years. The academic challenges of 2020 were shocking and severe as family, school and work converged in the home. While it was a situation no one wanted, human resilience shone through as people across the world found novel ways to demonstrate their humanity, creativity, compassion, humour, knowledge and dignity. In education it was an opportunity for innovative pedagogical practices, especially in the areas of emergent, inclusive pedagogy, and differentiated learning –all of which are based on an acknowledgement of the 21st Century's educational context that minimizes the familiar and maximizes the diverse.

The Context

Even before the pandemic's interruption of the 2020 academic year, learner motivation and engagement were academic concerns. How might I increase learner engagement by being responsive to their needs and passions? This exploration intensified when I realized that the undergraduate learners I could relate to in the mid 1990s, before a ten year interval teaching at the graduate level in the United States and Israel, were no longer the learners of the 21st Century. When I began my teaching career, learners' experiences, goals, frustrations, struggles and desires were familiar to me and resembled my own student experiences. Students seemed homogeneous and reflected a learner profile resembling characteristics, attitudes and skills I could relate to. In short, I understood the academic challenges they were facing, and knew that with perseverance, grit and effort they would survive.

At least, that is what my naïve and privileged perspective thought until I returned to undergraduate teaching in 2011. Then, my own suppressed memories of intellectual deficiency when this imaginary learner/graduate profile didn't resemble me resurfaced. As I looked at my heterogeneous learners, feelings of inadequacy grew. In ten short years, the educational ecosystem amplified a hidden and ignored diversity. Change was in the open, as classroom demographics consisted of first-generation, second-career, Indigenous, International, LGBTQ2, and unique-ability learners. Discernible inclusivity seemed to be a positive step toward education equity. Still, I felt ill-informed about and unacquainted with the multifarious demands facing these learners and how I could meet their learning needs.

As demographics diversified, discussions around the role of academia changed, as well, reflecting industrial and social disruptions and concerns (Wagner, 2015, Robinson, 2010, Evans 1996). The 20th Century focus on specific hard skills and conformity to a hierarchal work structure and ethics gave way to the 4th Industrial Revolutions' demands for innovative thinking and agile practices (World Economic Forum WEF, 2016, 2016b).

Industry leaders noted skill gaps between what they needed and what graduates had. They acknowledged graduates were adept at current hard core skills, but industries' acceleration of incremental innovations indicated that hard skills were not enough and could be redundant in some sectors. What industry really needed was a new-fangled graduate receptive to change, open to risk-taking, and continuously learning new information and skills. This signified a minimizing of the familiar graduate profile skilled at following directions and a maximizing of new profiles prioritizing innovation, agility, and an emergent spirit willing to face a diversifying global context.

While institutions discussed how to meet industry needs, other conversations in academia circled around delivery models and the impact of technology on learning. The apparent success of open, online classes fed the discourse. Still, many preferred face-to-face over virtual instruction, especially since there was no conclusive evidence supporting online learning's advantage to learner success. Without a compelling need for technological delivery modes, most institutions and faculty privileged familiar delivery models suitable for the traditional, 20th Century learner profile. Instructors who sampled innovative, digital practices seemed to do so in order to accommodate 'digital natives' assumed preference for anywhere, anytime learning on their personalized devices. Both learner profiles, the traditional and the digital native, are based on stereotypical generalizations that ignore each group's social, economic, political, and geographical inequities.

The discussions around higher education's skill gap and delivery models, though distinct, are interconnected because both reflect a minimizing of the familiar and a maximizing of the diverse. The skill discussion revolves around content, while delivery discussions pertain to form. Both discussions require a revisiting of the ideal learner profile and an acknowledgment that it no longer represents reality, if it ever did. Both discussions require an acceptance of change. According to Paul Smith (2018), "the first obstacle to change is getting people to accept that change is needed" (p28). Prior to the spring of 2020, educational change was still a choice heavily debated. There was no necessity for change; it was an option and many educators elected to leisurely address diversity while remaining faithful to what was customary in the classroom.

One reason for the discussions' sluggishness may be our inherently negative disposition toward change and uncertainty: paradoxically, humans are capable of immense innovation, yet prefer habitual thinking. Thus, minimizing the familiar and maximizing the diverse in any situation, let alone something as steeped in convention as education, is not intuitive, or willingly sought and accepted by most people. So, conversations about educational modifications continued, while teaching and learning stayed basically, the same. Until, that is, the early months of 2020 forced everyone's hand to change.

Covid-19's global sweep disrupted educational conversations, institutional plans, teaching models, and learning competencies. After mid-March 2020, teaching and learning moved online, forcing faculty, despite experience and pedagogical philosophy, to engage with technology. Content was also reduced, unintentionally reflecting the pedagogical framework of Backward Design (Wiggin & McTighe, 1998). The compressed, online semester consisted of essential content only and placed faculty and learners into an involuntary, innovative circumstance that minimized the familiar and maximized the diverse. Change in teaching and learning came out of necessity as all educational participants were forced to taste and swallow a new emergent pedagogy. While this forced pedagogy was responsive to a global crisis, it also raised awareness of learners' social and economic contexts, industrials' skill needs, society's obligations to communal safety, and technologies ability to innovate learning in a way that might democratize learning.

## Democratized learning

To minimize the familiar and maximize the diverse in education requires an approach to teaching and learning that differs from the norm. One such approach is an emergent pedagogy utilizing diverse learning tools and practices responsive to an authentic view of learners and their needs. The learning situation instigated by the global pandemic highlights that responsivity may also mean spontaneity since learners' situations, and social contexts were constantly changing. Undoubtedly stressful for many learners, educators and administrators, the navigation of this unusual situation demonstrates the value of responsive teaching and the ability of faculty to employ fluid practices for the sake of safe learning. Solutions weren't perfect. In fact, the move to online learning highlighted major inequities between learners and regions. Still, the spring of 2020 taught society and educational institutions that change could be managed quickly, responsively and responsibly.

Without knowing it, everyone was in some way experiencing the synergy of emergent pedagogy. A pedagogy that attempts to democratize learning by being flexible toward form and content, and by balancing conventional analytics and quantitative data about learners with qualitative, personal interaction with them. Emergent pedagogy and conventional teaching practices may both take a user-centred perspective to curriculum development. However, emergent pedagogy is based on curriculum choices evolving from actual exchanges with learners and not from a pre-determined learner profile. Thus, ambiguity, curiosity and iteration become prime elements in a creative, equitable and inclusive learning environment.

To say educational practices and policies are based on a human-centred approach is easy and accurate when considering a conventional, learner profile. Newton (2016) asserts the dangers of instructors being "thwarted by individual differences" (p24) when they put their faith in broad generalizations. As mentioned earlier, the conventional learner/graduate profile is based on sweeping stereotypes creating an imagined ideal that fails to account for external pressures on learning, including family dynamics, geography, income, politics and cultural legacies. Today's learner is complex, diverse and constantly in flux due to volatile, uncertain social, political and economic factors. Institutional policies and practices cannot respond in a timely and adequate manner to the inclusive, equitable, diverse needs of a mutable learner profile.

In fact, until Covid-19 the issue of learner profiling may be the most ignored act of implicit bias in the education system. In trying to address the challenges created by the pandemic, institutions and educators could no longer overlook real learners' complex social relations and practices, economic struggles, and geographical limitations contributing to unequal opportunities, costs, and technological accessibility. The ideal, imaginary learner/graduate profile that had poorly represented

so many learner experiences, even with its heroes and holiday colouration, would finally be exposed as a fraud. Covid-19, while devastating, forced institutions and society to recognize the challenges facing 21st Century learners.

As in most examples of forced innovation, practice informs policy. Thus, the classroom then becomes the perfect setting where an emergent, human-centred approach to teaching and learning can be performed. This requires a tolerance for ambiguity and risk-taking among all learners, including the traditional instructor. Such a dynamic, responsive attitude democratizes teaching and learning by sharing ownership of and accountability for learning with everyone in the learning environment. This translates into the creation of content and assessment frameworks centralizing learners' needs, passions and purposes as curriculum drivers. Everyone learns from each other's contexts to build perspective and empathy.

Significantly, these transferable frameworks need to be accessible to all learners and that means not just presenting them as content to be regurgitated, but uncovering them as processes to be adapted to multiple functions. Thus, emergent pedagogy requires, amplifies and develops flexible processes, tools and strategies suitable for indeterminate academic, social and industrial scenarios. Modeling and practicing transferable and contextually-responsive competencies, learners are empowered with agile frameworks, such as creative problem solving and 3D-Briefing, that can be adapted to fit their own needs. Significantly, the variety of applications is shared when democratizing teaching and learning invites every voice to the table and celebrates diversity's role in innovative and creative thinking.

Just as the learner/graduate profile needs to authentically reflect the new demographics, emergent pedagogy and its democratizing agenda acknowledges diversity's positive pole while also addressing its negative underbelly. According to Yorks and Kasl (2002) maximizing diversity increases innovation and can also increase resistance and conflict. Emergent pedagogy manages this paradox by using the flexible frameworks mentioned above to prepare learners for living, learning and working in volatile, uncertain, complex and ambiguous contexts, also known as VUCA (Adamson, 2012). Within the classroom's rehearsal space, learners practice minimizing the familiar and maximizing the diverse in ways that challenge gender, racial and socio-economic stereotypes, bias, and mindsets. Making the paradox of diversity transparent, making tools to navigate the paradox accessible, and making the application of these tools transferable to learners' individualized needs and purposes is the goal of emergent pedagogy and democratized learning. This goal encourages learner autonomy, accountability, and self-efficacy as confidence, intellectual capacity and competencies grow, thereby, preparing learners for an indeterminate future they can't even imagine.

## Transferable, flexible competencies

20th Century learning demands were simple. Learners would select a discipline with specific hard skills to master. Now, educational institutions prepare learners for jobs not yet defined or imagined. This ambiguous employment context defines the 4th Industrial Revolution, STEM education, and a focus on how to robot-proof our future. (Aoin, 2017, Mourshed, Chijioke, & Barber, 2010, WEF, 2016, 2016b).

Not all learners fit, or desire, scientific, technological, engineering and mathematical STEM vocations. The question facing new learners in the 21st Century is not what discipline to enrol in. Digital and technological literacy impacts all sectors. The major concern for learners and institutions is how to produce graduates with robot-proof skills before they even enter the job market (Aoin, 2017). To help answer this question, the World Economic Forum (2016, 2016b) identified the top ten skills graduates would need in 2020 to be successful in a VUCA job market. There are four competencies mentioned in the 2016 World Economic Forum (WEF) report that consistently appear in subsequent skill reports and they reflect the skills amplified in emergent pedagogy and democratized learning.

The four skills are:

1. *responsible*, complex problem solving;
2. *creative*, critical thinking;
3. *inclusive* collaboration; and,
4. *effective, empathetic* communication.

I have added the italicized adjectives to signify the equitable imperative of today's complex, heterogeneous world. Problem solving and thinking critically must find responsible, creative solutions that take various perspectives and socio-economic contexts into account. Likewise, creative thinking is critical in dealing with the complexity of social issues resulting from decades of social neglect, blindness and carelessness. Also, it is no longer acceptable to collaborate without being culturally-aware, responsive, inclusive, and therefore, equitable to all people. Accompanying these skills, communication needs to be effective in establishing meaningful social transactions and relationships that initiate, sustain, and empower conscientious, responsible actions from all citizens.

Differing from hard skills, the 4C's listed above are process-oriented, emergent competences transferable to diverse contexts. Iterative in nature, transferable skills magnify an innovative mindset valuing trial and error as fast and early failures build resilience and perseverance. These skills lace a growth mindset highlighting the competitive advantage of seeing opportunity within difficulties. Specifically, complex problem solving, and creative thinking frame uncertain, woolly challenges as problems to be solved. Utilizing equitable and empathetic collaboration skills and communication tools ensures that solutions maximize various lenses and perspectives, and minimize familiar patterns and tired responses. The 4Cs encourage a fair, conscientious exchange between people and set the scene for a democratized society free from destructive bias and prejudice.

Practicing and applying complex problem solving, creative-critical thinking, inclusive collaboration and effective, empathetic communication is grounded in a pedagogy that minimizes the familiar and maximizes the diverse. Emergent pedagogy empowers learners with tools and strategies they can use in their individualized navigation of learning challenges, and in coping with their unknown futures. In addition, emergent pedagogy emphasizes differentiation as a self-managed practice, placing the responsibility for learning in the hands of all learners.

## Differentiated learning

Ineffective and insufficient learning environments, inauthentic assessments, and irrelevant curriculum jeopardize learner engagement and motivation (Hammond, 2015, Dweck, 2006, Pink, 2008, Newton, 2016, Reis & Renzulli 2018). Some scholars endorse differentiated education as a remedy to this toxic situation. Reis and Renzulli discuss the five dimensions of integrating differentiation into teaching practices (2018). They also admit to the difficulty of such a widespread movement. They note that other scholars take a harder line with differentiation by rejecting its possibility on account of planning and managerial issues, little administrative support and state assessment concerns (Reis & Renzulli, 2018). Newton (2016) also observes that one lesson cannot accommodate individual differences in learning preferences, nor the widespread interests, purposes and passions of learners.

Such concerns, while well-founded, are based on what Tomlinson and Moon classify as a misinterpretation of differentiation as the creation of different activities and assessments for different learners. They are also based on seeing differentiation as teacher-driven rather than as something initiated and maintained by learners. As a teacher-driven task, differentiation faces challenges, especially for large, diverse post-secondary classrooms. One solution is transferring the responsibility of differentiation from teacher to learner. Making learners the drivers of their own differentiated learning means giving them tools to understand, modify and apply diverse thinking phases to tasks. Differentiation becomes a learning tool wielded by learners rather than a teaching practice controlled by educators. As Hattie states "differentiation relates more to addressing students' different phases of learning from novice to capable to proficient" (Hattie, in Tomlinson & Moon, 2013). Demonstrating

how thinking rises, like bread in a pan, from simple to full thoughts through accessible and adaptable tools makes differentiation a tangible personal application with long-lasting impact.

Despite clarifying the definition of differentiated learning, a lack of accurate, reliable information about learners creates another difficulty for differentiated learning (Reis & Renzulli, 2018). There exist few accurate measures informing educators about who their learners are, what they need to learn, and how they need to learn it. This challenge is further complicated when institutions gather superficial information about learners leading to stereotypical assumptions. Like the ideal learner and graduate profiles that ignore social, economic, gender, age, geographical and ethnic contexts, learning profiles misjudge, limit and pigeonhole learners in unrealistic and biased categories.

According to Tomlinson and Moon (2013) learners do not approach all learning content and contexts the same way. As in to cooking, where some individuals prefer following a recipe while others are more spontaneous, learners display inclinations toward specific thinking and problem solving steps (Puccio, 2002). For example, some see the whole meal while others have a knack for details. Similar to the paradox of diversity, learning styles and cognitive preferences also consist of a paradox where a so-called strength, overused and relied upon, can become a detriment when other steps are resisted or avoided. Ability is falsely identified through actions the individual does and does not perform. Unfortunately, this transforms personal preference for and resistance to specific thinking steps as a competency measure. However, learners' awareness of the preference paradox helps learners reframe and balance the perception of their strengths and limitations as a management issue pertaining to how they respond to the familiar and the diverse. This view makes differentiation a self-managed, learner-driven response to the paradox of diversity and the paradox of thinking preference.

Differentiation in the 21st Century classroom is a learner-driven initiative supported by an emergent pedagogy that leverages diversity to add real-world value, and relevance to the curriculum. This relevance comes from learners choosing the appropriate tools to self-manage their uncertain, complex, individualized contexts. In this way, transferable processes, tools and strategies help learners self-differentiate and fulfill what Carol Ann Tomlinson states is the essential goal of differentiation: "to develop awareness [in students] of which approaches to learning work best for them under which circumstances, and to guide them to know when to change approaches for better learning outcomes" (Tomlinson & Imbeau, 2013). In this way, learners self-regulate and self-manage flexible processes and tools responsive to their individualized learning needs, competency development, personal interests, and social, political, and economic contexts. Based on self-awareness, self-modification, and self-regulation, differentiation is a viable educational innovation for a diverse educational ecosystem.

## Learning as a self-differentiated problem to solve

Everything we do is either an intuitive or purposeful problem to solve regardless of complexity. Problem solving proceeds through four, distinct and essential steps. Unless these steps, and the associated divergent and convergent thinking that happens within each step, are explicitly explained, most people take shortcuts in problem solving, making a natural and universal process (Puccio, et al, 2014) appear random, or the skill-domain of a privileged few. Countering this, the founders of creative problem solving, Sid Parnes and Alex Osborn, stressed in the 1950-60s that the process was a transferable skill anyone could learn and apply to various milieus. Since democratizing learning means giving all learners equal and equitable access to information and skills, demystifying the problem solving process is a priority for emergent pedagogy and a necessity for self-differentiated learning based on thinking preference management.

To elaborate, creative problem solving consists of four cognitively discreet steps: clarifying, ideating, developing and implementing. Although divergent and convergent thinking occurs in each step, clarifying and developing prioritizes a convergent, or focused outlook, while ideating and implementing highlights a divergent, expansive, disposition. Each step in problem solving is equally important and value-neutral creating an impartial, balanced system. Task sophistication or difficulty,

and individual preferences toward a particular thinking style may alter this equilibrium. Inescapably, individuals display idiosyncratic differences when problem solving. This is similar to learning progressions where "students do not all learn at the same rate, in the same ways, or with the same degree of sophistication" (Tomlinson & Moon, 2013, p72). Known as cognitive preferences, the individual's thinking penchant maximizes familiar actions and viewpoints and minimizes diverse actions, ideas and perspectives.

These preferences can distort problem solving's stable, unbiased sequence by prioritizing and privileging one problem solving phase over another. Likewise, the familiar action becomes the individual's perceived, cognitive strength while the avoided actions and thinking mindsets are perceived as limitations. Building energy, motivation and a sense of mastery for that particular problem solving phase triggers a compulsive favouring of and returning to that particular cognitive action. Preferring a particular problem solving step does not signal a lack of ability in performing the other steps. Rather, it signals a shortcut in thinking that potentially limits innovative, inclusive and equitable possibilities. This bias creates an imbalance in an otherwise open-minded and neutral process that may or may not impact the outcome. Failing to equitably proceed through the steps, learners perpetuate incomplete, privileged and limiting processes and thinking.

Cognitive preferences, like our taste for certain foods, may not change over time (Puccio, Miller, Schoen & Thurber, 2014). However, taste does mature and develop. Thus, as an acquired skill, creative problem solving can challenge habitual and biased thinking and actions. Significant to emergent pedagogy and equitable, inclusive, diverse learning, environmental processes and personal awareness lead to self-differentiation. Making the problem solving process transparent and accessible to learners gives them the ability to manage, control and develop skills applicable to multiple situations. Aware that individuals use familiar thinking styles when solving problems, learners can better understand themselves and others. This can lead to an empathetic viewpoint in learners, and a growing ability to self-differentiate their approaches to learning by helping them select appropriate tools for different challenges.

## Conclusion

Minimizing the familiar and maximizing the diverse in teaching and learning means making processes and strategies transparent. This behind-the-scenes view uncovers learning as accessible to and transferable by all learners. Such an awareness reduces the misinterpretations and conflicts that can arise when differences are not viewed as cognitive preferences for a particular way of thinking and processing. This means many things for emergent pedagogy.

First, individual and group thinking preferences provide specific information about how learners think and can assist with "scientifically informed decisions about instruction" (Riley, 2017) and curriculum development. Second, learners' awareness of personal thinking preferences and the problem solving process can increase their autonomy, motivation, and self-efficacy by enabling them to select specific tools and strategies for individually-defined success. Self-regulation, self-management and self-selection differentiates learning content, strategies, products and environments while simultaneously supporting Hammond's (2015) call for ways to develop independent learners who are self-motivated, engaged and responsible for their learning. Self-differentiation, then, provides greater promise for all learners. Likewise, it provides hope in successfully navigating the complex learning, working and living contexts we all may face in a post-Covid world.

## Part Two: An invitation

### Minimizing the familiar and maximizing the diverse: Emergent pedagogy in action

Neuroscience reveals the brain does not distinguish between the act of reading about an experience and the act of performing that experience. In both cases, the same areas of the brain ignite (Murphy, 2012). Although the brain may respond to static and active experiences in the same way, experiential learning creates embodied memories that enhance learning.

With this in mind, I invite readers to set aside their familiar expectations of academic articles and embrace the spirit of creativity, innovation and fun by participating in two, brief activities. Required is blank paper, something to write/draw with, and a timer. No artistic ability is needed, just an open mind and a sense of adventure. Ready? Follow the directions below.

### Activity #1:

Give yourself one minute to draw, write or symbolize three culinary items you would bring to a party and provide point form reasons for your choices. When completed, put aside and get another sheet of paper for the next activity.

### Activity #2:

Scan the image below



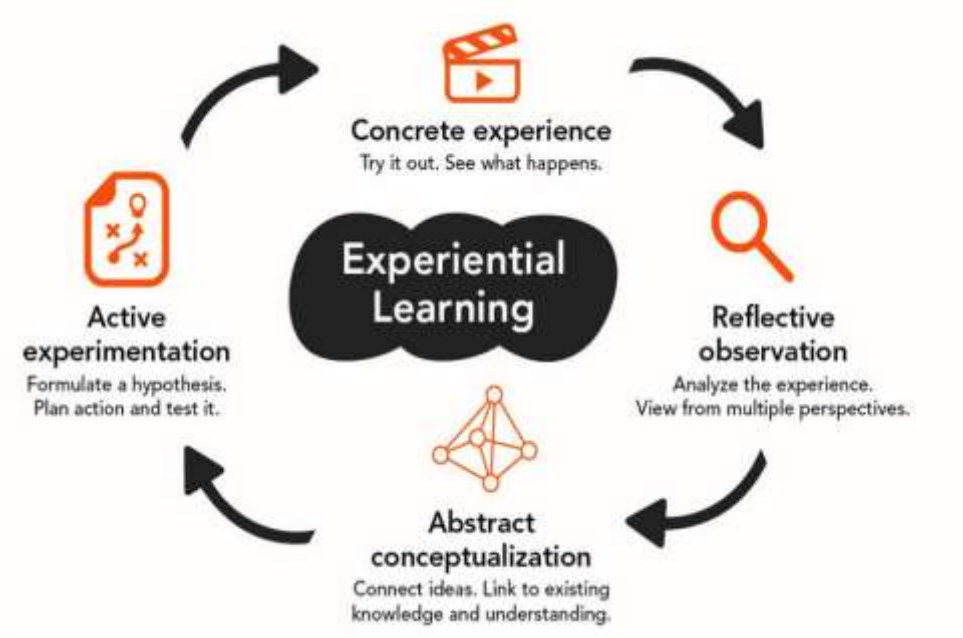
1. Set the timer for five minutes.
2. Within the set time, you will design a culinary event for these 35 people by writing, drawing, or symbolizing your ideas.

### Do not read beyond this point until you have completed the above task.

3. Congratulations for completing steps 1-3. Give yourself a pat on the back.
4. Alas, new information has surfaced about the guests attending your event. Read the details below:
   - fourteen guests have various allergies, including a sensitivity to latex, and dietary restrictions requiring knowledge of your dishes' ingredients.
   - two have serious nut allergies.
   - eight are extreme foodies seeking novel and exotic culinary adventures.
   - six care about the environment, sustainability and the equitable production of food.
   - seven have to leave early to board a plane and require take out.
5. Mentally record your response to receiving this information. You may decide to end your participation, or continue on. Regardless of your decision, please continue reading.
6. If you decided to continue with the activity, set your timer for two minutes.
7. Within the set time, make modifications and adjustments to your event plan.
8. Thank you for participating in these activities.

## 3D-Briefing Activities

John Dewey states that learning does not happen through experience alone; learning comes from contemplating on the experience's significance in relation to past, present and future actions. Likewise, Kolb & Kolb (2018) emphasize the importance of reflecting on experience in order to connect that experience to prior and current knowledge (Image 2).

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https://www.mohawkcollege.ca/employees/centre-for-teaching-learning/experiential-learning/experiential-learning-theory

To not reflect, especially on ice breakers, energizers and metaphorical activities, leads to missed opportunities, as well as potentially dysfunctional residual feelings. Since there is no such thing as just a game, 3D-briefing provides a three-dimensional exploration through three modest questions: What, So what, Now what. These three simple questions sequentially move from lower order thinking to higher order thinking in a way that is personalized, comprehensive, and contextual. It mirrors cognitive laddering (Bloom, 1956, Anderson, et. al., 2001) by identifying, analysing, evaluating and then creating future actions.

Drawing richness from the culinary metaphor, the following templates use 3D-Briefing prompts to explore what we did, why we did it, and how it might inform future actions. Since 3D-Briefing is a rich process, there are a series of questions to consider. The first 3D-Briefing asks about your designing of the culinary event in general.

### 3D-Briefing #1

| *What* was your process for performing the task? List what you did first, second, third, etc. | *So what* was the significance of this process? Consider your strengths and challenges in completing the task? | *Now what* did you learn about your problem solving process that might impact your future problem solving? |
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The next 3D-Briefing asks you to reflect on a particular part of the design activity. Specifically, focus on what you did from the point you were aware of the guests distinct requirements – Steps 5 through 8.

### 3D-Briefing #2

| *What happened* to your mood, energy, and attitude after receiving the information about the guests in Step 5? | *So what* might the significance of your responses be to the task? | *Now what* did you learn about how you handle new information that might impact your future actions? |
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The next 3D-Briefing asks you to consider your food preferences and how they might or might not have impacted your decisions in creating a culinary event for others. Once again, use the template to identify what you did to analyze the significance of those choices and then to see the impact this reflection may have on future events.

### 3D-Briefing #3

| *What* items, if any, from activity #1 appeared in activity #2? | *So what* might be the significance of this? | *Now what* did you learn about yourself that might impact your future actions? |
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No doubt, planning a culinary event for 35 people can be exhilarating and challenging. There is much to consider and many ways to accomplish the task. The next 3D-Briefing invites you to consider the perspective you used to complete the task.

### 3D-Briefing #4

| *What* perspective did you apply to the the culinary task from Steps 1-4? *What* perspective did you apply from Step 5-8? | *So what* was the significance of the perspective you used from Step 1-4 and then Step 5-8 to the design process, meeting the guests' needs, and the event's success? | *Now what* surprised you about the impact of perspective on design and how might the issue of perspective impact your designing of future events? |
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Are you surprised at the process you used to design the event? Activity #1 permitted your natural design tendencies to emerge which, may or may not have included various perspectives besides your own. The new information in Activity #2, steps 5-8, forced you to consider your design through multiple perspectives.

It is important to note that everyone who did the task succeeded and that there are lessons to be learned even if you didn't do the task. The following discussion is not about success or failure in planning a party; it is about recognizing the metaphorical connection between the culinary activity -- how we solve problems, the tools we use, the perspectives we take – and responding to a diverse educational ecosystem.

## Part 3: Analysis of the "culinary event" activity

### Minimizing the familiar and maximizing the diverse: Reflecting on emergent pedagogy

Let's acknowledge that inviting readers to perform an activity within an academic article is an unfamiliar practice. Some may have declined the offer; others, may have gone along with the game until Step 5 when given the opportunity to stop. Others may have jumped into the kettle all the way. To summarize the unusual request in Part 2: readers were invited to gather items needed for the activity. Next, participants were asked to write, draw or symbolize their favourite foods to take to a party. That was set aside and the next activity was based on a photo of 35 random people. These people were coming to a culinary event hosted and designed by the reader. After a few minutes of planning the event, readers were given new, detailed information about the guests. This information included allergies and other personal restrictions. Participants were given the option to continue with the activity, or not. An additional two minutes were given to make modifications and adjustments to

the design. Participants were then asked to reflect on their process, actions and deliverables through the 3D-Briefing model and to record their responses in provided templates.

## An appetite for diversity

Designing curriculum that engages, motivates and meets the diverse needs of even more diverse learners is exciting, yet demanding, work. Too often, educators base curricular decisions on inaccurate, limited, or misleading information gleaned from superficial evidence. Class lists, visual impressions, anecdotes and assumptions tell educators little, to nothing, about who learners are, what they need to learn, and how they learn best. Using familiar perspectives or assumptions, educators make design choices overlooking details important for inclusivity, equity and diversity.

Wagner (2018) and others showcase the importance of diversity to innovation and creativity. Yorks and Kasl (2012) agree with this positive aspect, but recognize diversity's negative polarity, as well. They state that diversity, while highlighting novelty and difference, can challenge the creation of an empathetic perspective and block positive growth and transformation within classrooms (Yorks & Kasl, 2002).

Responsive educators need to minimize the negative impact of diversity and maximize its positive potential by recognizing the paradox within their own thinking process and how generalizations, labelling and profiling may reflect familiar, but untrue, assumptions about learning and learners.

Hammond (2015) comments on how many educators are poor judges of behaviour and label specific learners as unresponsive, unreachable, difficult and uncooperative. Educational decisions are based on limited, unreliable information, and inaccurate assumptions that fail to paint learners as individuals with distinct needs, passions, purposes, and learning preferences and styles. Just as the photo gave limited information about the dinner guests, curricular decisions are often based on external, unreliable evidence that obscures the individual. Then, when details surface, the paradox of diversity comes into play.

Every educator is a change agent; yet every educator has a choice between diversity's high potential for innovation and creativity, and its high potential for resistance and conflict. New information not aligning with our vision of the world can help us expand that vision. Yet, we must realize that "change challenges competence, creates confusion, and causes conflict" (Evan, 1996, p32). Timing is just one external factor influencing how we respond to diverse information. How might receiving the details about our guests at the beginning of the exercise, or being given more than two minutes to modify our plan, have altered our feelings and actions? If we felt a mild state of irritation after step 5 can we determine the cause? The information may have restricted our design freedom. Yet, ironically, restrictions can increase creative output by forcing divergent thinking on familiar, conventional solutions that are no longer appropriate, inclusive, equitable, or flexible options.

Earl (2003) states that finding out about students as learners and as people is the key to differentiated instruction. The more information we have about learners, even when it seems restrictive, or impossible to address, the more innovative education will be as educators think within and beyond the familiar box. A starting point may be asking how might we create innovative, quality curricular experiences for today's multi-faceted classrooms? One possible answer is to shift pedagogical perspective deliberately and realize education is not coated with Teflon. Education is impacted by global disease, political conflicts, social unrest, economic inequities, and more.

Accepting the creative challenge of minimizing the familiar and maximizing the diverse, responsive educators need agility in their pedagogical practices budding from an empathetic perspective. Central to human-centred design, empathy shifts the design focus on users, their needs, requirements, and knowledge in order to enhance their well-being, satisfaction, accessibility and sustainability. (ISO, 2019). Not content to just observe, human-centred designers employ ethnographic tools to understand the user from an insider perspective. In education, this means building relationships and a sense of community through which learners step out of the generalized profile.

The qualities of human-centred design also align with Outcomes-based Education, and Backward Design (Image 2). Outcomes-based education identifies the specific skills learners will be able to demonstrate at the end of their learning experience. Similarly, Backward Design stresses a learner-centred approach beginning with the skills and attitudes learners will achieve at the end of training. It concentrates on essential, transferable skills that can be applied to various learning contexts and mirrors the WEF's recommendations of transferable skills for robot-proofing the future. (2016, 2016b). While human-centred design is not linked specifically to Outcomes-based Education or Backward Design, it enriches the potential of both educational frameworks by introducing empathy as a way to understand and address the needs of learners. Again, Covid-19 has made such an empathetic framework paramount. Thus, combining these three frameworks makes for a powerful authentic and deliberate shift from teaching to learning, from product to process, from text to experience, from teacher to learner. This, creates a meaningful relationship between designers and users that is especially relevant in the educational landscape impacted by a global disruption such as Covid-19.

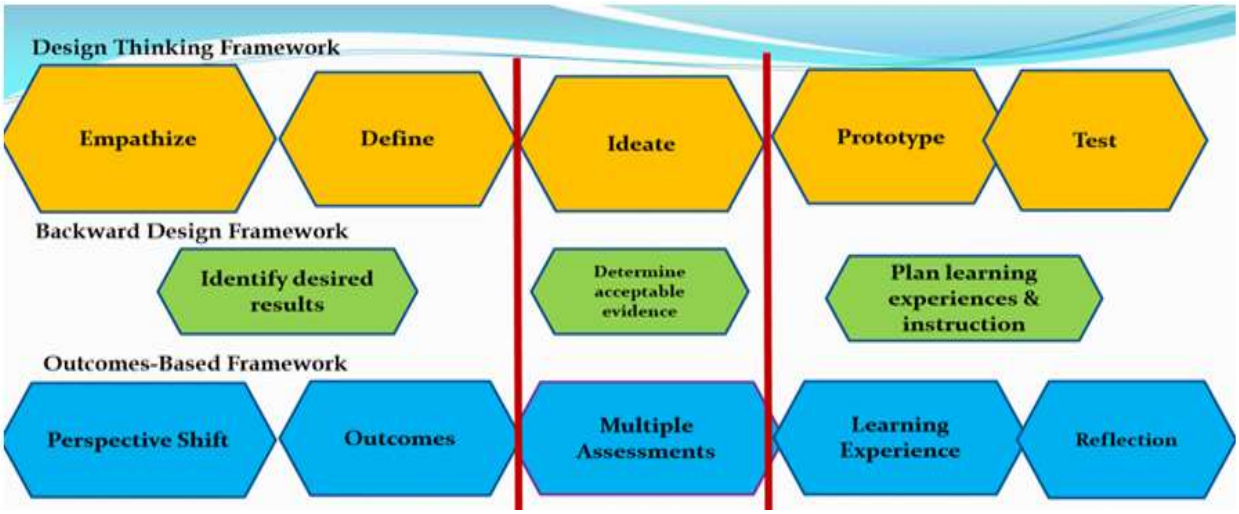


**Image 2:** Curriculum Design Thinking Framework

Designing curriculum from a human-centred, intuitive, cooperative, and creative manner requires an empathetic stance and knowledge of diverse situations and contexts. Best intentions, differentiation, empathetic perspectives and an emergent pedagogical stance do not guarantee an equitable response to diversity (Reis & Renzulli, 2018). It was impossible to anticipate all the accommodations required in our culinary activity. Likewise, an education system interrupted by a global pandemic was unimaginable. So what is the solution?

Remember the ancient proverb:

> Give a person a fish they eat for a day. Teach a person to fish and they eat for a life time.

As responsive educators, designing flexibility and independence into learning experiences empowers learners to apply appropriate tools and concepts to their own situations. Teaching transferable processes, tools and strategies empowers them for all occasions and builds their sense of ownership and accountability by placing them in a position of strength rather than a position of inequity and weakness (Hammond, 2015, Reis & Renzulli, 2018, Tomlinson & Moon, 2013).

Divergent thinking, or brainstorming, is key in minimizing the familiar and maximizing the diverse. It is an important ingredient in equitable curriculum design, especially when familiar teaching and learning strategies may not be available due to safety concerns, nor sufficient in meeting learner

needs, or ambiguous contexts, such as what the world experienced in 2020. As a way of generating novel options, it also enables learners/educators to shift perspective and empathize with diverse views and scenarios. But, brainstorming is not a cognitive free-for-all. There are rules of engagement:

- Avoid censoring, or judging, ideas. Anything is possible, everything is valid, all ideas are recorded;
- Aim for quantity by listing all ideas that come to mind and by not listening to the reality checker in your head;
- Build on ideas through substitutions, associations, modifications, opposites and clustering;
- Follow wild, novel and unique ideas that defy reality, gravity and logic; and,
- Respect the idea, especially if doing a group brainstorming, by accepting anything and everything as a valid and possible contribution.

While divergent thinking creates options and possibilities, its counterbalance ensures that ideas are based on criteria relating to the challenge at hand. Convergent thinking seeks to balance the creative potential generated by divergent thinking with workable solutions. Once criteria are set that matches the task, the rules around ranking ideas create this equilibrium:

- Avoid snap judgments based on prejudices, assumptions and fears;
- Remain constructive and positive about ideas;
- Adjust and modify ideas;
- Be courageous and don't shy away from novelty; and,
- Remain true to the objectives.

How might the application of divergent thinking in Activity #2 have helped you prepare a culinary plan that met the needs of most guests? As already mentioned, divergent thinking is essential for innovation and creative thinking. It challenges the ideal learner profile based on conventional characteristics, attitudes and attributes and suggests an empathetic exploration from multiple perspectives and lenses.

| *What* type of thinking did you use to design the event? | *So what* is the significance of this type of thinking to a user-centred focus? | *Now what* ways might divergent and convergent thinking assist in your teaching and learning practices? |
|---|---|---|
| | | |

Like our culinary activity, the current educational table must serve multiple tastes and needs. Differentiated learning sets the table for individuals to fill their own plate with familiar as well as new options. Giving learners transferable tools, such as divergent-convergent thinking, creative problem solving, to fill their own plate with familiar and new learning selections is an innovative, viable option. Providing a secure framework for learning, institutions and educators must not be blind to society's rapidly changing, uncertain, and complex demands. Such blindness will maximize resistance and conflict and minimize innovation, creativity and empathy.

## Conclusion

Unlike learners and educators during the Covid-19 pandemic, readers were given a choice to engage in the interactive activity or not. A second choice was given during the activity: respond to the guests' heterogeneous needs, or ignore those differences. Today's challenging educational ecosystem means all educators must be responsive to learners cultural, economic, geographical, psychological and physical needs. An educational environment impacted by a global health crisis must reject the conventional perspective that designs curriculum for an imagined, ideal learner. She no longer exists, if she ever did.

The metaphorical activity reflects the various challenges in curriculum design, minimizing the familiar, maximizing the diverse, and differentiated learning experiences. Designing and learning

involves choice. How responsive, equitable and empathetic we are *was* also a choice until March 2020. Rather than viewing learner diversity as a hindrance or an impossible challenge, educators need to provide learners with transferable concepts, tools and strategies for self-guided differentiation making them independent designers of their own future.

The reins of learning must be given to learners so they can develop an independent mindset. Awareness of processes and paradoxes empowers learners to self-differentiate learning and become independent learners where self-motivation, autonomy and confidence grow through the application of tools and learning strategies best suited to the learner's own needs and learning styles (Hammond, 2015).

In the spirit of emergent pedagogy, I invite you to consider the final 3D-Briefing cluster. Practice divergent thinking when answering so that you can choose the nutrients you need to be a responsive educator setting an equitable, empowered learning table for all.

| | | |
|---|---|---|
| *What* were you asked to do in this paper? | *So what* are the ways this relates to how you design curriculum? | *Now what* might you learn from these connections that may impact your actions in a post-Covid world? |

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## About the Author

**Christine Boyko-Head** is an artist-educator specializing in innovative curriculum development, arts-based integration, creativity and personal development through the arts. She earned her Ph.D. in English Literature from McMaster University. She is certified as a Foursight Thinking Preference, and Design Thinking facilitator and a Values Institute intercultural competency auditor. She founded a theatre company creating social justice plays for young audiences, helped start a national magazine for/by young people, converted her Ph.D. dissertation into a historical fiction and fund raised or $1.3m for her community. Her interests swirl around minimizing the familiar in order to give voice to the diverse. She has published, taught and presented nationally and internationally with a focus on developing equitable, empathetic collaborative experiences. Her new venture, Kaleidoscope Learning Solutions, amplifies creativity as a way to help educators think differently, learn flexibly and live creatively. She teaches at Mohawk College, Canada and lives on the shores of Lake Erie in Southern Ontario.

## Address

**Dr. Christine Boyko-Head**;
McKeil School of Business, Communications, Creative Industries and Liberal Studies;
Mohawk College of Applied Arts and Technology;
135 Fennell Ave W.;
Hamilton, ON Canada L9C 0E5;
**e-Mail:** christine.boyko-head@mohawkcollege.ca
www.kaleidoscope-ls.com

# Use of the Jordanian WISC-III for Twice-Exceptional Identification

**Anies Al-Hroub**
American University of Beirut (AUB), Beirut, Lebanon

## Abstract

The main purpose of this research was to investigate empirically the Wechsler Intelligence Scale for Children – the third Jordanian version (hereinafter WISC-III-Jordan) profiles to analyze cognitive factors for 'twice-exceptional' (2E) children characterizing 'mathematical giftedness with learning disabilities (MG/LDs). The paper examined whether WISC-III-Jordan, the latest adapted version in Jordan, is a useful psychometric assessment tool for providing a partial picture of the cognitive weaknesses and strengths of 2E learners. Thirty MG/LDs students (16 girls and 14 boys) and a control group of 22 'intellectually average students with learning disabilities' (Average-IQ/LDs) (10 girls and 12 boys) were administered the WISC-III-Jordan. The two experimental and control groups, aged between 11 and 12 years, were chosen from three public primary schools in Amman, Jordan. While differences between the two groups were investigated, a comparison of 17 factors was made using five cognitive classification systems: Wechsler (1974 and 1991), Horn (1989), Bannatyne (1974), Kaufman (1975, 1994), and Rapaport et al., (1945-1946), in addition to the ACID profile (Arithmetic, Coding, Information, and Digit Span). The findings revealed that the MG/LDs sample demonstrated a significant discrepancy between the verbal and performance IQ subscales, but no significant scattered subtest profile was yielded. Relative strengths were shown in four subtests: Comprehension, Arithmetic, Vocabulary, and Picture Completion. Both experimental and control groups showed relative weaknesses in three subtests: Coding, Information, and Similarities. The analysis of the cognitive systems revealed that the Rapaport et al. (1945-1946) and Kaufman (1994) models were the most powerful for discriminating between the two groups. As opposed to the ACID profile, the Bannatyne (1974) model was the only classification not found to be useful in diagnosing students with learning disabilities. Finally, while the MG/LDs group showed significant relative strength in the visual-perceptual awareness and coordination compared to the Average-IQ/LDs group, both groups showed relative weaknesses in Sequencing Ability, Visual-Motor Coordination, and Broad Speediness.

**Keywords:** Twice-exceptional; WISC; verbal; performance; cognitive, fluid; crystalized; visual; speediness; giftedness; learning disabilities; intelligence.

## Introduction

There is a variety of definitions of twice-exceptionality (2E), which has led to inconsistency in sampling in the literature population (Al-Hroub, 2012, 2014; Baum, 2017; El Khoury & Al-Hroub, 2018). Recent broad definitions in this field allow the co-existence of high abilities and learning problems in the same individuals (Al-Hroub, 2013, 2009b, 2019; Baum, 2017; Montgomery, 2015). Recent studies of 2E have considered how the unexpected occurrence of learning problems in highly intelligent students affects their academic performance and behavior in classrooms. Therefore, several researchers (e.g. Al-Hroub, 2008, 2010b; Waldron & Saphire, 1990) have come to realize that if educators would like to understand this population of 2E children, they must better comprehend their perceptual patterns and cognitive strengths and weaknesses. According to Al-Hroub (2011), this understanding would allow practitioners to teach students through their stronger modalities on cognitive processing while providing compensatory training in weaker areas. This paper adopted broad definitions of 2E that acknowledge the coexistence of giftedness with any type of disability except for intellectual disability, such as the proposed definition by Reid, Baum, and Burke in 2014:

> Twice-exceptional learners are students who demonstrate the potential for high achievement or creative productivity in one or more domains such as math, science, technology, the social arts, the visual, spatial, or performing arts or other areas of human productivity AND who manifest one or more disabilities as defined by federal or state eligibility criteria. These

> disabilities include specific learning disabilities; speech and language disorders; emotional/behavioral disorders; physical disabilities; Autism Spectrum Disorders (ASD); or other health impairments, such as Attention-Deficit/Hyperactivity Disorder (ADHD) (Reis et al., 2014, p. 222).

In the field of 2E, the current WISC-V (and its precursors, e.g., WISC-III, WISC-IV) are often used to gain an overall estimate of a student's present global intellectual strengths and weaknesses in specific areas of aptitude (Kaufman et al., 2016; Weiss et al., 2016). This has been discussed in the theoretical literature (e.g. Al-Hroub, 2012; Brody & Mills, 1997) and has been historically studied by empirical researchers (e.g., Al-Hroub, 2013; Barton & Starnes, 1989). For example, Waldron and Saphire (1990) reported that when comparing a control group of gifted students, gifted students with learning disabilities (G/LDs), known also as 2E, performed significantly less well in some perceptual areas, including visual and auditory discrimination, visual and auditory sequencing, visual-spatial skills, and short-term auditory memory. There were no significant differences between groups in visual memory skills or listening comprehension. They also noted experimental students' comparative weaknesses in reading, arithmetic, and spelling and concluded that many academic disabilities may be related to perceptual problems.

On the other hand, the emergence of solid verbal comprehension and organization factors for students with E2 would seem to bode well for meaningful interpretation of the Verbal and Performance IQs and the difference between them (Waldron & Saphire, 1990). For example, a number of researchers in this field have indicated that there is some correlative evidence to support the idea that Verbal IQ (VIQ) reflects left-hemisphere functioning, whereas the Performance IQ (PIQ) reflects right-hemisphere functioning.

Similar types of conclusions, with implications for clinical diagnosis, have been offered for the VIQ-PIQ discrepancy in WISC-R and WISC-III scores (e.g. Kaufman, 1979, 1994). These hypotheses are related to the distinction between verbal and non-verbal abilities that are historically evidenced in factor analytic studies (Kaufman, 1979) and continue to be applicable for the WISC-III, WISC-IV, and WISC-V (Kaufman et al., 2016, Weiss et al., 2016).

It has also been argued that a significant VIQ-PIQ discrepancy (PIQ > VIQ) is suggestive of LDs (e.g. Kaufman, 1994). It is also essential to understand that many children with LDs, based on their specific perceptual or cognitive deficits, may have the opposite pattern: VIQ > PIQ (Kaufman, 1994, Kaufman et al., 2016). Silver and Tipps (1993) indicated that such children may be more likely to experience memory disabilities than children who have LDs with the more common PIQ > VIQ profile. Numerous studies support the use of VIQ-PIQ discrepancy as a characteristic of LDs (Al-Hroub, 2019). For example, Al-Hroub (2011) and Newman et al. (1989) found that students with a reading disability demonstrated a significant VIQ-PIQ difference. In contrast, other researchers have not found the use of WISC VIQ-PIQ discrepancy patterns to be useful in the differentiation of children with LDs from other groups of children (e.g. Weiss et al., 2003; Weiss et al., 2016).

Furthermore, many researchers have examined the profiles of intellectually gifted children with Full-Scale IQs greater than 120 with results showing large variability in subtest scores and VIQ-PIQ discrepancy (VIQ > PIQ), and frequent high variability for very able children (Al-Hroub, 2014; Wilkinson, 1993).

Moreover, several researchers in the field of G/LDs students have focused on the VIQ-PIQ discrepancy (Al-Hroub, 2011, 2014; Waldron & Saphire, 1990). Typically, students with G/LDs have a wide 'scatter' or discrepancy within either or both the Verbal and Performance sections. The data from this research showed no consistent pattern of results. Silverman (1983) indicated that students with G/LDs may have a 15-point discrepancy between Verbal and Performance scores on the WISC. They generally also have a 7-point scatter between the highest and lowest subsets on a WISC. The WISC-III manual (Wechsler, 1991 gives values for statistical significance at the .05 and .01 levels to determine whether the VIQ-PIQ discrepancy is significant. The overall values for the discrepancy are 11 points at the .05 level and 15 points at the .01 level.

In a study conducted in the UK, Al-Hroub (2011) reported a significant (VIQ-PIQ) discrepancy of 25 points with Verbal scores higher for five mathematically gifted students with LDs at three state schools in Cambridgeshire. Al-Hroub (2011, 2019) found that significant discrepancies between Verbal and Performance scores may not be the best indicator of an LD in students. Thus, schools should not use it as the sole indicator for LDs or 2E. In addition, while discrepancies between Verbal and Performance scores on Wechsler scales have been advocated as an indicator of written output deficits, no consensus exists on the magnitude or the direction of discrepancy that would indicate giftedness with LDs or 2E (Al-Hroub, 2011).

## Analysis of the WISC-III-Jordan subtests

According to previous studies, therefore, it appears that in order to understand 2E learners, researchers must engage in a more sophisticated analysis of their perceptual patterns and cognitive behaviors (Al-Hroub, 2008; 2009a).

Based on these factor analyses, many new organizational models have been proposed for interpretation of the Verbal and Performance subtests. Many of them came from theoretical reorganizations of the Wechsler subtests for identifying the special cognitive patterns and characteristics of 2E learners. Furthermore, while earlier studies tended to rely on a 15-point discrepancy between Verbal and Performance areas of intelligence to indicate an LD, many children with LDs may not have such a large discrepancy (Kaufman et al., 2016).

The primary problem with the use of an intelligence test such as the WISC-III-Jordan, to identify 'mathematically gifted students with learning disabilities' (MG/LDs) is that the disability may lower the IQ score so dramatically that the students do not qualify for inclusion in the school's criteria for gifted, even though they demonstrate strong abilities in some areas. Despite this problem, Kaufman et al. (2016) noted that careful review of the subtests provides the clinician with a profile of cognitive strengths and weaknesses. High scores on some subtests may indicate giftedness, while comparatively weak scores on others may indicate a disability. This consideration of the WISC-III-Jordan subtests and their subsequent combination into factors has been far more accurate in suggesting the presence of an LD than has the VIQ-PIQ difference.

Furthermore, there is an explanatory circumstance for children with G/LDs: the consistent findings of the *ACID profile* – low scores on Arithmetic, Coding, Information, and Digit Span - and the *SCAD profile* – low scores on Similarities, Coding, Arithmetic, and Digit Span – for a diverse group of students with LDs (Kauffman, 1994). Additionally, the utility of different cognitive classification systems was examined to identify cognitive strengths and weaknesses. Following the previous revision, the Bannatyne (1974) pattern was applied to WISC-R and WISC-III and initial investigations frequently found the spatial > conceptual > sequential pattern among children with learning and reading disabilities (Smith & Watkins, 2004). While some research has been initiated using Bannatyne's (1974) clusters, there has been little research thus far into alternative cognitive categories on the WISC for 2E, such as those proposed by Wechsler (1974, 1991) Kaufman (1975, 1994), and Rapaport et al. (1945-1946). It is difficult to select one model for potential applicability to this population because each system concerns itself with unique cognitive and/or behavioral areas.

Within these models, it is possible to select factors that allow for specific concerns about the current sample of students, such as their performance. While individual subtest scores may be important for indicating specific strengths and weaknesses, the consideration of subtest clusters in broader factors might allow educators and psychologists to note cognitive patterns supportive of effective intervention. Because of diversity within the G/LDs population, there are problems in discovering similar ability levels and common approaches to complex cognitive tasks. However, this diversity makes it imperative to conduct this cognitive study and analyze the cognitive patterns of a group of MG/LDs in Jordan. In the present study, the cognitive patterns were analyzed using five models and one profile, as follows: (a) Wechsler Model, (b) Bannatyne Recategorization Model, (c) Horn Fluid-Crystallized Theory, (d) Kaufman Factors, (e) Rapaport et al. Model; and (f) The ACID Profile (see Table 1).

## Wechsler Model

The four-way analytic studies of data from the WISC-III standardization sample of 2,200 children and adolescents at four age levels between 6-7 and 14-16 years (Wechsler, 1991) recategorized the 13 subtest scores to measure the following four factors: ***(1) Verbal Comprehension Factor (VC):*** the subtests significantly loaded on this factor (Information, Similarities, Vocabulary, and Comprehension) are orally presented and require verbal responses; ***(2) Perceptual Organization Factor (PO):*** this factor is identified by four subtests (Picture Completion, Picture Arrangement, Block Design, and Object Assembly) that measure skills that require the manual manipulation or organization of pictures, objects, blocks, and the like; ***(3) Processing Speed Factor (PS):*** the two subtests (Coding and Symbol Search) loaded on the third factor basically measure the speed of a simple coding or searching process; and ***(4) Freedom from Distractibility (FD):*** the two subtests (Arithmetic and Digit Span) loaded on this factor deal with arithmetic problems and numbers so that this factor can also justifiably be named 'Numerical Ability' (Kaufman, 1994) or 'the third factor' (Prifitera & Saklofske, 1998). There has been much controversy about this factor as it is not a pure measure of distractibility or attention, even though it is often interpreted in this fashion (Kaufman, 1994).

Kaufman (1994) presented mean Factors Indices on the four WISC-III factors for samples of gifted and other children with LDs. Kaufman reported that children with reading and LDs showed a discrepancy of 10 or more points on the FD-PS. PS emerged as an area of relative weakness for gifted children, whereas the PO was shown as a relative strength for children with LDs. The relatively low VC Indices reflected the direct impact of the children's LDs. The last two factors are doublets since they are identified by only two subtests each. Therefore, they are conceptually weak compared to the first two factors and more subtests may need to be added to these factors to make them conceptually sound.

## Bannatyne's Recategorization Model

Regrouping the WISC-III subtests into Bannatyne's patterns has been thought by many to identify children with LDs (Smith & Watkins, 2004). Bannatyne (1974) believed that it did not serve a constructive purpose to divide the WISC performance of children with reading disabilities into Verbal and Performance IQs. Instead, he advocated re-categorizing the subtest scores to obtain three composite scores purportedly measuring the following four factors: ***(1) Verbal Conceptualization Ability (VCI):*** the subtests of this factor (Similarities, Vocabulary, and Comprehension) allow for the identification of children with LDs and culturally disadvantaged students' potential variations within the Verbal scale; ***(2) Spatial Ability (Spa):*** this factor (Picture Completion, Block Design, and Object Assembly) is named by Kaufman (1994) as simultaneous processing of information. It represents "one of the most useful and practical sub-groupings of Wechsler's subtests" (Kaufman, 1979, p. 152), because of its flexibility in application to a variety of populations. This factor tends to be the least dependent on special cultural or educational opportunities, thereby more accurately assessing the intellectual ability of children from disadvantaged environments. Additional studies of students with LDs also indicated that they demonstrate relative factor strength in Spatial Ability subtests (Anderson et al., 1989); ***(3) Acquired Knowledge (AK)*** is similarly of interest because it includes subtests (Information, Arithmetic, and Vocabulary) that are all school-related, subject to the influence of the home environment, and involving long-term memory (Anderson et al., 1989; Lutey, 1977). Kaufman (1994) considered this category as the most valuable of Bannatyne's groupings because of the frequency with which the model is applied to children with learning problems: and ***(4) Sequencing Ability (Seq)*** is one of the most frequently considered factors (Arithmetic, Digit Span, and Coding) in Bannatyne's (1974) model. It is also called the 'Freedom from Distractibility' factor and the 'Third Factor' (Kaufman, 1975). The importance of this factor lies in its measurement of the behavioral as well as the cognitive domain and the frequency of factor occurrence in children with learning or behavioral disorders. However, it is not accurate to conclude that all students with LDs will demonstrate the increased distractibility measured by this factor, as is too frequently assumed in assessment (Kaufman, 1994).

Bannatyne (1971) reported that children with reading disabilities had their highest scores in the spatial category, intermediate scores in the conceptual category, and low scores in the sequential category (Spatial > Conceptual > Sequential). Smith and Watkins (2004) pointed out that although later studies generally agreed that the pattern existed among some children with LDs, it was not clear whether the pattern was useful in discriminating between children with LDs and those from different ethnic backgrounds.

## Horn's Fluid-Crystallized Theory

Horn's expansion of the Horn-Cattell Theory of Intelligence (Horn, 1989; Horn & Hofer, 1992) distinguished between two broad constructs, Crystallized Intelligence (Gc), and Fluid Intelligence (Gf) (Flanagan et al., 2000; Kaufman et al., 2016). It also included more refined abilities, such as Visual Intelligence, Quantitative Reasoning, Short-Term Memory, Long-Term Storage, Auditory Processing, and Processing Speed (Flanagan et al., 2000).

The classification of WISC-III subtests into the Horn Model produced the following five factors: ***(1) Crystallized Intelligence (Gc)*** (Information, Similarities, Vocabulary, Comprehension, and Picture Arrangement). It refers to intellectual functioning in tasks calling on previous training, education, and acculturation; ***(2) Fluid Intelligence (Gf)*** (Picture Arrangement, Block Design, Object Assembly, Similarities, and Arithmetic). This factor cuts across the Verbal and Performance Scales, and this arrangement may account for its associations with both the VC and PO factors (Kaufman, 1994). Gf involves problem-solving and reasoning in which the key is adaptation and flexibility when faced with unfamiliar stimuli (Horn, 1989); ***(3) Broad Visualization (Gv)*** (Picture Completion, Block Design, and Object Assembly). According to Horn, (1989) *'[Gv includes] tasks that call for fluent visual scanning, Gestalt Closure, mind's-eye rotations of figures, and ability to see reversals'* (p.80). Horn's Gv grouping includes the same subtests as Bannatyne's Spatial category, and they measure the same ability, visual-spatial thinking or simultaneous processing of information (Kaufman, 1994, Kaufman et al., 2016); ***(4) Short-Term Acquisition and Retrieval (SAR or Gsm)*** **(**Arithmetic and Digit Span). This is similar to sequential processing of information, and according to Horn and Hofer (1992), *'[Gsm] involves processes of becoming aware of information, discriminating between different bits of information, re-training such awareness and discriminations for short periods of time, and using these awarenesses and discriminations... in performing various kinds of tasks'* (p. 62), and ***(5) Broad Speediness (Gs)*** (Coding, Symbol Search, and Object Assembly). Horn (1989) indicated that *'Gs is speediness in intellectual tasks related to carefulness, strategies (or meta-cognition), mood, and persistence'* (p. 84).

The Horn system provides a theoretical interpretation of the four WISC-III factors: VC is Gc, PO is Gv and Gf, FD is SAR (or Gsm), and PS is Gs. The association between the Horn Gv and Gf constructs and Wechsler's verbal/nonverbal dichotomy suggests certain predictions regarding the test profiles of children with LDs. Three predictions have been borne out in the bulk of research investigations using Wechsler's scales for evaluation of children with school-related deficiencies. The first prediction would hypothesize characteristic P > V and PO > VC patterns for groups of children with school-learning problems (Kaufman, 1994). Many researchers indicated that groups of children with LDs have typically obtained P > V profiles on the WISC, WISC-R, and WISC-III (Kaufman, 1994; Prifitera & Dersh, 1993).

The second prediction is that children with LDs would perform especially poorly in the subtests that Bannatyne groups together as measuring Acquired Knowledge (Information, Arithmetic, and Vocabulary) because these tasks are academically-oriented and may reflect the child's learning problem directly. The third prediction is that the Verbal deficit for children with LDs should be cumulative. Several researchers found that Verbal IQs for children with LDs decrease over time (e.g. Anderson et al., 1989; Haddad et al., 1994). However, Kaufman (1994) and Kaufman et al. (2016) indicated that support for the three hypotheses generated from the Gf-Gc theory does not imply that those two broad constructs provide the best insight into the deficits of children with LDs (Flanagan et al., 2000).

### The ACID Profile

The ACID profile for WISC-III is a pattern of low scores in the ***A***rithmetic, ***C***oding, ***I***nformation, and ***D***igit Span subtests and has been advanced as a means of differentiating children with learning and reading disabilities (Prifitera & Dersh, 1993). Many researchers noticed substantially lower mean scaled scores for children with reading and LDs in the four subtests (Kaufman, 1994, Kaufman et al., 2016). Watkins et al. (1997) examined the discriminate and predictive validity of the WISC-III ACID profile among 612 students with LDs. The results indicated that the ACID profile does not efficiently separate children with disabilities from those without, and further, there is no ACID cutting score, which significantly exceeds chance discriminatory power. Likewise, the ACID profile did not robustly predict academic achievement among children with LDs.

### Kaufman Factors

During years of intensive research, Kaufman (1975, 1979, and 1994) observed and refined several factors for the WISC-R and WISC-III standardization sample, four of which are of interest in relation to the G/LDs/2E population: ***(1) Verbal Reasoning (VR)*** (Similarities and Comprehension)***, (2) Right-Brain Processing (RB)*** (Picture Completion, and Object Assembly)***, (3) Left-Brain Processing (LB)*** or Verbal subtests (Information, Similarities, Arithmetic, Vocabularies, and Comprehension)**,** and ***(4) Integrated Brain Functioning (IBF)*** (Coding, Picture Arrangement, Block Design, and Symbol Search)**.**

Based on Thorndike et al.'s (1926, cited in Kaufman, 1994) distinction between the higher abilities involved in insightful problem solving and the lower skills in recalling stored information, Kaufman (1994), and Kaufman et al. (2016) discussed Verbal Reasoning, and noted its importance for learning, observing that some students with vast stores of knowledge cannot respond well to problem-solving situations. Similarly, Kaufman's (1979) Right-Brain Processing, Left-Brain Processing, and Integrated Functioning factors have strong implications for teaching. Faglioni et al. (1969) found the right cerebral hemisphere to be of importance for verbal information and letter recognition, functions previously attributed to the left-brain. Pirozzolo and Rayner (1977) underscored the importance of integrated functioning by noting that while the right hemisphere allows children to recognize letters and words as gestalts, transmission to the left hemisphere allows for the conversion of these symbols into phonological and meaningful units.

## Rapaport, Gill and Schafer Model

Rapaport et al. (1945-1946), with refinement by Lutey (1977), presented an important dichotomy for the non-verbal subtests. He recategorized the WISC nonverbal subtest scores to measure two factors: ***(1) The Visual Organization Group (VO)*** **(**Picture Completion and Picture Arrangement) which requires visual-perceptual awareness but little more coordination, and ***(2) The Visual-Motor Coordination subtests (VMC) (***Block Design, Object Assembly, and Coding) which are strongly dependent on the integration of perceptual-motor skills.

In a study conducted by Waldron and Saphire (1990), intellectual patterns of a group of 2E students were studied to determine cognitive factors characterizing these children. Twenty-four G/LDs and a control group of non-disabled gifted children were administered the WISC-R. Experimental and control performances were compared on 14-factor scores, using the cognitive classification systems of Bannatyne, Wechsler, Kaufman, and Rapaport et al. The findings revealed that students with G/LDs were more reliant on verbal conceptualization in short-term auditory memory and sound discrimination. They also exhibited the Organic Brain Syndrome factor to a significantly greater degree than did the control group.

In the current study, it was hypothesized that the results of the WISC-III-Jordan for MG/LDs would (a) produce a significant Verbal-Performance IQ discrepancy and yield a large amount of scattering in the subtest profiles, significantly more than the scatter found for normal populations or for groups who have only learning disabilities, (b) produce a characteristic pattern of strengths and weaknesses in the subtest profile, (c) show consistent patterning in clusters of scores when the factors

of five cognitive classification models and ACID profile were used, and (d) produce a characteristic pattern of strengths and weaknesses for different factors and profiles.

# Research method

## Instrument

The WISC-III-Jordan is the third and latest version of WISC that was adapted to the Jordanian context (Wechsler 1996). No subsequent versions were adapted to the Jordanian context. It is an individually administered measure of intellectual functioning designed to assess children from ages 6 years, 0 months to 16 years, 11 months. It has 13 individual subtests ($M$ = 10, $SD$ = 3), 10 standard, and three supplementary, that combine to yield three composite scores: Verbal (VIQ), Performance (PIQ), and Full-Scale (FSIQ) IQs ($M$ = 100, $SD$ = 15). In addition, the WISC-III-Jordan provides four factor-based index scores: Verbal Comprehension (VC), Perceptual Organization (PO), Freedom from Distractibility (FD), and Processing Speed (PS) ($M$ = 100, $SD$ = 15) (Wechsler, 1996). The reliability of the scale was studied by the test-re-test method for all of the subtests. Verbal, Performance, and Full-Scale IQs showed high-reliability coefficients of 0.95, 0.94, and 0.96 respectively across all ages. Reliability was also measured by inter-rater/scorer agreement. Verbal, Performance, and Full-Scales IQs have average reliability coefficients of 0.94, 0.88, and 0.95 respectively across all ages (Wechsler, 1996).

## Participants and Procedure

The present study involved 52 students (*mean chronological age* = 11 years, 1 month; *mean Full IQ score* = 120.3, $SD$ = 15.3) nominated by their primary Arabic and mathematics teachers in an identification process for mathematically gifted students with learning disabilities (MG/LDs). The teachers nominated the 52 students from a total population of 800 Jordanian students across Grade 5 and 6 at three public primary schools in Amman, Jordan. The selected schools were those of middle socio-economic backgrounds and contained a high number of students, which helped make it possible to choose the sample from as big a population as possible. All students were from relatively middle socio-economic backgrounds, and Arabic was the first and spoken language at home.

In the process of identification, the 52 nominated students were divided into two groups based on their: (a) intellectual abilities; (b) meeting the criterion of 2E or not. Students in both groups were diagnosed with specific learning disabilities as described below. The first group consisted of 30 MG/LDs (16 girls and 14 boys). The 30 MG/LDs students were those identified by the multidisciplinary assessment process outlined below as meeting the criteria for 2E, the namely mathematically gifted student with learning disabilities. In chronological age, this group of MG/LDs ranged from 10 years 0 m to 11 years 11 m ($M$ = 11 years 1 m), and in the WISC-III-Jordan they ranged from 127 to 147 ($M$ = 131.3, $SD$ = 4.4) in Full-Scale IQ.

The second group was made up of 22 (10 girls and 12 boys) average IQ/LDs students. The 22 subjects in this group met the following criteria. First, they had been previously identified by their primary school teachers as students manifesting 'specific learning disabilities'. Second, their Full-Scale IQ score was in the average range. They ranged in WISC-III-Jordan Full-Scale IQ from 88 to 119 ($M$ = 105.3, $SD$ = 11.4), and in chronological age from 10 years 5 m to 12 years 0 m ($M$ = 11 years 0 m). More specifically, both research groups were identified according to the following criteria:

- To score above the cut-off 120 IQ score on the WISC-III-Jordan. The reason for using the third edition of WISC is that the fourth and fifth editions were not translated and adapted to the Jordanian context. In research studies of the gifted, it is usual to confine the 'gifted' sample to those who have at least one IQ score of 130 or above (Montgomery, 2015). Silverman (1989) suggested the level for inclusion into these gifted education programs should be dropped by 10 points in the case of those with an LD. Accordingly, students in this research who scored 120 or above on the Full-Scale IQ were labeled **'gifted IQ'**, while others whose IQ scores ranged from 88 to 119 were labeled **'average IQ'** students.

- To show high mathematical potential on a Dynamic Assessment mathematical achievement test. A pre- and post-intervention method was used to determine whether students who exhibit performance deficits in mathematics have cognitive strengths that are not readily observed. The mathematical areas that the test covered were: (a) calculation operations, (b) ordering of decimals, (c) rounding up, (d) geometry, (e) algebra, and (f) problem-solving. Only students who revealed: (1) high intellectual ability (gifted IQ scores on the WISC-III-Jordan), (2) high mathematical abilities in all of the above-mentioned areas, and (3) high variance of performance between the pre- and post-tests were labeled **'mathematically gifted'**.
- To show specific learning disabilities on the Diagnostic Scale of Arabic Language Basic Skills (Waqfi, 1997), and performing poorly on the Group of Perceptual Skills Tests (Waqfi & Kilani, 1998). The main three areas that the scale-covered were reading, spelling, and writing. Both groups have revealed age delay and specific learning disabilities in all three areas, and therefore they were labeled **'students with LDs'.**

A multi-disciplinary assessment team consisting of two professionals identified the two research groups. The team consisted of (a) a psychologist who used his expertise to administer the WISC-III-Jordan and dynamic mathematics tests; and (b) a learning disabilities diagnostician who had wide experience of evaluating students with LDs in Jordan.

All of the 52 subjects were administered the Verbal and Performance subtests of the WISC-III-Jordan. A psychologist administered the Scale using standardized procedures. In order to be eligible for the study sample as gifted students, subjects had to have a Full-Scale IQ score at or above 120. Completed data were available for the 10 standard WISC-III subtests. Means and standard deviations were computed for all the 10 subtests to examine the subtest profile. To avoid over-testing the students the three optional WISC-III-Jordan subtests were not administered and, consequently, not analyzed. The selected sample consisted of students who had a Full-Scale IQ score at or above 120. It should also be noted that Kaufman (1994) found essentially no differences between age or gender groups in the size of scattering indices (the highest scaled score on a particular scale minus the lowest scaled score on that scale). Accordingly, both the groups in this study were analyzed together.

## Data analysis

The main purpose of the WISC-III-Jordan analysis was to examine cognitive profiles of mathematically gifted-IQ/LDs students as compared with average-IQ/LDs students. To achieve this, four analytical approaches were adopted as follows:

## Approach One: Verbal-Performance IQs Discrepancy and Scatter/Range Indices

In this approach, means and standard deviations were computed for the 10 standard WISC-III-Jordan subtests to examine subtest profiles, and the three IQ Indices VIQ, PIQ, and Full-Scale IQs were determined. To evaluate inter-scale and intra-scale variability, two scatter indices were computed for both research groups. The inter-scale index revealed the magnitude of the Verbal-Performance IQ discrepancy (V-P) regardless of the direction of the difference. The intra-scale index was the scaled range/scatter: a child's highest score on the scale minus his or her lowest score on the scale (Schiff et al., 1981). Scaled score scatters/ranges were computed for VIQ, PIQ, and Full-Scale IQs. Means and standard deviations obtained for the two research groups on these scatter indices were then compared statistically using a *t*-test for independent samples.

## Approach Two: Subtests Scaled Deviations

In this approach, the numbers of subtests that deviated significantly from each student's corresponding Verbal and Performance mean scaled score were computed. Deviations of the scaled subtest scores of the MG/LDs group were then compared with those from the Average-IQ/LDs group. In order to measure this 'relative strength', both Verbal and Performance scaled score averages were computed. For each of the subtests included, the corresponding Verbal or Performance mean was then subtracted from the student's subtest score. The differences were then added together to form the student's relative factor strength. For example, for the Information subtest, relative factor strength is given by (Information – Verbal average).

## Approach Three: Factor Averages for the WISC-III-Jordan

In this approach, 17-factor scores were computed from each child's WISC-III-Jordan scores in order to evaluate the cognitive abilities of students in various areas. Since complete data were available for the 10 standard WISC-III-Jordan subtests, it was possible to compute those 17-factor scores for every student in the mathematically gifted-IQ with LDs and average-IQ with LDs samples. The factors used and their component subtests are listed in Table 1.

**Table 1:** Factor components of five cognitive models and two profiles.

| Models | Models' Factors | Factors' Subtests |
|---|---|---|
| **Wechsler (1991)** | Verbal Comprehension (VC) | Information, Similarities, Vocabulary & Comprehension |
| | Perceptual Organization (PO) | Picture completion, Picture Arrangement, Block Design & Object Assembly |
| | Processing Speed (PS) ❷ | Coding & (Symbol Search) ❶ |
| | Freedom from Distractibility (FD)❷ | Arithmetic & (Digit Span) ❶ |
| **Bannatyne (1974)** | Verbal Conceptualization Ability (VCI) | Similarities, Vocabulary & Comprehension |
| | Spatial Ability (Spa) ❹ | Picture Completion, Block Design & Object Assembly |
| | Acquired Knowledge (AK) | Information, Arithmetic & Vocabulary |
| | Sequencing Ability (Seq) | Arithmetic, (Digit Span) ❶ & Coding |
| **Horn (1989)** | Crystallized Intelligence (Gc) | Information, Similarities, Vocabulary, Comprehension & Picture Arrangement |
| | Fluid Intelligence (Gf) | Picture Arrangement, Block Design, Object Assembly, Similarities & Arithmetic |
| | Broad Visualization (Gv) ❹ | Picture Completion, Block Design & Object Assembly |
| | Short-Term Acquisition (Gsm) ❷ | Arithmetic & (Digit Span) ❶ |
| | Broad Speediness (Gs) | Coding, (Symbol Search) ❶ & Object Assembly |
| **ACID Profile** | | Arithmetic, Coding, Information & (Digit Span) ❶ |
| **(SCAD Profile) ❸** | | (Symbol Search) ❶, Coding, Arithmetic & (Digit Span) |
| **Kaufman (1994)** | Verbal Reasoning (VR) | Similarities & Comprehension |
| | Right-Brain Processing (RBP) | Picture Completion & Object Assembly |
| | Left-Brain Processing (LBP) | Information, Similarities, Arithmetic, Vocabularies & Comprehension |
| | Integrated Brain Functioning (IBF) | Coding, Picture Arrangement, Block Design & (Symbol Search) ❶ |
| **Rapaport et al. (1946)** | Visual Organization (VO) | Picture Completion & Picture Arrangement |
| | Visual-Motor Coordination (VMC) | Block Design, Object Assembly & Coding |

❶ Digit Span and Symbol Search are optional subtests. They were not administered and not used in the calculation of the Verbal, Performance and Full) IQ scores and the 17 factors.

❷ Since Digit Span and Symbol Search subtests were not administered, three factors, Processing Speed (PS), Freedom from Distractibility (FD), and Short-Term Acquisition (Gsm) were left with one subtest as 'singlet' factors, which made them unusable in the present study.

❸ In the SCAD profile, two optional subtests were not administered. Accordingly, it was not considered desirable to use it as 'doublet' factor.

❹ Spatial Ability and Broad Visualization factors include the same subtests; however, the two factors are included as, for clarity, it is important to compare each factor within its model and under its name.

For each factor, the difference between the average score and the discrepancies of nine pair scores were compared for both research groups. The aim of using these nine-paired factors was to examine fluctuations in the WISC-III-Jordan profiles that might assist in understanding the cognitive patterns, which distinguished the MG/LDs group from the Average-IQ/LDs group. The nine-paired factors and their relation to the five Cognitive Models are listed in Table 2

**Table 2:** Nine paired factors and their relation to the five cognitive models.

| Cognitive Model | Paired Factor |
|---|---|
| **Wechsler (1991)** | 1. Verbal Comprehension – Perceptual Organization |
| **Bannatyne (1974)** | 2. Verbal Conceptualization – Spatial Ability<br>3. Verbal Conceptualization – Sequencing Ability<br>4. Spatial Ability – Sequencing Ability |
| **Bannatyne (1974), and Kaufman (1994)** | 5. Acquired Knowledge – Verbal Reasoning |
| **Horn (1989)** | 6. Crystallized Intelligence – Fluid Intelligence |
| **Kaufman (1994)** | 7. Right-Brain Processing – Left-Brain Processing<br>8. Right-Brain Processing – Integrated Brain Functioning |
| **Rapaport et al. (1946)** | 9. Visual Organization – Visual Coordination |

### Approach Four: The Relative Factor Strengths/Weaknesses of the WISC-III-Jordan

In this approach, the relative factor strength/weakness was computed for each factor for each student and the two groups were compared using *t*-tests. Kaufman (1994) suggested the 'relative factor strength' method that was used in this research to assess the strengths and weaknesses of each student for a particular factor relative to that individual student's overall abilities. This relative strength/weakness method allows for an understanding of the peaks and valleys of the individual student's profile (Kaufman, 1994). In order to measure this 'relative strength/weakness', both Verbal and Performance scaled score averages were computed. For each of the subtests included in the studied factor, the corresponding mean was then subtracted from the student's test scores. The differences were then added together to form the student's relative factor strength/weakness. For example, for the Fluid Intelligence factor, the relative factor strength is given by (Picture Arrangement – Performance average) + (Block Design – Performance average) + (Object Assembly – Performance average) + (Similarities – Verbal average) + (Arithmetic – Verbal average). Large positive relative factor strength indicates that the student excels in this factor relative to her or his overall abilities, whereas a large negative value indicates a relative weakness in the factor.

## Results

Means and standard deviations for the subtest scaled scores were computed and are presented for the two groups in Table 3. The WISC-III-Jordan subtest scores of the MG/LDs and Average-IQ/LDs students were compared to determine whether there were any significant differences between the two groups. The independent sample *t* tests indicated that there were significant group differences for the Comprehension [$t$ (50) = 5.42, $p < .01$], Arithmetic [$t$ (50) = 6.03, $p < .01$], Vocabulary [$t$ (50) = 4.57, $p < .01$], Picture Completion [$t$ (50) = 4.46, $p < .01$], Information [$t$ (50) = 6.13, $p < .01$], Similarities [$t$ (50) = 6.65, $p < .01$], Block Design [$t$ (50) = 4.01, $p < .01$], and Picture Arrangement [$t$ (50) = 5.33, $p < .01$] subtests. On the other hand, the independent sample *t*-tests indicated that there were no significant group differences for Object Assembly [$t$ (50) = 1.84, $p = .071$] and Coding [$t$ (50) = 1.72, $p = .092$] subtests.

**Table 3:** Means and Standard Deviations of WISC-III-Jordan Subtest Scaled Scores for MG/LDs Sample and Average-IQ/LDs Group.

| WISC-III-Jordan | MG/LDs (n = 30) | | Average-IQ/LDs (n = 22) | | Independent sample *t*-tests |
|---|---|---|---|---|---|
| **Subtests** | ***Mean*** | ***SD*** | ***Mean*** | ***SD*** | ***df* = 50** |
| Comprehension (Com) | 15.23 | 1.76 | 12.22 | 2.25 | 5.42 ** |
| Arithmetic (Ari) | 14.87 | 1.87 | 11.73 | 1.83 | 6.03 ** |
| Vocabulary (Voc) | 14.67 | 2.17 | 11.59 | 2.68 | 4.57 ** |
| Picture Completion (PC) | 13.97 | 2.06 | 10.81 | 3.03 | 4.46 ** |
| Information (Inf) | 13.37 | 1.47 | 10.59 | 1.79 | 6.13 ** |
| Similarities (Sim) | 13.27 | 1.70 | 9.68 | 2.19 | 6.65 ** |
| Block Design (BD) | 12.40 | 2.13 | 9.90 | 2.33 | 4.01 ** |
| Picture Arrangement (PA) | 12.20 | 2.16 | 9.00 | 2.11 | 5.33 ** |
| Object Assembly (OA) | 11.40 | 2.04 | 10.22 | 2.54 | 1.84 |
| Coding (CD) | 10.07 | 1.46 | 9.31 | 1.67 | 1.72 |

* Significant at level $p < .05$ ** Significant at level $p < .01$

Because the rank ordering of subtests supplies an important means of identifying gifted students with LDs (Al-Hroub, 2007; Kaufman, 1994), the rank ordering of WISC-III-Jordan subtests was compared. The rankings for the two groups were somewhat similar, with Comprehension, Arithmetic, and Vocabulary having the highest scores in each group and Coding, the lowest score for the MG/LDs sample, and the second-lowest for the Average-IQ/LDs group. While the order of average subtest scores for the two groups was very similar, the range of mean scores for the MG/LDs sample (15.23 - 10.07 = 5.16) was substantially wider than the corresponding range for the Average-IQ/LDs group (12.22 – 9.31 = 3.22).

## Approach One: Verbal - Performance IQs Discrepancy and Scatter/Range Indices

The differences between the WISC-III-Jordan VIQ, PIQ, and FSIQ scores were computed for all of the students. Table 4 reports the means and standard deviations of Verbal, Performance, and Full-Scale IQ Indices scores for the present MG/LDs sample and also the Average-IQ/LDs group. The results show that there were significant differences for the three IQ Indices scores as follows: Verbal Scale IQ [$t$ (50) = 9.14, $p < .01$], Performance Scale IQ [$t$ (50) = 6.78, $p < .01$], and Full Scale IQ [$t$ (50) = 11.04, $p < .01$], with a high Cohen's effect size for the Verbal ($d$ = 2.48), Performance ($d$ = 1.86), and Full Scale IQ ($d$ = 2.91), which indicate that the difference has high practical significance. In general, the data from Table 4 show that while the composite IQ scores, Verbal, Performance, and Full Scale, of the Average-IQ/LDs group, were generally lower than the MG/LDs sample, and the scores for two specific subtests (Coding and Object Assembly) in Table 3 were somewhat similar across the two groups.

**Table 4:** Means and Standard Deviations of WISC-III-Jordan Scaled Indices Scores for MG/LDs Sample and Average-IQ/LD Group.

| WISC-III-Jordan | MG/LDs (n = 30) | | Average-IQ/LDs (n = 22) | | Independent sample t-tests | Cohen's d |
|---|---|---|---|---|---|---|
| **IQ Indices** | ***Mean*** | ***SD*** | ***Mean*** | ***SD*** | ***df* = 50** | |
| Verbal Scale IQ | 126.77 | 5.91 | 107.60 | 9.22 | 9.14 ** | 2.48 |
| Performance Scale IQ | 114.03 | 6.56 | 99.64 | 8.76 | 6.78 ** | 1.86 |
| Full Scale IQ | 122.57 | 3.17 | 104.32 | 8.29 | 11.04 ** | 2.91 |

* Significant at level $p < .05$ ** Significant at level $p < .01$

Cohen (1988) suggested that d=0.2 be considered a 'small' effect size, 0.5 represents a 'medium' effect size and 0.8 a 'large' effect size.

Table 5 presents the WISC-III-Jordan scatter/range indices for the MG/LDs sample and the Average-IQ/LDs group. The differences in the MG/LDs group were compared with the differences in the Average-IQ/LDs group. The analysis of the subtest scatter/range indices results indicates that the mean VIQ-PIQ discrepancy of 12.73 points for the MG/LDs sample is more than one and a half times the value of 7.95 points for Average-IQ/LDs students, but it is not significantly greater than the Average-IQ/LDs mean [$t$ (50) = 1.72, $p$ = .092].

**Table 5:** Comparisons between WISC-III-Jordan Scatter Indices for MG/LDs Sample and Average-IQ/LDs Group.

| WISC-III-Jordan Scatter Indices | MG/LDs Sample (n = 30) | | Average-IQ/LD Group (n = 22) | | Independent sample *t*-tests (*df* = 50) | Size Effect | |
|---|---|---|---|---|---|---|---|
| | Mean Difference | *SD* | Mean Difference | *SD* | | *Cohen's* d (2) | r |
| (VIQ-PIQ) discrepancy (Regardless of direction) | 12.73 | 11.04 | 7.95 | 8.06 | 1.72 | 0.49 | 0.24 |
| (VC-PO) discrepancy | 8.63 | 10.90 | 5.91 | 8.70 | .967 | 0.27 | 0.14 |
| Verbal Scaled Score Ranges (5 subtests) (1) | 4.40 | 1.73 | 4.50 | 1.90 | -.20 | -0.06 | 0.03 |
| Performance Scaled Score Ranges (5 subtests) (1) | 5.57 | 2.27 | 5.45 | 1.82 | .19 | 0.054 | 0.027 |
| Full IQ Scale (1) | 7.70 | 1.84 | 6.68 | 1.59 | 2.09* | 0.59 | 0.28 |

* Significant at level $p < .05$ ** Significant at level $p < .01$

❶ Scaled-score range is an indicator of subtest scatter within the Verbal and Performance Scale. It equals the child's highest scaled score on a particular scale (i.e. verbal/performance) minus his or her lowest scaled score on the scale. Data from the normative standardization sample were taken from Kaufman, (1994).

The MG/LDs sample mean was also 1.73 points significantly higher than the 11.0 mean for the standardization sample, ignoring the direction of the difference (Wechsler, 1991, Table B.2, p.266). In contrast, the mean VIQ-PIQ discrepancy of 7.95 points for the Average-IQ/LDs group was less than the 10.0 mean for the WISC-III standardization sample. However, Kaufman (1994) indicated that values of about 9 to 10 points for VIQ-PIQ discrepancies (with a large SD of 7 to 8 points) have been virtual constants for Wechsler's scales from preschool to adult level. As a result, the VIQ-PIQ discrepancies between the MG/LDs sample and Average-IQ/LDs group were statistically significantly different from the standardized sample of the WISC-III.

In fact, 60% of the MG/LDs sample, and 36 % of the Average-IQ/LDs group had a significant VIQ > PIQ difference ($p < .05$) of the value of 11 points or greater, but one child from both groups had a significant discrepancy ($p < .05$) in favor of PIQ.

The results in Table 5 also show that there is no significant difference in the Verbal Comprehension-Perceptual Organization discrepancy [$t$ (50) = .967, $p$ = .338]. However, Kaufman (1994) indicated that the overall values may be significant and interpreted if the overall values for VC-PO discrepancies are 12 points at the .05 level, or 16 points at the .01 level.

Further, analysis of the Table 5 results shows that both the MG/LDs sample and the Average-IQ/LD group had remarkably similar scatter with no significant differences in Verbal [$t$ (50) = -.20, $p$ = .844] and Performance Scaled Score Ranges [$t$ (50) = .19, $p$ = .849]. However, the average Full-Scale Range for the MG/LDs sample was 7.70, whereas it was 6.68 for the Average-IQ/LD group. As Table 1 shows, the scaled-score range of the two groups on the Full Scale showed a significant difference at the .05 level [$t$ (50) = 2.09, $p < .05$]. The findings also show a medium Cohen's effect size ($d$ = 0.59) and stet correlation (r = 0.28), which indicate that the difference has medium practical significance. Indeed, Kaufman (1976) found a 7-point scatter/range for the regular Full Scale to be 'virtually a built-in constant' (p. 35) as he compared this measure between levels, IQ, sex, and race of the standardization sample. Only the MG/LDs sample obtained average Full Scaled Score Ranges higher than 7 points.

## Approach Two: Subtest Scaled Deviations

Table 6 displays percentages of cases for whom each scaled subtest score deviated significantly when compared with the five-test Verbal or six-test Performance scale mean. Deviations or relative strengths or weaknesses are reported as percentages of students' subtest scaled scores when compared with the average of students' scores on the five Verbal/Performance subtests. For instance, for the Similarities subtest, relative factor strength/weakness is given by (Similarities – Verbal average), whereas for Coding it is (Coding – Performance average).

Based on Table 6 the MG/LDs sample and Average-IQ/LDs group demonstrated two relative strengths in Arithmetic and Comprehension in their Verbal means. The Vocabulary was a particular strength of the MG/LDs sample. In contrast, both groups demonstrated two relative weaknesses (weaker for the Average-IQ/LDs group) in Information and Similarities in their Verbal means. By a considerable margin, the Similarities subtest was the largest relative weakness for both groups, particularly for the Average-IQ/LDs group (double the MG/LDs group percentage).

**Table 6:** Deviations of the WISC-III-Jordan Subtests Scaled Scores for the MG/LDs Sample and the Average-IQ/LDs Students.

| WISC-III-Jordan | | Deviations for MG/LDs Sample (n = 30) | | | Deviations for Average-IQ/LDs Group (n = 22) | | |
|---|---|---|---|---|---|---|---|
| | | S % | W % | S – W % | S % | W % | S – W % |
| Verbal Subscales | Information | ---- | 3.33 | **W** 3.33 % | ---- | 9.09 | **W** 9.09 % |
| | Similarities | ---- | 13.33 | **W** 13.33% | ---- | 27.27 | **W**27.27% |
| | Arithmetic | 6.66 | 3.33 | **S** 3.33 % | 4.54 | ---- | **S** 4.54 % |
| | Vocabulary | 13.33 | 3.33 | **S** 10.00 % | 9.09 | 9.09 | ---- |
| | Comprehension | 6.66 | ---- | **S** 6.66 % | 9.09 | 3.33 | **S** 6.66 % |
| Performance Subscales | Picture Completion | 13.33 | 3.33 | **S** 10.00 % | 13.63 | 4.54 | **S** 9.09 % |
| | Coding | ---- | 10.00 | **W** 10.00 % | ---- | 4.54 | **W** 4.54 % |
| | Picture Arrangement | 3.33 | ---- | **W** 3.33 % | ---- | 4.54 | **W** 4.54 % |
| | Block Design | 6.66 | 6.66 | ---- | 9.09 | 4.54 | **S** 4.55 % |
| | Object Assembly | ---- | 3.33 | **W** 3.33 % | 9.09 | 4.54 | **S** 4.55 % |
| **Verbal IQ (VIQ)** | | ---- | ---- | ---- | 9.09 | 9.09 | ---- |
| **Performance IQ (PIQ)** | | 10.00 | ---- | **W** 10.00 % | 9.09 | 4.54 | **S** 4.54 % |

S: Strength W: Weakness

As Table 6 also shows, only one relative strength was demonstrated within the Performance mean for the MG/LDs sample (Picture Completion), and three for the Average-IQ/LDs group (Picture Completion, Block Design, and Object Assembly). Picture Completion demonstrated the largest deviation and had a similar relative strength to the Performance mean for both groups. Conversely, the MG/LDs sample demonstrated relative weaknesses for three Performance subtests (Coding, Block Design, and Object Assembly), and of these subtests, Coding was the weakest. For the Average-IQ/LDs group, students showed two identical relative weaknesses in the Coding and Picture Arrangement subtests in their Performance subtests.

A comparison of the percentage of cases who showed significant deviations in overall Verbal or Performance scores is also reported. For the Verbal scale, both groups showed no relative strength or weakness. In contrast, the MG/LDs sample in the Performance scale demonstrated a relative strength of 10%, whereas the Average-IQ/LDs group demonstrated a slightly lower relative strength of 4.54%.

## Approach Three: Factor Averages of the WISC-III-Jordan

In order to evaluate the abilities of the 52 students in various areas, 17-factor scores were computed from each student's WISC-III-Jordan scores. Comparisons were made to determine whether the two groups differed from each other in any of the factor scores. As explained above, it was not possible to compute all the factors listed in the models outlined earlier in the paper, as some of these rely on scores from optional subtests, which were not administered in the present study.

Since a rank ordering of factors might allow better identification of gifted students with LDs by indicating stronger and weaker cognitive areas (Kaufman, 1994), the average score for each of the factors was computed and ranked. Apart from the Visual Organization (VO) factor, the ordering of the factors was very similar for the MG/LDs sample and the Average-IQ/LDs group. Verbal Conceptualization (VCI), Acquired Knowledge (AK), Verbal Comprehension (VC), Left-Brain Processing (LB), Verbal Reasoning (VR), and Crystallized Intelligence (Gc) were the highest factor scores in both groups, while Integrated Brain Functioning (IBF), Visual-Motor Coordination (VMC), and Broad Speediness (Gs) were the lowest.

Comparisons were made to determine whether the two groups differed from each other in any of the factor scores. Table 7 shows the average scores in each of the 17 factors for each group of

students. The range of the averages is larger for the MG/LDs sample (14.39 -10.73 = 3.66) than for the Average-IQ/LDs group (11.30 - 9.41 = 1.89).

The differences for the MG/LDs sample were compared with those for the Average-IQ/LDs group. Table 7 shows that the mean scores for the MG/LDs sample were all significantly greater than those for the Average IQ/LDs group at the significance level $p < .01$.

**Table 7:** Comparisons of WISC-III-Jordan Factor Averages for the MG/LDs Sample and the Average-IQ/LDs Group.

| Factor | MG/LDs (n = 30) | | Average-IQ/LDs (n = 22) | | Independent sample *t*-tests |
|---|---|---|---|---|---|
| | *Mean* | *SD* | *Mean* | *SD* | *df* = 50 |
| 1. Verbal Conceptualization (VCI) | 14.39 | 1.25 | 11.17 | 1.77 | 7.69** |
| 2. Acquired Knowledge (AK) | 14.30 | 1.14 | 11.30 | 1.66 | 7.71** |
| 3. Left-Brain Processing (LBP) | 14.28 | .95 | 11.16 | 1.44 | 9.38** |
| 4. Verbal Reasoning (VR) | 14.25 | 1.22 | 10.95 | 1.79 | 7.92** |
| 5. Crystallized Intelligence (Gc) | 13.75 | .83 | 10.62 | 1.41 | 10.06** |
| 6. Verbal Comprehension (VC) | 14.13 | 1.16 | 11.02 | 1.58 | 8.20** |
| 7. Visual Organization (VO) | 13.08 | 1.50 | 9.91 | 2.03 | 6.49** |
| 8. Fluid Intelligence (Gf) | 12.83 | .95 | 10.11 | 1.13 | 9.38** |
| 9. ACID Profile | 12.77 | .70 | 10.55 | 1.24 | 8.22** |
| 10. Right-Brain Processing (RBP) | 12.68 | 1.49 | 10.52 | 2.01 | 4.45** |
| 11. Spatial Ability (Spa) ❶ | 12.59 | 1.34 | 10.32 | 1.72 | 5.36** |
| 12. Broad Visualization (Gv) ❶ | 12.59 | 1.34 | 10.32 | 1.72 | 5.36** |
| 13. Perceptual Organization (PO) | 12.49 | 1.13 | 9.99 | 1.41 | 7.09** |
| 14. Sequencing Ability (Seq) | 12.47 | 1.05 | 10.52 | 1.30 | 5.97** |
| 15. Integrated Brain Functioning (IBF) | 11.56 | .99 | 9.41 | 1.30 | 6.79** |
| 16. Visual-Motor Coordination (VMC) | 11.28 | 1.12 | 9.82 | 1.31 | 4.35** |
| 17. Broad Speediness (Gs) | 10.73 | 1.16 | 9.77 | 1.31 | 2.80** |

* Significant at level $p < .05$ ** Significant at level $p < .01$

❶ Broad Visualization grouping includes the same subtests as Spatial Ability, and they measure the same ability, visual-thinking, or simultaneous processing of information (Kaufman, 1994). However, it is important, for clarity, to compare each factor within its model and under its name.

Table 8 shows the average score in each paired factor for each group of students. Using paired sample *t*-tests, nine paired factors were compared for both groups. For each paired factor, the differences were examined to determine whether there were any significant differences between the MG/LDs sample and the Average-IQ/LDs group.

Regarding the Wechsler (1991) classification of the Verbal Comprehension and Perceptual Organization paired factor, the results showed a VC-PO discrepancy (VC > PO) for both groups. However, although the VC-PO discrepancy of 8.63 (2.16 mean difference × 4 subtests) points for the MG/LDs sample [$t$ (29) = 4.34, $p < .01$] and 5.91 (1.48 mean difference × 4 subtests) points for the Average-IQ/LDs group [$t$ (21) = 3.19, $p < .01$] were both statistically significant, the discrepancy was not more than 12 points at the .05 level or 16 points at the .01 level that was required for them to be considered abnormal (Kaufman, 1994).

**Table 8:** Comparisons of Paired Factors for MG/LDs Sample and Average-IQ/LDs Group.

| Cognitive Models | Paired Factors | MG/LDs Sample (n = 30) | | | Average-IQ/LDs Group (n = 22) | | |
|---|---|---|---|---|---|---|---|
| | | Mean Difference | *SD* | Paired Sample *t*-test (df =29) | Mean Difference | *SD* | Paired Sample *t*-test (df =21) |
| **Wechsler (1991)** | Verbal Comprehension-Perceptual Organization | 2.16 | 2.72 | 4.34** | 1.48 | 2.17 | 3.19** |
| **Bannatyne (1974)** | Verbal conceptualization - Spatial Ability | 1.80 | 2.18 | 4.53** | .85 | 1.88 | 2.12* |
| | Verbal conceptualizations - Sequencing Ability ❶ | 1.92 | 1.70 | 6.21** | .64 | 1.49 | 2.03 |
| | Spatial Ability - Sequencing Ability ❶ | .12 | 1.61 | .42 | -.20 | 1.92 | -.50 |
| **Bannatyne (1974) & Kaufman (1994)** | Acquired Knowledge - Verbal Reasoning | .05 | 1.40 | .20 | .35 | 1.88 | .87 |
| **Horn (1989)** | Crystallized Intelligence – Fluid Intelligence | .92 | 1.37 | 3.68** | .51 | 1.00 | 2.38* |
| **Kaufman (1994** | Right Brain Processing - Left Brain Processing | -1.60 | 2.04 | -4.29** | -.64 | 2.05 | -1.47 |
| | Right Brain Processing – Integrated Brain Functioning | 1.13 | 1.53 | 4.04** | 1.11 | 2.11 | 2.47* |
| **Rapaport et al. (1946)** | Visual Organization-Visual Motor Coordination | 1.79 | 1.76 | 5.58** | .09 | 2.17 | .20 |

* Significant at level $p < .05$ ** Significant at level $p < .01$

❶ Sequencing Ability constitutes three subtests (Arithmetic, Coding, and Digit Span). The Digit Span subtest was not administered as it is an optional subtest. To compare the averages of Bannatyne's patterns with each other, therefore, one-third of the total score of Arithmetic and Coding subtests were calculated and added to their sum.

Following Bannatyne's (1974) revised model, the results showed students' scores on the following categories: Spatial category (Block Design, Object Assembly, and Picture Completion), Conceptual category (Similarities, Vocabulary, and Comprehension), and Sequential category (Digit Span, Arithmetic, and Coding). However, the results in Table 7 showed that the MG/LDs sample had an average pattern of *(Conceptual (m=14.39) > Spatial (m=12.59) > Sequential (m=12.47)),* whereas the Average-IQ/LDs group had a different average pattern of *(Conceptual (m=11.17) > Sequential (m=10.52) > Spatial (m=10.32))*. These results were found to differ from Bannatyne's (1971) pattern *(Spatial > Conceptual > Sequential)* for learning and reading disabilities. The Bannatyne WISC-III-Jordan pattern was found only in 10% of the MG/LDs sample and 13.6% of the Average-IQ/LDs group.

Using the paired *t*-test, Table 8 shows that apart from Spatial Ability-Sequencing Ability paired factors [$t$ (29) = .42, $p$ = .681], Bannatyne's other paired factors had a significant mean difference for the MG/LDs sample as follows: Verbal Conceptualization-Spatial Ability paired factor [$t$ (29) = 4.53, $p < .01$] and Verbal Conceptualization-Sequencing Ability [$t$ (29) = 6.21, $p < .01$]. In contrast, only one Verbal Conceptualization-Spatial Ability paired factor showed a significant difference [$t$ (21) = 2.12, $p < .05$] for the Average-IQ/LDs group, whereas there were no significant differences for the two paired factors: Verbal Conceptualization-Sequencing Ability [$t$ (21) = 2.03, $p$ = .055] and Spatial Ability-Sequencing Ability [$t$ (21) = -.50, $p$ = .622].

Results of the Bannatyne (1974) and Kaufman (1994) classification of the Acquired Knowledge Ability-Verbal Reasoning paired factor showed a discrepancy between the two factors. However, this paired factor showed no significant difference for the MG/LDs sample [$t$ (29) = .20, $p$ = .846] or for the Average-IQ/LDs group [$t$ (21) = .87, $p$ = .395].

In the investigation of Horn's theory of the Crystallized-Fluid paired factor, the results showed a Gc-Gf discrepancy (Gc > Gf) for both groups. However, the Gc-Gf showed a significant difference for the MG/LDs sample [$t$ (29) = 3.68, $p$ < .01] at a greater level of statistical significance than for the Average-IQ/LDs group [$t$ (21) = 2.38, $p$ < .05].

Results of Kaufman's (1994) Right-Brain Processing (RBP) – Left-Brain Processing (LBP) and Right-Brain Processing (RBP) – Integrated Brain Functioning (IBF) paired factors showed discrepancies between the two factors for both groups as follows: (RBP < LBP) and (RBP > IBF). For the MG/LDs sample, a significant difference was shown in the two paired factors as follows: Right-Brain Processing - Left-Brain Processing [$t$ (29) = -4.29, $p$ < .01]**,** and Right-Brain Processing – Integrated Brain Functioning [$t$ (29) = 4.04, $p$ < .01]. Conversely, there was no significant difference for the Average-IQ/LDs group in Right-Brain Processing – Left-Brain Processing [$t$ (21) = -1.47, $p$ = .156], and a significant different in Right-Brain Processing - Integrated Brain Processing [$t$ (21) = 2.47, $p$ = .022].

Finally, the result of the Rapaport et al. (1946) Model for Visual Organization (VO)-Visual-Motor Coordination (VMC) showed a discrepancy (VO > VMC) between the two factors for both groups. Similarly to Kaufman model's results, the MG/LDs sample showed a significant difference in the Visual Organization-Visual-Motor Coordination paired factor [$t$ (29) = 5.58, $p$ < .01], whereas no significant difference was shown for the Average-IQ/LDs group [$t$ (21) = .20, $p$ = .846].

## Approach Four: The relative factor strengths/weaknesses of the WISC-III-Jordan factors

In order to measure the 'relative strength' or the 'relative weakness', both Verbal and Performance scaled score averages were computed. For each of the subtests included in the studied factor, the corresponding mean was then subtracted from the student's test scores. The differences were then added together to form the student's relative factor strength or weakness. For instance, for the Crystallized Intelligence factor, the relative factor strength/weakness is given by (Information – Verbal average) + (Similarities – Verbal average) + (Vocabulary – Verbal average) + (Comprehension – Verbal average) + (Picture Arrangement – Performance average).

The relative factor strength or weakness was computed for each factor for each student and the two groups were compared using $t$-tests and signed-rank tests, as appropriate. Table 9 shows that the MG/LDs sample had relative factor strengths higher than the Average-IQ/LDs group in Visual Organization with a significant difference [$t$ (50) = 2.18, $p$ < .05] and Perceptual Organization with no significant difference [$t$ (50) =.80, $p$ = .43].

In contrast, although the Average-IQ/LDs group showed higher relative strengths than the MG/LDs sample in the following four factors: Spatial Ability [$t$ (50) = -.27, $p$ = .79], Broad Visualization [$t$ (50) = -.27, $p$ = .79], Right-Brain Processing [$t$ (50) = .51, $p$ = .61] and Acquired Knowledge [$t$ (50) = -.13, $p$ = .90], none of them showed a statistically significant difference.

No significant differences were found between the two groups for Verbal Conceptualization [$t$ (50) = .37, $p$ = .71] and Left-Brain Processing [$t$ (50) = .50, $p$ = .62], although both factors showed a relative factor strength for the MG/LDs sample, and a relative factor weakness for the Average-IQ/LDs sample.

**Table 9:** Comparisons between Relative Strengths and Weaknesses for MG/LDs Sample and Average-IQ/LDs Group.

| Factor | Relative Strengths & Weaknesses for MG/LDs Sample (n = 30) | | Relative Strengths & Weaknesses for Average-IQ/LDs (n = 22) | | Independent sample *t*-tests * |
|---|---|---|---|---|---|
| | *Mean* | *SD* | *Mean* | *SD* | *df* = 50 |
| Visual Organization (VO) | 1.79 (S) | 2.77 | .15 (S) | 2.58 | 2.18 * |
| Perceptual Organization (PO) | 1.22 (S) | 3.27 | .61 (S) | 1.66 | .80 |
| Spatial Ability (Spa) | 1.21 (S) | 3.42 | 1.45 (S) | 2.62 | -.27 |
| Broad Visualization (Gv) | 1.21 (S) | 3.42 | 1.45 (S) | 2.62 | -.27 |
| Right-Brain Processing (RBP) | .99 (S) | 2.69 | 1.37 (S) | 2.59 | -.51 |
| Acquired Knowledge (AK) | .08 (S) | 1.73 | .17 (S) | 3.48 | -.13 |
| Verbal Conceptualization (VC) | .35 (S) | 1.75 | -.24 (W) | 3.74 | .37 |
| Left-Brain Processing (LBP) | .03 (S) | .61 | -.41 (W) | 4.79 | .50 |
| Verbal Reasoning (VR) | -.05 (W) | 1.68 | -.58 (W) | 3.09 | .80 |
| Crystallized Intelligence (Gc) | -.55 (W) | 2.37 | -1.73 (W) | 4.73 | 1.18 |
| Verbal Comprehension (VCI) | -.56 (W) | 1.74 | -.89 (W) | 4.46 | .75 |
| Fluid Intelligence (Gf) | -.97 (W) | 4.30 | -1.45 (W) | 3.52 | .43 |
| Sequencing Ability (Seq) | -1.53 (W) | 2.38 | -.04 (W) | 2.02 | -2.38 * |
| Integrated Brain Functioning (IBF) | -1.89 (W) | 2.76 | -1.28 (W) | 2.48 | -.82 |
| ACID | -2.43 (W) | 1.97 | -.69 (W) | 2.68 | -2.70 ** |
| Visual-Motor Coordination (VMC) | -2.69 (W) | 3.11 | -.05 (W) | 2.65 | -3.21 ** |
| Broad Speediness (Gs) | -2.91 (W) | 2.35 | -.13 (W) | 2.21 | -4.32 ** |

*Significant at level $p < .05$ **Significant at level $p < .01$

(S): Strength (W): Weakness

All of the last nine factors showed relative factor weaknesses for the two groups. However, the differences between the two groups were statistically significant in the four following factors: Sequencing Ability [$t$ (50) = -2.38, $p < .05$], ACID [$t$ (50) = -2.70, $p < .01$], Visual-Motor Coordination [$t$ (50) = -3.21, $p < .01$], and Broad Speediness [$t$ (50) = -4.32, $p < .01$]. The MG/LDs sample exhibited greater relative weaknesses in the above four factors. However, no significant differences were found between the two groups in Verbal Comprehension [$t$ (50) = .75, $p = .46$], Crystallized Intelligence [$t$ (50) = 1.18, $p = .24$], Fluid Intelligence [$t$ (50) = .43, $p = .67$], Broad Visualization [$t$ (50) = -.27, $p = .79$], Verbal Reasoning [$t$ (50) = .80, $p = .43$], or Integrated Brain Functioning [$t$ (50) = -.82, $p = .41$].

## Conclusions and discussion

The distinct WISC-III-Jordan profile of the two groups showed certain similarities and differences. Some of these similarities and differences support findings from previous work, but in other cases, the claims made in the previous literature are not supported by this sample.

The results obtained from this study showed that although students in both groups had LDs, only the MG/LDs sample demonstrated a significant difference between WISC-III-Jordan Verbal and Performance IQ scores. This finding supports the argument that the traditional use of a 15-point (at the .01 level) or an 11-point (at the .05 level) discrepancy between Verbal and Performance IQ scores may not be the best indicator of the existence of an LD (Clampit & Silver, 1990; Kaufman, 1994; Kaufman et al., 2016), but it could be a good indicator of the co-existence of an LD and mathematical giftedness (Al-Hroub, 2007, 2011). However, Bray et al. (1998) noted that although a discrepancy of 11 points between Verbal and Performance IQ scores is significant at the .05 level for all ages, "it occurs in 40.5% of the standardization sample on the WISC-III" (p. 212).

However, in the present two groups, there was a clear tendency for VIQ to be higher than PIQ among most MG/LDs and all Average-IQ/LDs students to whom the WISC-III-Jordan

was administered. This supports the proposal that gifted and reflective children (MG/LDs sample) tend to have VIQ > PIQ (Kaufman, 1994), but it contradicts the PIQ > VIQ as an indicator of LDs. These findings are also of interest in the context of the relationship between dyspraxia and dyslexia. Relatively low VIQ has been considered an indicator of dyslexia and relatively low PIQ of dyspraxia (Weschler, 1991).

It may be that low-Performance IQ children are more likely to be nominated by teachers as students with G/LDs, whereas children with low Verbal IQs may be more likely to be referred to another service. Riordan (2001) argued that children with low Verbal IQs may present earlier in life, perhaps due to speech delay or language impairment, and be referred to speech therapy rather than to any other service.

These results support the right hemisphere theory of attention (Garcia et al., 1997), but only to the extent that there is evidence that PIQ and VIQ reflect right and left hemispheric function respectively (Prifitera & Saklofske, 1998; Prifitera et al., 2005). Although observations and tests on patients with known localized brain injuries have linked verbal ability with the left hemisphere and performance with the right, some authors (e.g., Warrington et al., 1986; Whelan, 1998) suggest that, whereas a low VIQ relative to PIQ may be an accurate indicator of left hemisphere dysfunction, a low PIQ relative to VIQ is a more non-specific indicator of brain damage or dysfunction.

A comparison between the two study groups of the rank ordering of performance in individual WISC-III-Jordan subtests did not show strong differences. Most of the subtest averages were close to each other. Accordingly, there is no evidence that rank ordering of WISC-III-Jordan subtests is an effective method of identifying students with G/LDs, but it could be concluded that because the two study groups both had LDs, this similar rank ordering could therefore be an indication of an LD.

It is important to note that Coding and Picture Arrangement were the lowest of the three means of the WISC-III-Jordan scaled subtest scores for the two study groups. However, these results indicate that, in individual cases, such delay in the Perceptual subtests, particularly in Coding and Picture Arrangement, may provide evidence in favor of weak visual-motor coordination and processing speed, sequential reasoning, planning, and social knowledge (Kaufman, 1994; Wechsler, 1991), which are considered to be some of the characteristics of students with LDs. It should also be noted that Arithmetic was the second-highest mean for both groups. This result is consistent with the sampling of the present study in which teachers were asked to nominate 'mathematically' G/LDs.

When the two groups were compared for their range or scatter between the highest and lowest subset scores in the WISC-III-Jordan, the ranges for the MG/LDs sample were wider than the corresponding range for the Average-IQ/LDs group (5.16 > 3.22). However, these findings do not support Silverman's (1983) contention that a 7-point scatter between highest and lowest subset scores in a WISC-R may be a good indicator of the existence of LDs in gifted students. The results of a study reported in the WISC-III manual (Wechsler, 1991) showed that WISC-III IQ scores were lower than their respective WISC-R IQ scores to the extent of 2, 7, and 5 points for the VIQ, PIQ, and Full-Scale IQ respectively. Because scores in the WISC-III are typically lower than scores in the WISC-R, some students, originally diagnosed as gifted (i.e. their Full score was 120 to 124), using the WISC-R are likely to be diagnosed as average students using the WISC-III, and their scatter in the WISC-III subtests would be lower.

When comparing the two groups, a number of relative strengths and weaknesses appeared in relation to particular subtests. For the two study groups, Picture Completion was the largest relative strength, and Vocabulary had similar relative strength, particularly for the MG/LDs sample. Similarities subtest was the largest relative weakness for both groups and weaker for the Average-IQ/LDs students.

However, the results of this comparison provide evidence that both groups showed strong attention to visual detail, alertness to detail, and visual discrimination, while they found it difficult to think abstractly, scoring lower on verbal abstract reasoning, abstract reasoning, verbal categories, and concepts.

A comparison of the rank ordering of performance of the two study groups on

individual WISC-III-Jordan factors scores did not show strong differences. For example, both groups showed strength in Vocabulary Conceptualization, Acquired Knowledge, and Left-Brain Processing, and they showed a deficit in Integrated Brain Functioning, Visual-Motor Coordination, and Broad Speediness. Apart from Visual Comprehension, most of the factor averages were very close to each other. Thus, there is no evidence that the similarity of the high-rank ordering of WISC-III-Jordan factor scores is an effective method of identifying giftedness. In contrast, the similarity of the low factor scores may indicate the existence of an LD. The range among factors was greater for the MG/LDs sample than the Average-IQ/LDs group (3.66 > 1.89), supporting the findings of Waldron and Saphire (1990).

Comparisons of nine paired factors related to the various models indicated some intriguing differences between the two groups in relation to some models. For *Verbal Comprehension (VC) versus Perceptual Organization (PO),* the results showed a VC-PO discrepancy (VC > PO) for both groups, with a higher discrepancy for the MG/LDs sample. This discrepancy was not, however, at the level to be considered as abnormal (Wechsler, 1991) thereby supporting the findings of Waldron and Saphire (1990). This result indicates that students in both groups tend to have higher skills in responding verbally to orally presented questions than in manual manipulation or organizing pictures, objects, or blocks.

This study investigated the diagnostic utility of the Bannatyne WISC-III-Jordan pattern in students with LDs for both groups. Similar to previous research on the Bannatyne pattern, (Prifitera & Dersh, 1993; Smith & Watkins, 2004) the WISC-III-Jordan pattern *(Spatial > Conceptual > Sequencing)* was found in only 10% of the MG/LDs sample, and 13.6% of the Average-IQ/LDs group. Thus, it missed 90%, and 86.4% respectively of the students with LDs in both groups. This finding suggests that the presence of the Bannatyne WISC-III-Jordan pattern would not lead to decisions that are useful in diagnosing children with LDs. Despite that, a different pattern *(Conceptual > Spatial > Sequencing)* was found in 33.3% of the MG/LDs sample, and 27.2% of the Average-IQ/LDs group. It missed 66.7% and 72.8% respectively of the students with LDs in both groups. However, it is not to be claimed that this pattern indicates LDs or giftedness, but results showed that, compared with the Bannatyne pattern, it missed fewer cases. However, these findings should be interpreted with caution because Digit Span was a missing subtest from the Sequential factor. In addition, Arithmetic, which is included in the Sequential factor, was the second-highest scoring subtest for each group.

For *Acquired Knowledge (AK) versus Verbal Reasoning (VR),* students showed a low discrepancy (AK > VR) for both groups but with no significant differences to indicate LDs. This result disagrees with Kaufman's (1994) claim that the deviation of Acquired Knowledge scores from Verbal Reasoning scores could imply an LD. Hence, one can conclude that a good knowledge base may support the Verbal Reasoning items in Similarities and Comprehension. Besides, students in both groups scored highly in the Acquired Knowledge factor although Prifitera and Dersh (1993) found that a low score in this factor gave a prediction of the existence of LDs.

The study also investigated the Horn theory of *Crystallized Intelligence (Gc) versus Fluid Intelligence (Gf)* and found a significant difference in Gc-Gf discrepancy (Gc > Gf) for both groups. Further, a comparison between the two groups showed a higher discrepancy for the MG/LDs sample. This result might indicate that MG/LDs students have more extensive cultural experiences than Average-IQ/LDs students. Since the association between the Gc-Gf and LDs suggests that Crystallized Intelligence is greater than Fluid Intelligence (Kaufman, 1994; Prifitera & Dersh, 1993), support of this hypothesis does imply that the Gc-Gf constructs provide a good insight into the deficits of children with LDs.

For *Right-Brain Processing (RBP) versus Left-Brain Processing (LBP),* only the MG/LDs sample showed a significant difference (LBP > RBP). As mentioned earlier, there is evidence that PIQ and VIQ reflect right and left hemispheric function respectively (Prifitera & Saklofske, 1998). However, this indicates that students in the MG/LDs group tend to be more verbal, analytical, and problem-solving (Kaufman, 1994).

Results showed also that for *Right-Brain Processing (RBP) versus Integrated Brain Functioning (IBF)* there was a significant difference (RBP > IBF) for the MG/LDs sample at the .01 level and the Average-IQ/LDs students at the .05 level. Kaufman (1994) indicated that discrepancy between students' scores in the RBP-IBF groupings of Performance subtests may well reflect a difference in the efficiency of their application of different styles of problem-solving.

Results for the Rapaport Model showed that for *Visual Organization (VO) versus Visual-Motor Coordination (VMC) groups* a significant difference (VO > VMC) was also found only in the MG/LDs sample. It is important to note from this result that students in the MG/LDs sample have problems in the motor domain (fine-motor coordination) more than in the cognitive domain (visual-motor integration and nonverbal concept formation). In contrast, the results show that students in the Average-IQ/LDs group have a problem in both the motor and cognitive domains.

When comparing the two groups' relative strengths in each of the 17 factors, the MG/LDs sample was stronger in the Visual Organization factor (Rapaport et al., 1945-1946) and Perceptual Organization (Wechsler, 1991) than the Average-IQ/LDs group. While the Average-IQ/LDs group was also relatively strong in these areas, it did not demonstrate the same degree of reliance on these two factors. In contrast, the Average-IQ/LDs group was stronger (but with no significant difference) than the MG/LDs sample in the Spatial Ability factor (Bannatyne, 1974), Broad Visualization (Horn, 1989), Right-Brain Processing (Kaufman, 1994), and Acquired Knowledge (Bannatyne, 1974) factors. The presence of these factors may be masking the mathematical talent that the MG/LDs group possesses. It is important to note that both groups were weak in the ACID profile, but the Average-IQ/LDs group was weaker than the MG/LDs sample. However, this lower mean in the ACID profile provides evidence of LDs, supporting previous studies (Prifitera & Dersh, 1993).

## Implications for practice

Several inferences may be drawn from the current study. Generally, the WISC-III-Jordan continues to be an important assessment tool for the measurement of intelligence in gifted children with LDs, as with all children. It has been shown to have utility in understanding a wide range of cognitive patterns of the MG/LDs sample and the Average-IQ/LDs group. In addition, the research findings have shown *some support* for use of the WISC-III-Jordan as a diagnostic indicator of 'gifted with LDs', and its clinical usefulness in discriminating between the MG/LDs and the Average-IQ/LDs groups.

In relation to the VIQ-PIQ discrepancy in the WISC-III-Jordan, the largest number of Jordanian students in both groups expressed their intelligence more effectively in verbal tasks than in performance tasks. However, a variety of confounding factors should be addressed. These factors include the presence of fine motor problems and limited exposure to non-verbal teaching methods in Jordanian schools. More specifically, a classical mathematics lesson at a Jordanian school typically begins with a verbal presentation of a mathematical concept on the board at the front of the class and ends with students attempting to apply the concept. According to this 'classical' vision of what it means to teach and learn mathematics, students' understanding is essentially procedural, and to 'know mathematics' means that students know a significant number of procedures that permit them to transform a symbolic expression into a succession of other expressions. For this reason, Jordanian students in both study groups encountered major challenges in responding motorically to the pictorial items. This implies that despite the presence of a VIQ-PIQ discrepancy in the MG/LDs sample, this should not be viewed as conclusive evidence for identifying LDs in gifted students in Jordanian schools. More notably, Jordanian students in both research groups need to be exposed to instructional methods, such as coloring fractions, using small colored cubes to describe their problem solving, or use them to help in their answers to stimulate other senses rather than relying solely on seeing and hearing. The purpose of using such instructional models is that many students in both research groups appeared to have problems in some areas of mathematics due to Visual-Motor Coordination compared to Visual Organization (Rapaport et al., 1945-1946), and Perceptual Organization compared to Verbal Conceptualization (Wechsler, 1974). Since both factors, Visual-Motor Coordination and Visual

Organization require manual manipulation or organization of pictures, objects, and blocks, students in both research groups need to be offered concrete aids more often and for far longer than students with no LDs.

On the other hand, students in the MG/LDs sample have shown more areas of strength and weakness than students who are of Average-IQ and have LDs. This may suggest important differences in the appropriate teaching methods that should be provided to these students. For example, The MG/LDs/2E sample exclusively showed strong cognitive abilities in verbal potential (Bannatyne, 1974) and converting letters into phonologically meaningful units (Kaufman, 1994). Furthermore, the results showed that students in the MG/LDs sample have much stronger (i.e. Visual Organization) or weaker (i.e. Broad Speediness) cognitive abilities in certain factors. Suter and Wolf (1987) have reported that whatever the choice of service pattern, teaching methods would need to accommodate the student's strengths and weaknesses by using alternative strategies and techniques for instruction and evaluation. Therefore, the setting should always be flexible and meet the student's specific academic, cognitive, and perceptual needs. For example, students in the MG/LDs group might stay in the regular classroom by forming small subgroups with peers who share their '2E'. In other cases, students in the MG/LDs group can join special programs for gifted students, which enables them to challenge their high mathematical abilities and reach their potential. Furthermore, a part-time resource model can be, as Al-Hroub (2010a) and Baum (2004) stated an appropriate placement with more severe LDs. This model is appropriate for students in both research groups as they showed severe problems in copying the correct symbols in a controlled period.

In relation to the cognitive classification models, the Kaufman and Rapaport et al. models were found to be the most powerful in discriminating between the two groups. However, this finding should be interpreted cautiously, since the small sample in the current study does not show a cross-section of Jordanian society. Further research using a variety of educational contexts from different areas in Jordan, and in different primary and secondary schools, might reflect more accurately the cognitive, perceptual, and behavioral characteristics of gifted children with LDs in Jordan. Furthermore, it would also be useful to carry out further research into other areas of giftedness such as art, music, and leadership, for students who also have LDs. The opportunity to generalize or differentiate the cognitive, perceptual, and behavioral characteristics of each domain in giftedness would be wider and more specified. Finally, further research could also use the fifth edition of the Wechsler Intelligence Scale for Children WISC-V in identifying the cognitive characteristics of the students. However, the fifth edition is still not translated and revised to the Jordanian context.

## Assessment beyond IQ tests for 2E

The main implication in this study is that using a comprehensive model of assessment is essential for the identification of 2E learners. The WISC provide a partial picture about the cognitive characteristics of this population of students. It does not provide some essential information about their untapped potential due to the constraints of using psychometric and timed tests. The details analysis of the use of WISC provides evidence that such psychometric tools are ill-equipped to identify all aspects and characteristics of those who have high abilities and deficits. Therefore, we always consider and use multi-dimensional assessment models, which combines psychometric with dynamic assessments (e.g., Al-Hroub, 2014; 2019). Exploring the use of IQ tests is important to explore their utility and limitations, and therefore we conducted this study.

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## About the Author

**Dr. Anies Al-Hroub** is an Associate Professor of Education Psychology and Special Education at the American University of Beirut (AUB). In 2018-2019, he was a Visiting Scholar at Renzulli Center for Creativity, Talented Development and Gifted Education, University of Connecticut. Al-Hroub is an elected member of the executive committee for the World Council for Gifted and Talented Children (WCGTC). Al-Hroub research interests focus on giftedness, twice-exceptionality, and psychometric and dynamic assessment. His publications appeared in international gifted and special education journals. His latest book (with Mrs. El Khoury) entitled, "*Giftedness in Lebanese Schools: Integrating Theory, Research, and Practice*" (Springer, 2018).

ORCID: https://orcid.org/0000-0003-4898-5729

## Address

**Dr. Anies Al-Hroub**;
American University of Beirut (AUB), Department of Education;
P.O Box 11-0236; Beirut, Lebanon.

**e-Mail:** aa111@aub.edu.lb

# Spectacles of Light, Fire, and Fog: *Artichoke* and the Art of the Ephemeral

**Francisco LaRubia-Prado**
Georgetown University, Washington, DC, USA

What does Christ's crucifixion have in common with George Floyd's video-recorded murder, Donald Trump's reality TV-like Presidency, popular festivals like Mardi Gras, and the advertising and news media images that flood our daily existence? The answer is that all of the above have been considered "spectacles" by critics in various fields; and, in fact, they share key features when regarded as a "spectacle." Furthermore, all have had — or can have — a significant impact at the individual, local, national, and/or global levels. [1]

Historically, spectacle emerges as an inevitable phenomenon in any society, and is crucial to promote a sense of identity and community. It also provides education and entertainment, and is used to enforce the law and maintain the social order. Leading up to the present day, spectacle becomes even more central to culture due to the increasing importance of the mass media. Yet, spectacle rejects any *a priori* ethical alignment; namely, it can possess a bright or a dark character. Because spectacle is a source of values, myths, and symbols that directly impact our psychological, emotional, and material lives as individuals and as members of communities, it is crucial to encourage life-enhancing spectacles while being mindful of their negative potential.

On the dark side, spectacle — live and virtual— shows its power by posing a clear and present threat to democracy, as the Presidency of Donald J. Trump illustrates. Spectacle can also promote isolation and loneliness, fueling rising rates of anxiety, depression, and even suicide, as illustrated by some reality TV shows.[2] On the bright side, spectacle can strengthen the very foundations of community and democracy. This function is apparent with the Marches on Washington, especially the one in 1963, where Martin Luther King delivered his famous "I Have a Dream Speech." This is also the purpose, at the local and national levels, of the spectacles produced by the British non-profit organization *Artichoke* when addressing social crises — such as the sectarian conflict in Northern Ireland, unemployment, violence, and gender inequality— through stunning spectacles that place art at their core. Later in this essay, I will examine some of these events.

The field of "Festival studies" has frequently analyzed how spectacle has the power to engage citizens in their communities while countering social isolation.[3] In the belief that it would enhance citizens' appreciation of the world surrounding them, in Book VIII of *Laws*, Plato recommended that the Republic have festival every day of the year.[4] At this point in history, when divisive politics, COVID-19, and an unprecedented environmental crisis provoked by humans are striking the planet, intelligence about the power of affirmative spectacle is of vital importance. Live and virtual spectacle can educate, bridge differences, generate social capital, and empower people as community members to act towards the multiple crises that we are facing. The future depends significantly on our ability to reflect upon and mediate the unconscious influence of spectacle. In what follows, I will first examine the various ways in which the word "spectacle" has been used, including my own characterization of this concept in order to reach a deeper understanding of *Artichoke*'s work. Then, I will analyze some of *Artichoke*'s extraordinary spectacles and the enduring, life-affirming impact of its art-based, large-scale public events on individuals and communities across the United Kingdom.

# I. What is "Spectacle"?

In English dictionaries, the word "spectacle" does not conjure up the full range of meanings that the term has in culture. However, the dictionary definition is a good starting point to initiate our journey into the complex and impactful world spectacle. According to the *Merriam-Webster Dictionary*, "spectacle" means: "something exhibited to view as unusual, notable, or entertaining. *Especially*: an eye-catching or dramatic public display." Both *Merriam-Webster* and *The Oxford English Dictionary* share a similar definition of the term: an agent exhibiting something uncommon and entertaining to many people's sight. The features defining "spectacle" in the dictionary fit some uses of the term, although they can be related to most of its uses in an approximate or metaphorical sense. Theater, opera, NASCAR races, and many festivals would easily fall under the dictionary definition. A less immediate sense of spectacle would be the protest kneeling of football quarterback Colin Kaepernick during the American anthem's playing during a sporting event, something traditionally considered a side event in a game. Kaepernick's kneeling made something that was not considered a spectacle a real spectacle. Festivals like India's *Kumbh Mela* engage all senses — not just sight as the dictionary definition states or implies — and the 2017 worldwide *Women's March*, would only partially fit the dictionary's definition because it is not so much about seeing the event for entertainment as it is about participation and democratic assertion of human rights. Guy Debord's sense of "the spectacle," which I will describe later, and Reality TV shows also transcend the dictionary's scope because, among other things, they exclusively refer to virtual spectacles.

The richness of the term "spectacle" is apparent when we think of their uses in culture. For example, spectacle may refer to:

(1) The theater, concerts, opera, the circus, and sports events characterized by the strict differentiation of performers and audience.[5]

(2) Festivals. David Rockwell includes in his book *Spectacle* many events that, in most cases, would fall under the purview of "Festival studies," an established domain of academic inquiry informed by fields such as Sociology, Anthropology, religious studies, Psychology, and Economics. From the Olympics as a global spectacle to local spectacles such as *La Patum* in Berga, Spain, the festival's live communal experience covers an enormous range of spectacles.[6] The spectacles organized by organizations such as *Artichoke* fall within the festival category of spectacle.

(3) Political rallies. They can be either liberating and advancing human rights and freedom such as the marches on Washington or protests against dictatorships; or aimed to reinforce authoritarian control of the population such as the Nazi "Nüremberg rallies" (1923-38), or the Stalinist parades in the Soviet Union.[7]

(4) The spectacle of death. Showing death and suffering has often been associated with spectacle. Some notable spectacles of this kind are: (A) Crucifixions among the Romans. By far, Jesus Christ's crucifixion is the most relevant case of its kind given the enormous consequences for the world. (B) Executions from the Middle Ages to the French Revolution. The counterpoint of public execution is the covert gassing of Jews in concentration camps by the Nazis during the Second World War, which were kept secret. (C) The video of the killing of George Floyd, an event inscribed in the practice of racism in the United States whose most significant precedent is the spectacle of lynching. The video of Floyd's agony caused the "Black Lives Matter Movement" marches and, as the title of an article by Nicole Chavez says, 2020 was "The Year America Confronted Racism." [8]

(5) Virtual spectacle. These spectacles range from the broadcasting of the terrorist actions of 9/11 to Reality TV shows. Geoff King's *The Spectacle of the Real: From Hollywood to 'reality' TV and Beyond* illustrates this sense of the term spectacle. Regarding Reality TV shows, some can be arguably considered life-affirming such as *Frontier House* or *Alaska: The Last Frontier*, and some are leading people to their death, as mentioned previously. Donald J. Trump has been referred to as a Reality TV President and a "spectacle" himself, as Trump's larger-than-life persona has incorporated many of the board-room strategies and modus operandi of *The Apprentice* in his still unfolding political career. Critics speak of TV series like *The Crown* as "the great spectacle of history." [9]

Among the critical concepts of spectacle, the most relevant is that of Guy Debord's book *The Society of the Spectacle.* In it, the author discusses "the spectacle" of modern life in negative terms. According to Debord, the constant barrage of images coming from the media creates a system of social relations between people that interferes with a direct experience of reality and grounds consumer capitalism. According to Debord, our understanding of the world and values are shaped by advertising images — Nike, Gucci, Budweiser, Sandals, BMW — and the news industry — CNN, Fox, MSNBC, NewsMax. They shape our behavior and existential experience depriving us of an authentic sense of the real. In this respect, live, popular festivals would be the opposite experience of Debord's "the spectacle."

Other negative uses of "spectacle" include that of the historian and specialist in authoritarianism Timothy Snyder, who opposes "truth" and "spectacle," saying that "if nothing is true, then all is spectacle" (65). This use of the term connects spectacle with the notion of Post-Truth exemplified by the "alternative facts" approach to reality promoted by the proponent of Brexit and the populist discourse of the Trump presidency.[10] Finally, writer and Nobel prize winner in literature Mario Vargas-Llosa is critical of the change in cultural paradigm regarding the contemporary understanding of "culture." In *Civilization of the Spectacle,* Vargas-Llosa says that real "culture" is the opposite of the spectacle. He states: "What does it mean civilization of the spectacle? It describes a world where the highest value is entertainment, and where to have fun and escape boredom is the universal passion" (34). Vargas-Llosa's point is that when entertainment is the supreme value, cultural production becomes inconsequential, and the crucial role of the media to inform citizens of a democracy becomes a frivolous exercise of "irresponsible journalism" focused on "gossiping, and scandal" (34).

Previous work on the notion of "spectacle" has focused mainly on one or two of the above uses. I propose a more comprehensive, multidisciplinary perspective that includes all of them. In this regard, I understand "spectacle" as "a short-term, live or virtual event harnessing a sentiment, contextualized by a story, and potentially engaging all of the senses. It is different from but interdependent with everyday life, performed in diverse spatial venues, and ethically neutral." In the following sections, and with this definition in mind, I will examine some of *Artichoke*'s most creative spectacles. First of all, however, it is necessary to acquaint ourselves with *Artichoke* as an organization, its goals, and its productions, which exemplify what I mean when I talk about exercising intelligence regarding a creative, positive approach to spectacle to bring people together and constructively confront conflict.

## II. Introducing *Artichoke*

*Artichoke* was founded by Helen Marriage and Nicky Webb in 2005. The group specializes in large-scale public art. Since then, they have organized twenty-three art-centered spectacles in different parts of the UK. These spectacles come under four categories according to the main type of art at their core: mechanical art; performance; fire; and light, fog, and sound installations. The mechanical art spectacles are: *The Sultan's Elephant* (2006), *The Telestroscope* (2008), *La Machine* (2008), and *The Magical Menagerie* (2010). Of these, *The Sultan's Elephant* is the most notable not only because it was the first spectacle that *Artichoke* produced, but because it implemented the group's conviction that public space should not be reserved for everyday activities, state functions, and parades honoring sport triumphs alone, but also for the arts. *The Sultan's Elephant*, which took place at the very heart of London, was so successful that it inspired some of the London 2012 Summer Olympics activities.

*Artichoke*'s spectacles based on performance are: *One & Other* (2008), *Dining with Alice* (2011), and *Processions* (2018). *One & Other* lasted three months. It is noteworthy because it put 2,400 people from all corners of the UK on the bare Fourth Plinth in Trafalgar Square in London. The "Plinthers" symbolized humanity, and once on the Plinth and in front of thousands of observers, they performed, dressed, and undressed; they gave speeches on different subjects, told their stories, or sat and did nothing. This live artwork event was also live-streamed on Sky Arts and, as *Artichoke*'s web page says, it was "the longest broadcast of its kind. Television and radio anchor Clive Anderson presented 16 weekly TV updates on site."[11] As for *Processions*, it commemorated the one-hundredth anniversary of British women's right to vote and to hold public office. The women marching wore the suffragettes (in favor of direct action) and suffragists' (in favor of negotiation) colors: green, white, and violet. They marched in this "mass participation artwork" on the streets of Belfast, Cardiff, London, and Edinburgh in a televised "joyful inclusive occupation of our streets."[12]

The spectacles of fire are: *Temple* (2015) and *London's Burning* (2016). Finally, the spectacles of light, fog, and sound, consisting mainly of light installations and projections on surfaces, are the biannual *Lumiere Durham* (2009, 2011, 2013, 2015, 2017, and 2019), *Peace Camp* (2012), *Lumiere Derry-Londonderry* (2013), *Lumiere London* (2016 and 2018), *Processions in the City* (2018), *Apollo 50* (2019), *Imminence* (2020), and *Galway 2020-European Capital of Culture*.

The goal of all of these events is to have an impact on the individuals and communities where they take place. By changing people's perception of reality and the environment through art, they seek to transform people's lives. Their ultimate ethical objective — to change and improve lives — is intimately connected with the spectacle's story and with the use of the different senses of the participants. As the renowned artist of mas', the masquerade tradition of Trinidad's carnival Peter Minshall says, story works better if it is "powerful in visual terms" (Rockwell 158).[13]

In what follows, I introduce some of *Artichoke*'s spectacles before I examine them from the framework established in my definition of spectacle. These spectacles are: *Temple* (2015), *London's Burning* (2016), and three installations based on light, fog, and sound: *Crown of Light,* by Ross Ashton, Robert Ziegler and John Del'Nero, from *Lumiere Durham,* 2013 (light and sound installation); *Fogscape #03238*, by Fujiko Nakaya and Simon Corder, from *Lumiere Durham*, 2015 (fog installation); and *Waterlicht*, by Daan Roosegaarde, from *Lumiere London,* 2018 (light installation).

## III. *Artichoke*'s Spectacles

*Temple* [Image 1] is one of the most meaningful projects produced by *Artichoke*.[14] It addresses reconciliation after the *Troubles* in Northern Ireland (1969-1998), a period of sectarian violence between the two communities of Derry-Londonderry: the Protestant Loyalist majority and the Republican Catholic minority. The conflict caused the loss of 3,500 lives. *Artichoke*'s spectacle sought to address this horrifying and still-unhealed past. Traditionally, the two communities built about 3,000 bonfires in the summer. In them, they burned symbols of the other community such as flags and effigies. The bonfire was considered a celebration of identity by both communities. Helen Marriage, *Artichoke'*s Director, sought to subvert this tradition, finding "a better way of doing this [the bonfires] than this recycling of hatred and enmity."[15] As a result, *Artichoke* asked artist David Best, who builds temples for the *Burning Man* spectacle in Nevada, to design a non-denominational third cathedral in Derry-Londonderry. This non-sectarian building would redefine the meaning of a cathedral by bringing people of all faiths and beliefs in the community together as volunteers to build the temple. In a closing ritual, the cathedral would be torched to the ground. Children contributed to the design of panels, unemployed young people were trained in digital design and carpentry, and community members constructed the building.

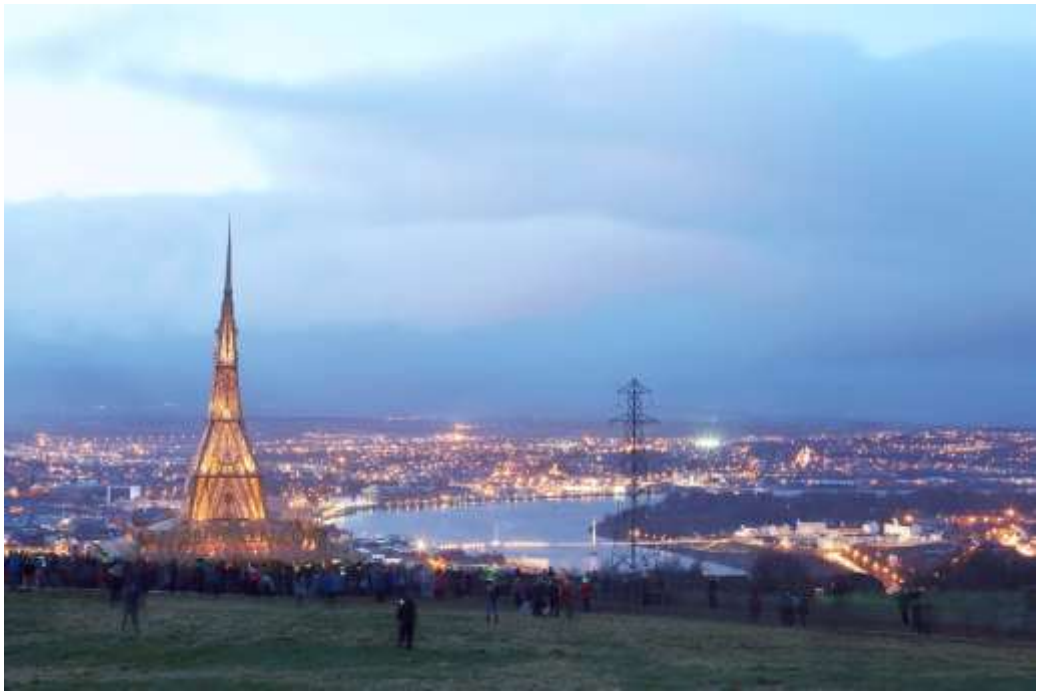

**Figure 1a:** Temple

The temple's location was essential to the project as *Artichoke*'s philosophy of spectacle includes making public space available to the whole community. Consequently, the temple was built at Kelly's Field, at a spot called the Top of the Hill, an area considered Republican, and it overlooked the protestant and Catholic cathedrals. Most people in Derry-Londonderry had never set foot at Kelly's Field. A local participant in the project said that the last time journalists showed up there was after the "Annie's Bar Massacre," when Loyalist paramilitaries killed five civilians who were watching a soccer game in 1972. Helen Marriage was advised not to build the temple at the Top of the Hill, but as she says, "spaces that are never considered to be shared never become shared."[16] Attendance at this spectacle was massive. In fact, the temple had to be kept open longer than expected because the community's traumatized members had so much to say, expressing their emotions in writing on the panels of the temple. They also left objects evoking memories that they needed to leave behind at the temple. Writing and objects full of meaning burned with the building on the last day so participants could move on with their lives. In the words of its designer David Best, the temple "has to be so beautiful that you give up the thing that has been troubling you your whole life." The objective was to "leave the past behind, celebrate your passions and look to the future."[17]

**Image 2:**
Temple (burning), David Best, 2015. Produced by Artichoke in Derry~Londonderry. Photo by Matthew Andrews.

After two years between conception and delivery, the temple's burning ritual took fifteen minutes [Image 2]. Sixty-five thousand people showed up for the ritual in a city of 55,000. They

embraced each other at the ceremony, feeling a sense of *communitas*, recognizing their shared experience and common humanity.

*London's Burning* [Images 3 and 4] was a week-long festival of art and ideas for Londoners, British, and international audiences.[18] It memorializes the 350th anniversary of the 1666 Great Fire that left 80,000 people homeless in four days. For the festival's final event, David Best built a 120m-long replica of the 17th-century London skyline on a barge that sailed down the Thames and was burned in front of 50,000 attendants while 6,700,00 more people viewed the ritual online.

**Image 3**: *London 1666*, David Best, *London's Burning*, a festival of arts and ideas for Great Fire 350. Produced by Artichoke. Photo by Matthew Andrews.

**Image 4:** London 1666, David Best, London's Burning, a festival of arts and ideas for Great Fire 350. Produced by Artichoke. Photo by Matthew Andrews.

When they memorialized the historical event, *Artichoke*'s interest was to engage audiences in a reflection on the threats to a modern city in the 21st century, such as climate change, rising sea levels, and violence. It was also an opportunity for many audiences and participants to re-imagine the city. Part of the festival was interactive art and performances, culminating in the medieval London's replica's torching. Children were asked about "my hope for London." Young people were recruited in impoverished areas of the city, trained in carpentry, design, technology, punctuality, and other skills to function in the community. Their experience working on this project opened up new possibilities that these young people had never considered. This engagement in the construction of the art that is later burned is one of the most important ways in which *Artichoke*'s project helps change the lives of people. This youth loved meeting other people, communicating with them, working together, and being part of something larger than themselves. The experience empowered them, and comments like the following were typical: "I can do anything, to be honest." Some even got traineeships after the spectacle that prior to their training and participation in *London's Burning* would have been unimaginable.[19]

Three installations connect with *London's Burning* through either a focus on history —*Crown of Light* (*Lumiere Durham*, 2013) — or their concern with the environment —*Fogscape #03238* (*Lumiere Durham,* 2015), and *Waterlich*t (*Lumiere London,* 2018). *Artichoke's Lumiere* spectacles seek a physical transformation of the urban space. By transforming, through art, the way people see their cities, they seek a change on how the members of a community feel about themselves. *Artichoke* has been producing a biannual *Lumiere* festival in Durham since 2009. Durham is a town of about 40,000 people in northeast England that was negatively impacted by the end of the coal industry in 1994. Unemployment, obesity, and under-achievement are common in the city and the county. *Artichoke*'s light installations make the urban landscape a playground where people wander around, experiencing their town in new and magical ways. As a participant in *Lumiere London,* 2016, says: "It forces you to see the space in a completely different way."[20]

Durham Cathedral is one of the best examples in England of Norman architecture. It is almost 1000 years old, and it holds the remains of the most important medieval saint in northeast England, St. Cuthbert. The spectacle projected on the cathedral facade [Image 5] shows images 100 meters wide of both the inside the cathedral and the *Lindisfarne Gospels*.[21] This book is the first illuminated manuscript of the gospels in England. It took a monk called Eadfrith forty years to make it, and it has been dated around 715. The extraordinary *Lindisfarne Gospels* are in the British Library, and the hope of its return to Durham is naught. With *Crown of Light*, *Artichoke* sought to recover this jewel for the city in a light and sound spectacle. It was part of *Lumiere Durham* for three consecutive spectacles: 2009, 2011, and 2013.

**Image 5:** Crown of Light, Ross Ashton, Robert Ziegler and John Del'Nero, Lumiere Durham 2013. Produced by Artichoke. Photo by Matthew Andrews.

*Fogscape #03238* [image 6],[22] by Fujiko Nakaya and Simon Corder, was part of "Lumiere" Durham in 2015 and 2019. It is a moving, poetic fog sculpture. Its evanescent, fleeting quality connects with a local myth, according to which, during the German bombing of England known as the *Baedeker Blitz*, the Germans intended to bomb the Durham cathedral to demoralize the population. Fortunately, and as the story goes, St. Cuthbert saved the day by invoking the fog so the Germans could not find the cathedral. Nakaya's ephemeral fog sculpture addresses the issue of human-made climate change. It promotes the notion that nature as we know it, like mist, is fated to disappear — unless we protect it. The immersive installation invites people to walk in the disorienting fog and to wonder about in a space different from that of their daily experience. Walking in the fog forces the participants to use senses other than sight, making what is usually invisible visible and vice versa.

**Image 6:** Fogscape #03238, Fujiko Nakaya and Simon Corder. Lumiere Durham 2015. Produced by Artichoke. Photo by Matthew Andrews.

Daan Roosegaarde*'s Waterlicht* [image 7] was part of *Lumiere London*, 2018. The installation was placed at Granary Square, and was made using a steam machine, reflective lenses, light, and software programs. It addresses the current environmental crisis, and it is part of Roosegarde's interest in sustainability issues. *Waterlicht* invites the public to imagine how it would be like to be underwater due to rising sea levels. The effect of undulant waves is spellbinding and, for some, even scary, according to Roosegaarde. As the artists said, with this project, you educate a "mesmerized" public who can "experience it together [because] it is real." [23]

**Image 7:** Waterlicht, Daan Roosegaarde. Granary Square, Kings Cross. Lumiere London 2018, 18 - 21 January. Produced by Artichoke and commissioned by the Mayor of London. Photo by Matthew Andrews.

## IV. Elements of Spectacle

### (A) Time

Spectacles are brief, and *Artichoke*'s spectacles do not last long.[24] When a spectacle is based on performance —for example, a theatrical experience — its duration lasts the same time as the experience of the viewer or participant. This is illustrated in *Artichoke*'s *One & Other*, *Dining with Alice*, and *Processions*. The spectacles treated in this essay are hybrid in nature. They have two components: they are art, and they are also immersive experiences. Art — a painting or a sculpture in a museum, for instance — is not a spectacle in and of itself because it is an expression of creativity produced in the past and is not immersive; on the other hand, spectacle is experienced in real time unless it is virtual in which case it can be experienced either at the time the spectacle is happening or after it happens. This is the case when we watch a film or a pre-recorded event. The art that *Artichoke* places at the center of their spectacles is pre-conceived, but, unlike a painting on a wall, the creation of the art itself is an organic part of the full spectacle, and is an immersive experience. In the case of *Fogscape #03238* and *Waterlicht*, the work of art acquires a life of its own, as the artists cannot fully control the contours of their creations — due to the mist used in both pieces.

As immersive experience, *Temple* invites participants to express their negative memories through writing on the cathedral's panels and to leave the objects that stir up painful memories. Then, as previously mentioned, all the participants experience the burning of the temple. The torching of the building, according to David Best, does not signify its destruction, but its protection. Keeping what is built to be burned would be to condemn it to become one more forgotten monument among so many others, like a piece of furniture in a house. The key consideration in these spectacles is the experience.[25] *London's Burning* reproduces *Temple*'s concept regarding the use of fire, but instead of inviting participants to conjure painful memories of the past in order to move ahead with their lives, it requires a focus on the present and the exercise of people's imagination towards the future of their city. The rapid burning of both the temple and London's replica become an affirmation of the brevity of spectacle and a symbol of both the transience of all things human and the possibility of renewal.

The projection of the *Lindesfarne Gospels* on Durham's cathedral denotes the continuity between the past and the present of a community; it upholds the relevance of past creations as sources of identity of a community in crisis. *Fogscape #03238* represent the ephemeral quality of the world we call our home, inviting us to protect and preserve the planet we have inherited. *Waterlicht* does the same as *Fogscape #03238* through light and mist, as it makes us confront, in a purposeful manner, the real and present danger of environmental catastrophe.

**(B) Live and Virtual Spectacle, Emotions, and the Senses**

A spectacle can be experienced live or virtually. *Artichoke*'s spectacles are all live, but some of them were available virtually. While live spectacle appeals very directly to the senses and promotes community with a power that virtual spectacle does not, virtual spectacle reaches many more people even if the community it creates is less organic, as the viewers access it individually, on TV or online. As a result, the emotions evoked are more all-embracing and complete in live spectacles. *London's Burning* was watched live by 50,000 people, but 6,700,00 viewers watched online. The scope of this viewership and the quality of the production, made Helen Marriage declare: "Of everyone here, I am the least interested in digital, I am focused very much on the live event. But this certainly changed my mind —digital can give a deep and profound experience to audiences. I still want people to come to the live event but realize that if they can't or want more, online has something to offer."[26] *Artichoke*'s other spectacles that could be watched virtually are *One & Other, Peace Camp, Processions,* and *Galway 2020-European Capital of Culture.*

Sometimes, and given its purpose, the spectacle's real power can only be effective when experienced live. This is the case with *Temple*, which provided the most powerful form of catharsis for the traumatized Derry-Londonderry communities. Another example of powerful emotions is in *Waterlicht,* where, as we have seen, participants are enthralled by the spectacle and, at the same time, they experience fear of what can occur as a result of human-provoked climate change.

Regarding the senses, while virtual spectacle appeals only to sight and hearing, live spectacle offers a spectrum of sensorial possibilities beyond the reach of virtual spectacle. Critics like Requena discard smell, taste, and touch as irrelevant to a true spectacle. The use of those senses eliminates what the critic considers a necessary "distance" between "the body of the perceiving subject and the object that is perceived" (35). In this sense, the concept of spectacle proposed in this essay expands on Requena's conception, including spectacles where all senses can potentially be used. In 2001, 70 million people attended India's *Kumbh Mela*, the largest spectacle in the world; it congregated twenty-five million people bathing in the River Ganges in one day (Rockwell 21), and it requires the use of all the senses.

Among the spectacles treated in this essay, *Crown of Light* fits Requena's model of spectacle as the participating subject uses only sight and hearing. The rest require the exercise of other senses as well, or even purposefully deny participants the use of sight as in the case of *Fogscape #03238,* which forces them to find their way in the mist. *Waterlicht,* as Roosegaarde says, is experienced as "real" because "you can touch it [the mist]." [27] *Artichoke*'s *Temple* and *London's Burning* require of those who participated in the live event to smell smoke from the fire, and, in the case of the former, those who wrote on the panels of the cathedral to touch it.

**(C) The Everyday and the Unexpected**

While everyday life is predictable, spectacle is the opposite. A key element of spectacle is the experience of the unexpected. In live spectacle something can go wrong, an issue that Helen Marriage discussed with the London authorities regarding, for instance, *One & Other*, as the authorities were afraid that one of the "plinthers" could be shot or had an accident while on the plinth.[28] Additionally, it shakes up our routine and takes us into a unique place unthinkable in the experience of our everyday life. This exceptional experience opens up new venues in the understanding of what is possible. The range of these experiences is large: from an exclusive and expensive concert at New York's Lincoln Center to the massive and free popular festivals such as a carnival.

In *Artichoke*'s case those possibilities are presented to us through the powerful vehicle of art. The possibilities opened up by the artistic imagination and its disruption of everyday life have an effect on the creation of memories that we take back with us into our daily life, potentially having an effect on it. Following the Russian Formalists' concept of *ostranenie* (de-mechanization, or disruption, of the habitual and predictable), spectacle de-mechanizes the everyday, it awakens our dulled senses and perception of reality, allowing the participant to take with her/him an experience of the unique. The effect of this experience is, as Rockwell says, to "turbocharge the everyday" (20).

*Temple* was done in the belief that it is ethically objectionable to accept the sectarians fights that shaped the daily life and identity of people in Derry-Londonderry. It symbolized the view that there was a better way to celebrated identity and community than making bonfires to vilify the other. *London's Burning* was produced from the belief that the modern city is a dynamic experience, and that part of that dynamism is the possibility to re-imagine it. The projection of the *Lindisfarne Gospels* and parts of the inside of the cathedral on the West façade made it possible to make available to the city what otherwise remains inaccessible. *Fogscape #03238* and *Waterlicht* challenge the complacency of those who, busy in their everyday lives, see climate change as something remote or unrelated to their daily lives. Through their uniqueness, these spectacles tell us stories that have an impact on the lives of communities; they widen the participants' horizons and, by experiencing the unexpected, the they are invited to become part of a continual, utopian project to better the everyday.[29]

## (D) Performance

Spectacle belongs to the world of culture, human expression, creation, and performance. Natural wonders can be spectacular, but they are not spectacle. Performance is "twice-behaved behavior, that is, "restored behavior" (Schechner 46-47). A performance is not always a spectacle, although spectacle is based on performance. Sakina Khan, Deputy Director of the Washington, DC, Office of Planning, says: "All infrastructure is a stage and all residents are performers."[30] *Artichoke*'s bold spectacles bring art to cities and the countryside, engaging participants as an intrinsic part of the event. Our daily performances do not reveal all of our possibilities; in fact, "there are multiple 'me's' in every person" (Schechner 28), and *Artichoke*'s spectacles address part of humans' multifaceted identity, opening up new existential possibilities. This is what we see in *Temple.* By taking the members of the community out of their ordinary selves and lives deeply anchored in the sectarian conflict and its traumatizing effects, the spectacle invites the participants to tap into a different version of themselves, another "me" that rarely or never has a chance of emerging within its specific community, be it Protestant or Catholic. By transcending sectarianism and joining a wider community, spectacle makes us reconnect "with our humanity" (Rockwell 21).

*Artichoke*'s spectacles respond to humans' "play instinct," that is, to have experiences that are not for real, as cultural historian Johan Huizinga says (47). *Artichoke*'s spectacles meet the different functions of play: "to entertain, to make something that is beautiful, to mark or change identity, to make or foster community, to heal, to teach, persuade, or convince" (Schechner 38). Art itself is a playful expression of human creativity. During spectacles like *The Sultan's Elephant*, *La Machine*, or *The Magical Menagerie*, the city itself becomes a gigantic and joyful playground for all participants. Besides its playful aspect as art, some of *Artichoke*'s productions emphasize the ritual dimension of spectacle.

Ritual is a powerful source of community (Schechner 74), and *Temple* is the best example among the spectacles treated in this essay of a ritualistic process, especially at the burning ceremony, where the spontaneous feeling of what Victor Turner calls *communitas* was clearly present. In *Communitas, "*people […] obtain a flash of lucid mutual understanding on the existential level, when they feel that all problems, not just their problems, could be resolved, whether emotional or cognitive," and he adds that "spontaneous *communitas* abolishes status. People encounter each other directly, 'nakedly,' in the face-to-face intimate encounter" (44-48), it is a state where the participants can feel that "there's a little bit of you in each of me" (Schechner 63). This is what the feelings were

among the participants in the burning of the temple in Derry-Londonderry. They all recognized their common human experience, they also understood the similarity of their painful experiences, and that they were on the same boat together as a community. Participants in *Waterlicht* felt something similar: by seeing themselves in a metaphorical sunken ship, they realized that they were all inhabitants of a threatened planet. Thus, they transcended their individuality and merged with the community through an intensified state of common purpose in light of the climate crisis.

## (E) Space

Spectacle can take place not only in real or virtual space, but also in private or public space. As opposed to the circus model, and the Italian model —the most common stage in theaters today— *Artichoke*'s spectacles are closer to the open scene of the carnivalesque model, although they also happen on the "ghost scene," or electronic medium (Requena 40-43). *Artichoke*'s spectacles are designed to unite people in public space, the domain of everyday life, the country, and coastal landscapes, injecting magic and poetry that the participants can take with them to their daily lives.

From the outset, *Artichoke*'s discourse and practice of space was based on the notion that public space also belongs to the arts. Their first spectacles, *The Sultan's Elephant* and *London's Burning* took years of negotiation with the authorities of the City of London who were initially reluctant to use public space for the arts. *Artichoke*'s "invasion of public space" requires that the entire city becomes a dynamic, free of charge scene where the participants move around without concern for traffic. The participants in the spectacle can move "inside" and "around" the spectacle in an egalitarian, free, and democratic experience of the gaze, body, and word where there is no privileged perspective.

# V. Conclusion

As Cormac McCarthy says, what humans need the most to survive is "food and human community" (cited by Gotschall xvi). *Artichoke* addresses this need for community and identity as a core principle of their life-enhancing spectacles. This necessary sense of community is expansive and it functions at different levels: from smaller towns like Durham or Derry-Londonderry, to bigger cities like Liverpool or London, and to the post-Brexit United Kingdom.

Anthony Gormley, the Director of *One & Other*, stresses both the competence and "creative energy" of *Artichoke'*s spectacles, but also their inspirational power.[31] I myself felt inspired by *Artichoke*'s work. In 2019, I wrote to Helen Marriage suggesting that *Artichoke* help launch a spectacle in the United States related to President Donald Trump's proposed border wall with Mexico, a controversial symbol of the profound economic, social, racial, and political divides in the United States. Additionally, the wall endangers different animal species, which connects with the larger environmental crisis unfolding around us. I suggested that *Artichoke* help produce a spectacle along the U.S./Mexico border (or elsewhere in the country) that would elevate our collective consciousness in the United States, particularly among young people, by building, not a wall, but a bridge between the two sides of the border with Mexico. At the end, it would be burned. This project would include American and Mexican activists and artists from both sides of the border. Understandably, Marriage answered that their own field of operations is the UK, and the obvious fact that they are disconnected from the U.S., suggesting to work with someone nearer. On this particular occasion, I passed on the opportunity to do it, but *Artichoke*'s inspiration remains, and I look forward to being involved in spectacles that contribute to changing lives.

*Artichoke*'s immersive, transformational and bold projects are a model for life-affirming spectacles everywhere. We are going to need them in the critical times ahead.[32]

## Notes

[1] For Crucifixion as spectacle see John Granger Cook, "Crucifixion as Spectacle in Roman Campania"; for the video of George Floyd's death see article by Melanye Price. Retrieved from: https://www.nytimes.com/2020/06/03/opinion/george-floyd-video-social-media.html; for festivals as spectacle see Ping-Ann Ado, "Anthropologie, Festival, and Spectacle"; for Donald Trump's presidency as spectacle see S.L. Brandt, "Donald Trump, the Reality Show: Populism as Performance and Spectacle"; for advertising and news media as spectacle see Guy Debord, *The Society of the Spectacle.*

[2] This is the case, for instance, with the UK's *Love Island,* or Japan's *Terrace House.* See Yomi Adegoke, https://www.theguardian.com/tv-and-radio/2020/may/27/why-suicide-is-still-the-shadow-that-hangs-over-reality-tv-hana-kimura-terrace-house

[3] See Jan Packer and Julie Ballantyne, "The Impact of Music Festival Attendance on Young People's Psychological and Social Well-being; and, Charles Arcodia and Michelle Whitford, "Festival Attendance and the Development of Social Capital."

[4] See Plato, *Laws,* Book VIII, 8, 828b: http://classics.mit.edu/Plato/laws.8.viii.html; Also, Sylvia Benso, *The Face of Things* (187-96).

[5] This is the notion proposed by Jesús González Requena, "Introducción a una teoría del espectáculo," and Adrián Pradier Sebastián, "¿Qué es un espectáculo?"

[6] See Donald Getz, "The nature and scope of festival studies," and David Rockwell, *Spectacle*; on the Olympics, see John J. McAloon, *This Great Symbol.* Interestingly, Plato and Jean-Jacques Rousseau opposed theater but approved of popular festivals: see Jonas Barish, *The Antitheatrical Prejudice*, 5-37, 256-94.

[7] On the Stalinist parades see Kristin Romberg, "Festival," 250-57.

[8] For Jesus' crucifixion see Frederick T. Zugibe, *The Crucifixion of Jesus,* 51-56; and Mitchell Merback, *The Thief, the Cross, and the Wheel,* 41-68. Merback also analyzes the spectacle of death in the Middle Ages, 126-48; and also Michel Foucault in *Discipline and Punish.* Daniel Gordon treats the spectacle of death during the French Revolution in "The Theater of Terror"; for the spectacle of lynching see Amy Louise Wood, *Lynching and Spectacle*; also see Nicole Chavez, https://www.cnn.com/interactive/2020/12/us/america-racism-2020/

[9] Former President Barack Obama calls Donald Trump himself "a spectacle" in his 2020 book, *A Promised Land,* 672. For *The Crown* as a spectacle see: https://elpais.com/television/2020-11-13/vuelve-the-crown-el-gran-espectaculo-de-la-historia.html

[10] Regarding the post-truth phenomenon see James Ball, *Post-Truth: How Bullshit Conquered the World*, and Matthew D'Ancona, *Post Truth.*

[11] See *Artichoke*'s web page: https://www.artichoke.uk.com/

[12] Helen Marriage in https://www.artichoke.uk.com/

[13] A simple perusal of *Artichoke*'s web page shows that the section corresponding to each spectacle includes its "story," which contains the specific issue they are addressing and its impact on communities. Unlike other perspectives on spectacle, my understanding does not separate spectacle and story. In this regard see Simon Lewis, "*What is spectacle?*" 214-21, and Neerani [check]

[14] Credit for *Temple*: David Best, 2015. Produced by Artichoke in Derry~Londonderry. Photo by Matthew Andrews.

[15] See: https://www.youtube.com/watch?v=SfqdLyI3Mgo

[16] Cited in Phineas Harper: https://www.architectural-review.com/TODAY/LET-IT-BURN-TEMPLE-IN-DERRY-NORTHERN-IRELAND-BY-DAVID-BEST-ARTICHOKE

[17] https://www.culturenorthernireland.org/features/visual-arts/how-we-built-temple

[18] Credit: David Best, *London's Burning*, a festival of arts and ideas for Great Fire 350. Produced by Artichoke. Photo by Matthew Andrews.

[19] See https://www.thespace.org/resource/artichokes-london-1666-story-artwork-went-viral

[20] See: https://www.artichoke.uk.com/project/lumiere-london-2016/

[21] Credit: *Crown of Light,* Ross Ashton, Robert Ziegler and John Del'Nero*, Lumiere* Durham 2013. Produced by Artichoke. Photo by Matthew Andrews.

[22] Credit: *Fogscape #03238*, Fujiko Nakaya, Simon Corder, *Lumiere* Durham 2015. Produced by Artichoke. Photo by Matthew Andrews.

[23] See: *CNN*'s "Haunting virtual floods submerge cities around the world": https://vimeo.com/291731776. Credit: *Waterlich*t, Daan Roosegaarde, Granary Square, Kings Cross. *Lumiere* London 2018, 18 - 21 January, produced by Artichoke and commissioned by London's mayor. Photo by Matthew Andrews

[24] Derry-Londonderry's *Temple* (14-21 March, 2015), *Lumiere Durham* (12-15 November, 2015), *London's Burning* (30 August-4 September, 2016), *Lumiere London* (18-21 January, 2018).

[25] See Phineas Harper: https://www.architectural-review.com/TODAY/LET-IT-BURN-TEMPLE-IN-DERRY-NORTHERN-IRELAND-BY-DAVID-BEST-ARTICHOKE

[26] See "Artichoke's London 1666 — the Story of an Artwork that Went Viral." https://www.thespace.org/resource/artichokes-london-1666-story-artwork-went-viral

[27] See: *CNN*'s "Haunting virtual floods submerge cities around the world": https://vimeo.com/291731776.

[28] See https://www.youtube.com/watch?v=0Hq7zSj7Rqs

[29] Spectacle challenges what is predictable in our lives and offers an extraordinary event. Yet, in order to display its true power, the viewers and/or participants need to have an "expectation" (Pradier 7), they need to feel a sense of excitement before and during the experience. Furthermore, it needs to be "ostensible" (Pradier 9), that is, it needs to be designed as a spectacle.

[30] See: https://www.ncpc.gov/videos/546/

[31] See: https://www.artichoke.uk.com/project/one-other/

[32] I would like to thanks Sheila Kinkade and Erin Lang for their commentaries and edits. My thanks to *Artichoke* for its kind help acquiring the images that are part of this essay. Khadija Niang, *Artichoke*'s Communications Assistant, has been extremely helpful in the process of acquiring those images.

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## About the Author

**Dr. Francisco LaRubia-Prado** earned his Ph.D. from Cornell University, Ithaca, NY. He is a professor with the Faculty of Languages and Linguistics at Georgetown University in Washington, D.C. He also taught at Princeton University. He has published books on Miguel de Unamuno, José Ortega y Gasset, and the Romantic period. His latest book is *The Horse in Literature and Film*. He has edited several volumes on various topics, including the the Enlightenment, Cervantes, Literary Theory, Intellectual History, and Transatlantic Studies. His latest edited book is *Imperialism and the Wider Atlantic*. Dr. LaRubia-Prado has published many essays on Spanish and Comparative literature and culture. He is currently working on an essay about the convergence of the modern literary "moment" and the concept of heroism in Miguel de Unamuno's work and on a book about the cultural impact of spectacle.

# Educating the Gifted: An Opportunity for Improving the Quality of Teaching and Learning in Classrooms

**Heinz Neber**
The International Centre for Innovation in Education, Ulm, Germany

Now more than ever, the subject of educating gifted students is garnering attention worldwide. Educational strategies for implementing are revealed by comparing results of international competitions and rankings, and are driven by the need for meeting the social challenges of the future. Whatever the objective for educating gifted students, it remains a complex and open-ended issue that must be broken down into manageable parts. And because the topic is ill-defined, all possible approaches should be considered and evaluated before determining how to proceed.

Implementing programs for gifted students requires solutions on multiple levels of the education system. I suggest streamlining the topic with five interacting, systemic levels (see figure 1). Each level requires its own definitions and clarifications. These should be coordinated and prioritized according to prominent goals and society- and culture-specific political objectives. The resulting vertical alignment between different levels and types of schools will enable smooth transitions in passing through the system from kindergarten to higher education. If a teacher recommends skipping a grade or another form of academic acceleration that requires transferring to a different learning environment, he or she must ensure that the new school or class includes a focus on educating the gifted, where the chosen student will be able to apply his or her preferred learning style and will be accepted by both peers and teachers via a corresponding, positive social-emotional atmosphere.

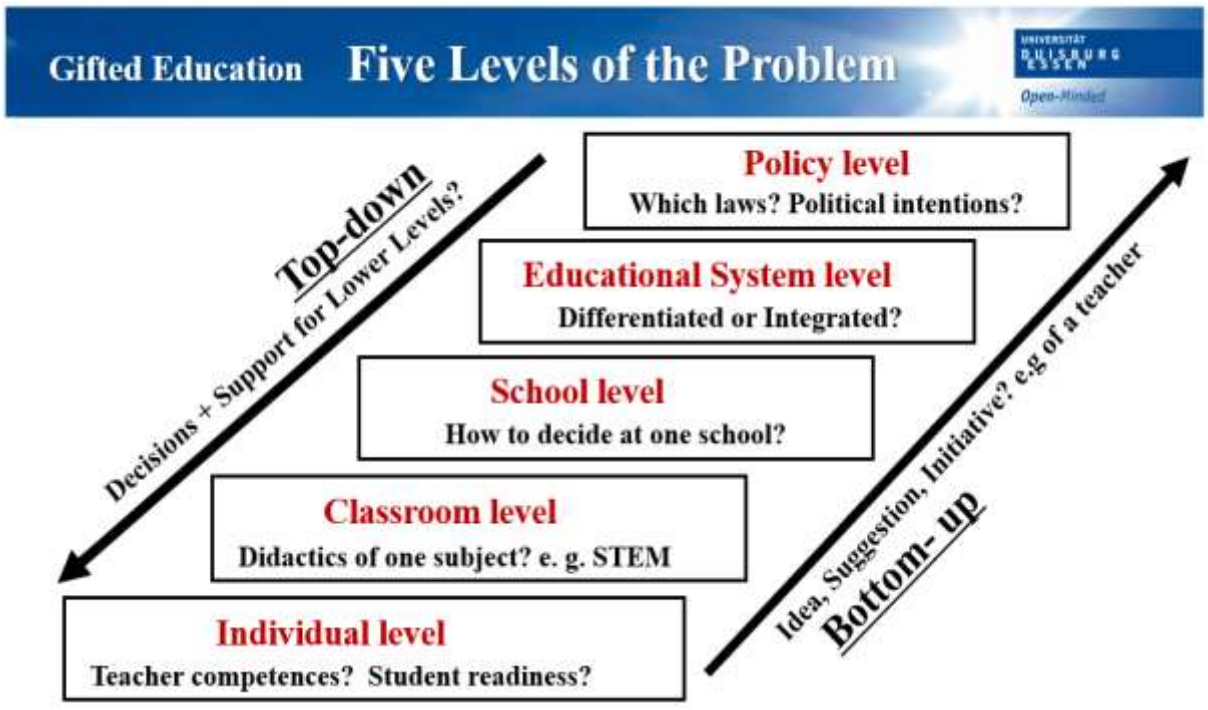


**Figure 1:** Defining and coordinating the education of gifted students at five levels.

In the context of the German education system, initiatives for turning awareness about educating the gifted into concrete solutions often starts from the bottom up. Highly motivated and engaged teachers want to establish gifted programs in their classrooms. Such instructor-driven strategies have positive effects on the professional development of the teachers and provide an effective way for acquiring expertise in innovating didactic methods. Research has shown that when such innovations are strictly prescribed from the top down (e.g., by the school district or principal), the result is often negative. According to King (2014), a teacher's sense of autonomy and professional self-efficacy may decline, which has consequences for his or her students' achievement levels.

Fortunately, teacher-initiated, bottom-up efforts are more encouraged now than in the past. Of the sixteen German states that have their own ministries of education, nearly all of them receive substantially more support for such initiatives. Furthermore, additional resources are now provided for facilitating gifted education programs at the classroom level. Taking measures for integrating gifted students and acknowledging their particular needs is now on par with efforts made for accommodating students with learning disabilities (Fischer & Müller, 2014; Preckel, 2007; 2013).

Integrating education for gifted students into traditional schools will help to raise the quality not only of these schools, but of the whole educational system. In order to attain this ambitious goal, addressing gifted programs at the classroom level is critical. Classroom-level integration is more authentic than offering an add-on, extracurricular program, which often neglects the details for developing the required teaching strategies (Reis, 2003).

Therefore, my contribution focuses only on what happens in the classroom. It is here that changes are needed in the established methods of teaching, in student tasks and materials and in organizational methods for teaching, as well as in the students' learning processes and strategies. Coordinating these changes will help to reduce the gap that exists between teaching and learning at both gifted and traditional schools. It will provide learning opportunities for a broader spectrum of students, which is essential for all classroom environments. Even schools for highly gifted students do not evade the issue of diversified cognition by merely establishing homogeneous classrooms (e.g., Marsh, et al., 1995).

It is important to view giftedness primarily as an individual variable. At the classroom level, the question is: How do we integrate, or even reduce, intellectual differences among students in a classroom or group? The answer depends upon how we define giftedness.

## Concepts of giftedness and consequences for identification and programming

Most often, giftedness is taken as a rather fixed and innate characteristic of a student, a fundamental ability or potential to learn. As a consequence, this potential must first be identified and then applied to corresponding levels of achievement via appropriate educational programs. These programs need to be adapted to both the student's current and prospective potential. Program design that uses this framework results in a responsive, service-oriented perspective on educating gifted students: First identify, and then offer relevant programs.

Alternatively, giftedness can be conceived as a variable, shifting characteristic, a potential that can be improved by instruction and not merely translated into academic achievement or performance. Using this approach, schooling should aim to raise the giftedness levels of all students. When giftedness is recognized, it only indicates the current level, not an absolute or permanent one.

A more active approach to educating gifted students will result from this perspective. First, objectives and corresponding programs are designed, then, students suitable for the programs are nominated using an identification procedure. It is not the program that will be adapted to the student, but the student to the program.

This concept of giftedness, as a potential that has to be promoted with all students, is the predominant perspective throughout the German education system. This does not preclude special programs for highly gifted students (Trautmann et al., 2018). However, the sequence can be reversed: First offer programs and instructional provisions, then, identify individuals or subgroups of students who are appropriately suited to the programs.

Summer schools for high-ability students, like the German School Academy, are among the best gifted education programs at the federal level in Germany. In these cases, teachers at secondary schools nominate students as participants. Each school can elect no more than two of their students, and program creators consider roughly 30-40% of these nominees. A large evaluation study has shown that teachers are quite adept at identifying candidates for gifted programming. Retrospectively applied ability tests revealed that all of the students who were recommended by the schools attained higher IQs with at least two standard deviations above the mean (Neber, 2004; Neber & Heller, 2002). Teachers in Arabic countries have similar abilities in recognizing intellectual aptitude at summer schools (Aljughaiman & Ayoub, 2017).

With this second approach to giftedness, definitions of what it means to be gifted not only provide information for identification purposes, but also contribute goals and objectives for teaching the chosen students. The characteristics specified in these definitions should be taken as changeable attributes of "giftedness", as something that must be acquired by implementing adequate methods of teaching and by redesigning the instructional components of existing classrooms, as well as through supplementary avenues.

The giftedness-as-goal view does not only apply to non-cognitive components (e.g., task commitment or social skills, including leadership as a sub-skill), but also to intelligence or cognitive ability, which acts as the most important, inveterate component of many definitions; e.g., as "above average ability" (Renzulli, 1977), or, in nearly all state definitions in the U.S. since the Marland report; Stephens & Karnes, 2000).

Using established identification procedures, intelligence or cognitive ability is measured by individual or group tests. Results that are considerably higher than the mean are taken as indicators that a student is gifted, and as a requirement for receiving a specialized education. However, research has shown that general or specific intelligence is not as stable or fixed as previously assumed. Conceiving intelligence or cognitive abilities as a fixed quality is currently considered to be a fundamental misconception and a serious limitation for applying available cognitive potential. Teachers who subscribe to this theory of intelligence—assuming that a student's level of giftedness cannot be raised incrementally—are inadequately designing their classroom instruction (Blackwell et al., 2007; Dweck, 2006) and do not provide differentiated lessons required for developing the potential of their students (Aljughaiman & Ayoub, 2017; Gallagher, 2019).

On the individual learning level, this misconception corresponds to the epistemological beliefs that knowledge is fixed, true, and unchangeable, and that knowledge is handed down by an authority. Such beliefs are cause for the individual student to not use his or her existing learning potential. With such low-level epistemological standards, even highly gifted students at the Hunter College High School in New York do not use their current learning potential, and, as consequence, will not further develop this potential through their own cognitive efforts (Neber & Schommer-Aikens, 2002). Education of gifted students should focus on this often neglected, sometimes unknown issue should measure such beliefs using available metrics, and should contribute to developing epistemological solutions for the non-use problem at both classroom and individual levels.

The Instrumental Enrichment Program (Feuerstein, 1990) has repeatedly demonstrated that IQs themselves can be sustainably modified and directly increased by about two standard units. For these reasons, dynamic assessment (Tzuriel, 2001) is recommended as a more useful identification tool for giftedness. Intelligence, as well as other non-cognitive components in definitions of giftedness, should be repeatedly identified and measured while the students are actively participating

in a program because the program has the capability of improving such components. Measurements reveal only the current level of giftedness and not what is attainable through transformed instructional environments.

A further advantage of dynamic assessment is that the change in "giftedness" of an individual student can be recognized and monitored, as can the quality of the program itself. This is urgently required because, on the classroom level, teachers differ considerably in their program implementation, and they only develop this expertise over time. Dynamic assessment will inform the increasing competency of a teacher, the potential of the students and the implementation accuracy of the program. However, only measuring accuracy for formal aspects of a program, as in Foster et al. (2011), is insufficient (e.g., for how long, how often it is carried out, etc.). Repeated measurements of the quality of each component (e.g., the learning tasks) and the classroom learning processes of the students (e.g., questioning, hypothesizing, comparing and explaining) are required.

With the education of gifted students — compared to programs in the health sciences, for example — process- and component-related monitoring is still a neglected issue (Carroll et al., 2007; Shehnaz & Sreedharan, 2011). Available monitoring scales and questionnaires could be used more frequently to make evidence-based modifications and improvements (e.g., MacLeod & Fraser, 2010; the Arabic version of the "What-is-Happening-in-This-Class" WIHIC-questionnaire); or the classic social-emotional climate scale (Moos, 1974; Trickett & Moos, 1972).

Advances in brain research provide further arguments for the "program first" approach and for considering classroom instruction as an instrument for developing students' learning potentials, beyond transforming them into subject-specific achievements. Boaler (2013), a professor of mathematics pedagogy at Stanford University, summarized the recent evidence that classroom practices contribute to developing the regions of the brain that impact intelligence and enable higher thinking and problem-solving performance. He observed that schools "…frequently base their teaching practices on ideas about ability that have been shown to be incorrect" (p. 145). Accordingly, countries with the most successful education systems base their schooling practices on the belief that learning ability and intelligence can be enhanced by the scholastic programming in their schools (e.g., Sahlberg, 2011).

**Giftedness-by-Instruction: Program-first approaches as a consequence**

The concept of giftedness as a fixed potential has been replaced by one where giftedness is flexible, modifiable and can be promoted by instruction. As a consequence, effective program-first approaches for teaching and learning in classrooms have been developed. Two examples will further illustrate this approach.

The first is provided by Gallagher & Gallagher (2013), who implemented problem-based learning (PBL) into traditional sixth grade classrooms. PBL is a widely recommended and effective method for teaching gifted students in homogeneous and mixed-ability classes, increasing the creativity and innovation power of all students (e.g., Kanli & Emir, 2013; Neber & Neuhaus, 2013; 2017). In the Gallaghers' study, twice as many students revealed, and subsequently met, their learning potential in PBL classrooms as would have via traditional standardized testing. It may be inferred that many potentially gifted students fail to be identified when only traditional testing methods are used (Van Tassel-Baska & Stambaugh, 2007). Thus, programs for the gifted and highly gifted may themselves serve as identification tools. Further improvements will be made if expertise for implementing PBL and other inquiry-based models in classrooms are included in pedagogical programs.

The second example of a program-first approach comes from German primary schools, which cover the first four grades. Since roughly 2010, an increasing number of the sixteen ministries of education have allowed for flexible entry into primary schools and for the possibility of teaching the first two grades together. After a student has spent the first year in an integrated environment, the school determines whether he or she will continue as a second grader. If a student is shown to have

higher-than-average learning potential, he or she could immediately jump to the third grade after only one year of primary school. Slower learners have the option of remaining at the entry level one year longer, thus repeating a grade without having to adjust to a completely new class. As in the first example of a program-first approach, a prior identification procedure is not required and students are able to skip grades at a young age. Furthermore, the needs of both highly gifted and lower-than-average students are met, and the subsequent potential for discrimination against both groups is reduced. Personal experiences and current evaluations of the program-first approach are thus far very positive. Students and their parents prefer this new flexibility. Teachers develop a broader spectrum of ways to determine their students‘ abilities, they acquire experience with how to teach heterogeneous groups, and they even improve their professional confidence (Klöver, 2014). Several education ministries in Germany are in the process of setting up centers for additional teacher training and developing materials for lessons in these age- and grade-mixed classrooms, in order to reduce teacher workload (e.g., easy and difficult versions of the same learning tasks, or simple and more advanced learning materials and texts about the same issues).

## Establishing better learning environments: Utilizing opportunities at the classroom level

The second perspective on defining giftedness as a to-be-acquired potential makes it possible to include potential-acquisition as an objective and to consider it an important function of instruction. This applies to programs that are exclusively designed for already-identified, highly gifted learners, as well as for all other students. But there is a central problem with applying this perspective in classrooms: the nonuse problem. This means that available possibilities for acquiring knowledge and developing learning potential are not put to practical use in classroom settings. Simply put, it is a problem of general inertia.

What, exactly, is unused? With regard to individual student, it is the potential to think (learning through thinking); at the classroom level, it is the potential to communicate in such environments (cooperative learning); finally, even when educating gifted students, the available research on learning and instruction is often not considered and applied.

## How to use these neglected approaches for acquiring knowledge in classrooms

Chi & Wylie (2014) summarized cutting-edge pedagogical research by performing meta-analyses on the quality of different processes for learning curricular content in classrooms. Which processes are most effective for classroom learning? Four methods of learning have been identified and labeled as the ICAP framework. The most effective approach to learning is Interactive (I), when students develop their knowledge by collaborating with others. Next is the Constructive (C) method, which means that knowledge is acquired via a process of individual, internal thinking. The other two categories require neither much thinking (corresponding to the lowest level in Bloom’s well-known taxonomy) nor communicating with peers. Active (A) learning involves routine activities such as rote copying of information. The passive (P) approach requires only being present and listening to the teacher. A and P correspond to what is called receptive learning, for example, comprehending and memorizing information presented by a teacher or textbook. I and C correspond to forms of cooperatively organized learning through discovery, which suggests transforming and augmenting the information presented, or learning by “going beyond the information given” (Bruner, 1973). The ICAP model provides a clear approach to giftedness-oriented teaching (see Figure 2).

Classroom instruction for gifted students should be implemented as cooperative discovery learning (CDL), focusing on constructive and interactive learning processes. CDL will transform classrooms into social-constructivist learning environments. Each student’s potential to think will be used for generating personally meaningful knowledge and will be further supported by involving the individual’s available potential for communicating in the classroom. Peers are no longer merely present or perceived as barriers or threats; instead, they provide causes, sources and support for thought-provoking processes. CDL, with its foundation in the learning sciences, will help to solve all aspects of the nonuse problem and could help to specify what is required for teaching gifted, talented and innovative students. It will contribute to the necessary expansion, differentiation and scientific

development of educating gifted students by recognizing the progress that has been made in the learning sciences (see Van Tassel-Baska & Johnson, 2007).

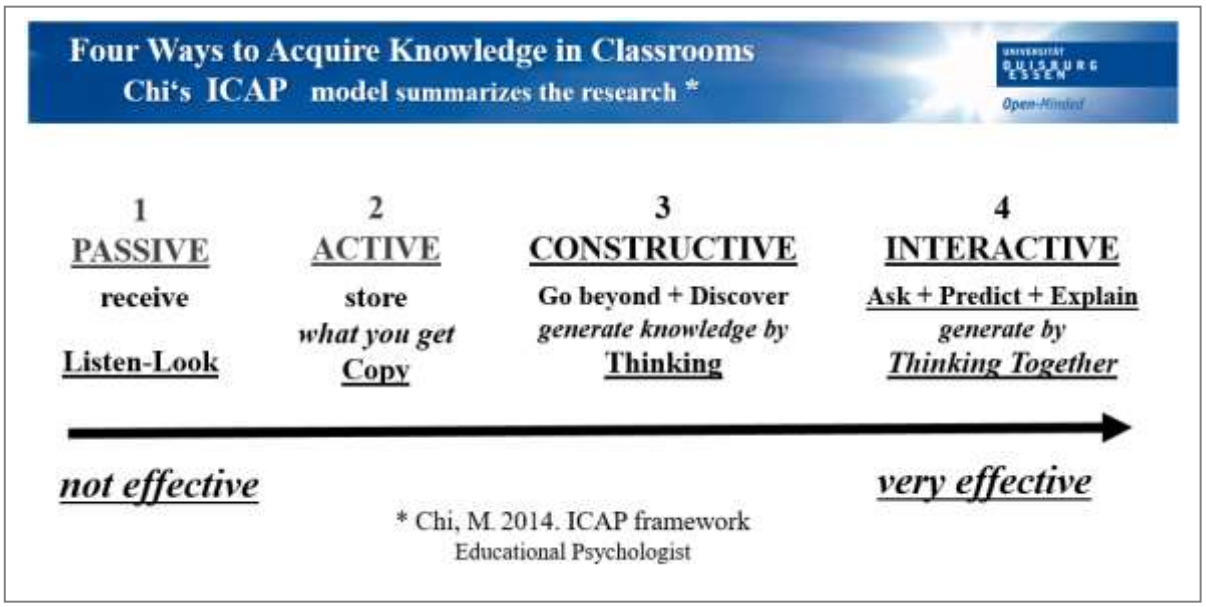


**Figure 2:** The ICAP framework: Thinking and interacting as cognitive classroom processes.

**Cooperative Discovery Learning (CDL): Cognitive processes for generating collaborative knowledge**

Process-oriented instruction enables—even obligates—students to think on their own and interact with others in order to generate knowledge. This is not a completely new concept; several noteworthy researchers contributed to introducing this discipline in schools. One of the first was J. P. Guilford (1950), who proposed the idea that all students are able to think divergently and to define and solve problems in creative ways at all levels of schooling. Benjamin Bloom and his group have also helped to raise the general level of thinking in classrooms, and their method is still a frequently recommended approach for teaching gifted students. Most importantly, the research-based contributions of Jerome Bruner (1973) have been crucial for integrating thinking into classroom-based learning. He was the first to explicitly establish the causal links between students' thinking processes and the quality of the knowledge constructed by these processes. His framework for learning through discovery has become fundamental for developing and designing various teaching methods for the education of gifted pupils. According to Maker & Schiever (2006, pp. 129-164), Bruner provided the basis for many existing models, referring explicitly to Maker's own discovery model, Hilda Taba's teaching strategies, or Renzulli's enrichment model (Renzulli, 1977).

A fourth contributor who's been critical for infusing thinking into classrooms is Ann Brown. Along with Annemarie Palincsar, she developed reciprocal teaching as the first cooperative learning practice expressly designed for distributing thinking processes. She did so by prescribing, and systematically rotating, process-oriented roles within pairs and small groups, using texts as the predominant informational source at schools. By combining cooperation and thinking processes, subject-specific knowledge (the contents), more general learning competences (in this case, reading strategies), and even social skills (including leadership skills) are simultaneously acquired (Palincsar & Brown, 1984). Separate enrichment programs that are often provided for single, rather decontextualized competences (e.g., creative thinking abilities, leadership skills, reading and writing strategies) become superfluous with CDL. Such skills and competences will be simultaneously acquired through subject-specific curricular knowledge.

Ann Brown and her group continued to expand this concept for designing and organizing instruction. The so-called Fostering Communities of Learners (FCL) approach integrates teachers, students and grade-levels, as well as neighborhoods and parents, into knowledge-generating

communities (Brown & Campione, 1994; Bransford et al., 2004). Even Web 2.0-based learning environments explicitly apply FCL principles (Slotta & Najafi, 2015).

Implementing these research-based developments helps to design environments for gifted learning with more detailed and flexible components than are currently offered in special programs or traditional classrooms. As a consequence, a broader spectrum of abilities and individual differences can be integrated in these environments. This may also contribute to better solutions for addressing the differences in learning levels within homogeneous gifted schools and classrooms. Marsh, et al. (1995) recently found the Big-Fish-Little-Pond (BFLP) effect in such classrooms. This means that the ever-increasing individual differences in scholastic achievement cannot only be found in mixed-ability classrooms, but also in homogeneous classes with only highly gifted learners. In a more recent study, Bui et al. (2014) found evidence that being admitted to a school for the gifted could negatively impacts the students' confidence more than staying at a mixed-ability school. Considering such effects, the new models for addressing individual scholastic differences should be implemented via improved teacher training programs for gifted education instructors, which are urgently required by alGhawi (2017) in her informative overview on the current status of gifted education in the UAE. Coleman & Gallagher (1995), who studied conditions for using cooperative learning practices in mixed-ability classrooms, found that the effective use of such methods is strongly dependent on intensive teacher training that includes expert demonstrations and modeling. Staff development programs resulted in widespread cooperative learning use at all levels, including advanced classes for high-ability students. Implementing cooperative learning using thought-provoking, challenging problems and projects set forth by trained teachers had positive effects on the achievements, motivation, and social skills of both below average and highly gifted students. These early results provide further evidence that implementing classroom instruction for gifted students requires mastering a wider spectrum of methods and instructional components that can be varied, orchestrated, mixed, and adapted by teachers. Implementation, modification and differentiation of cooperative methods for use in process-oriented discovery learning (CDL) is particularly important to include in curricula for training teachers of gifted students (Bruening & Saum, 2020; Pehmer, Groeschner & Seidel, 2015; Preston et al., 2015).

Undoubtedly, the aforementioned contributions facilitated the ongoing transition from traditional product-oriented teaching, which only focuses on measurable outcomes, to a process-oriented instruction format, which emphasizes internal thinking processes. Cooperative methods organize these processes in terms of think (individual), pair (group), share (whole class) sequences for engaging each student and elucidating their thinking processes. Lothar Bruening and Tobias Saum provide an impressive range of methods and procedures for organizing classrooms in these ways (Bruening & Saum, 2021).

However, with highly gifted students, cooperative methods are only more efficient than working alone if they are used in concert with thought-provoking assignments (Patrick et al., 2005). Cooperative learning assignments that employ only simple, well-defined tasks with a single correct answer do not challenge gifted students, nor do they stimulate curiosity or provide meaning for these students to reach their highest potential (Bahar & Maker, 2015; Neber et al., 2002).

## The IPKA Model: An integrative framework for planning and implementing classroom instruction for gifted students

The causality between instruction (I), internal thinking processes (P), the resulting internal knowledge (K), and subsequent knowledge-based achievements (A) as the products of classroom education are illustrated by the Instruction-Process-Knowledge-Assessment (IPKA) model. I have developed this model as an integrated framework for planning and delivering classroom instruction (figure 3).

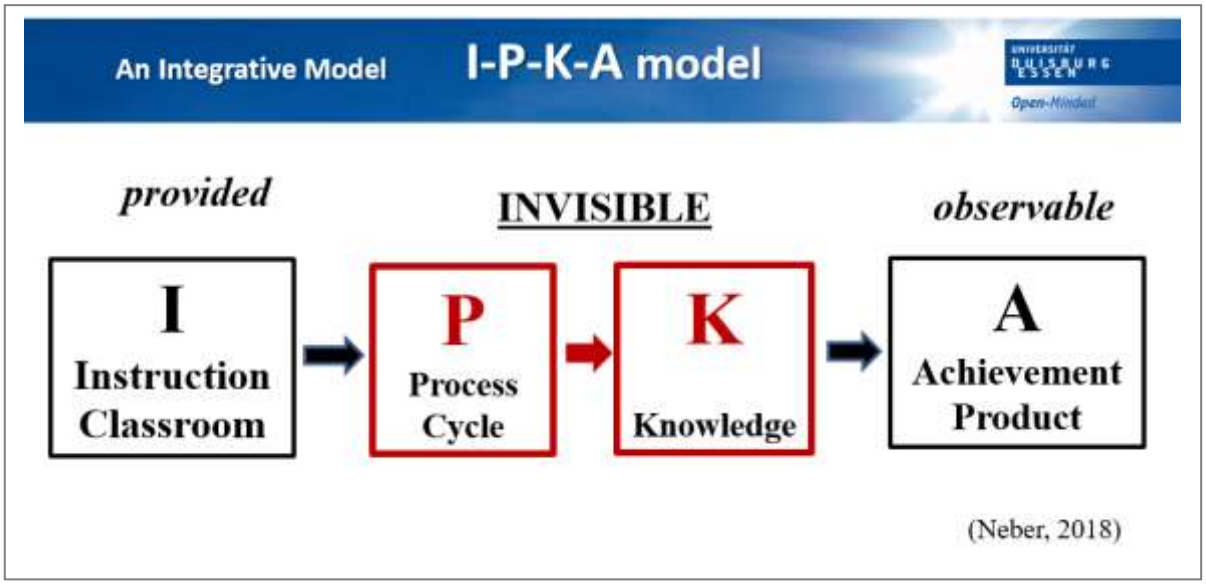


**Figure 3:** The I-P-K-A model as an integrative framework for CDL in classrooms (Neber, 2019).

Quite astonishingly, irrespective of these evidence-based results about the central role that thinking plays in learning—and 70 years after Guilford's speech—the education system is still criticized for its inability to develop critical thinking skills in traditional classrooms and schools. For example, Ron Ritchart from Harvard Graduate School of Education (Ritchart, 2015) suggests that in order to "make thinking apparent" much more effort will be required in classrooms. In Germany, J. Kaube (2019) recently published a bestseller that asks "why schools teach everything but thinking." In order to improve this situation, classrooms must be progressively transformed into social-constructivist environments by implementing cooperative discovery learning practices. Current achievements within the gifted education community may help.

Gifted education could contribute to the movement of replacing product-oriented with process-oriented teaching, allowing all students to develop their full potential for generating personal knowledge. Teaching models that have been developed for gifted students may be used for supporting this transformation in all types of schools. Indeed, available models, at least their most successful instructional components, provide "opportunities for improving the quality of teaching and learning in classrooms" of all schools.

Teaching models, such as problem-based learning or the enrichment-cluster, combine cooperative learning and challenging tasks that require all kinds of thinking (e.g., divergent, convergent, heuristic, and intuitive, as well as logical and metacognitive thinking). Figure 4 provides a sample of well-known models. All of them implement recommended social-constructivist learning environments (VanTassel-Baska, 1998) and rich discovery-oriented and inquiry-based classrooms that promote giftedness by and for learning.

Despite the differences between specific procedures, these models realize common characteristics that qualify each as an example of cooperative discovery learning. CDL is a conceptual framework for teaching that is defined using seven characteristics (see Figure 6).

## Discovery cycles for process-oriented teaching in classrooms

From the beginning, discovery learning has been confused with open education, which presumably obligates students to build knowledge on their own, without any guidance. This, however, is a fundamental misconception. Nevertheless, it is currently used as an argument for attacking and rejecting discovery learning, thereby favoring what is assumed to be extremely structured, directly guided instruction for all students (e.g., Kirschner et al., 2006; Stokke, 2015). However, the assumption that direct instruction is the opposite of discovery learning is another fallacy.

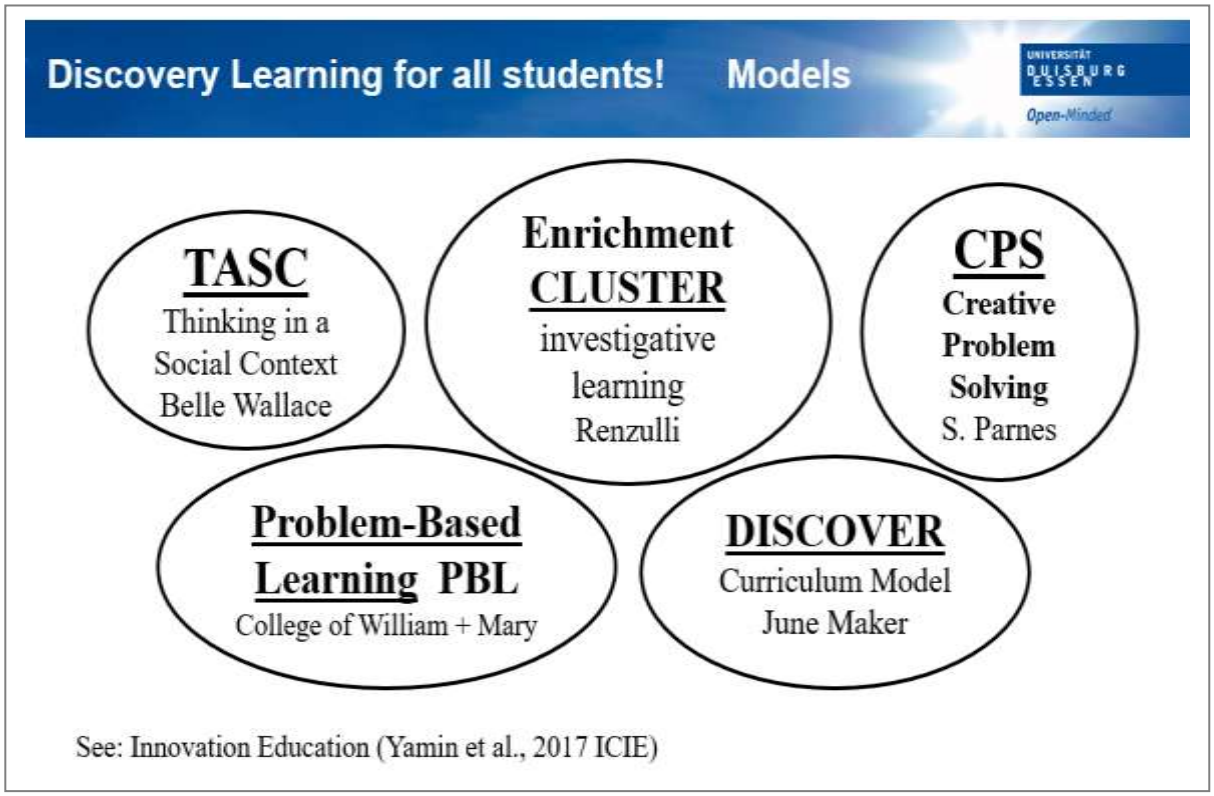


**Figure 4:** Teaching models in gifted education: organizing knowledge generation through cooperative learning.

In contrast to these false assumptions, discovery and CDL can be implemented in extremely structured ways because a fixed level of guidance is not a defining feature of these approaches. On the contrary, the level of guidance can be flexibly altered and adapted. It is not the behavior of the student or the accuracy of his or her achievements, but the internal thinking that matters. Process-orientation is the most important characteristics of cooperative discovery learning. It may be realized, for example, by process-oriented feedback or pausing for reflection during lessons. Recent research shows that process-guidance is even required with highly gifted students. These students do not automatically or spontaneously use their available potential to think, for instance, by formulating their own questions and hypotheses (Estes & Dettloff, 2008; Verduijn-Meijer, 2016).

Figure 5, below, summarizes the possible sequence of steps (thinking processes) that are required for generating knowledge. The function of CDL as an instructional template is to stimulate, guide, support, and distribute these processes among the students. Such processes are not only required for learning by experimentation, or for learning by design, but also for learning with texts (see Palicsar & Brown, 1984). Other atypical learning opportunities, such as visiting botanical gardens or zoos with parents, rely on these processes (Eberbach & Crowley, 2017).

In Figure 5 you will find a simplified illustration of this discovery cycle. For example, instructing students to "visit an aquarium and discover which fish they have" is an ill-defined learning task. Both divergent and alternative solutions are possible, and the task requires asking additional, more specific questions, like, "Is a cattlefish a fish?"

CDL not only requires the formulation of internal questions, but the students have to answer these in terms of assumptions or hypotheses. From the example above, please refer to the step that reads, "Yes, a cuttlefish is a fish." Upon further investigation, the students will realize (supported by learning materials and the teacher) that this answer is false and requires new knowledge to help explain why it is so. In this case, discovery learning is used to organize a Predict-Observe-Explain (POE) cycle (see figure 5), which, in turn, enables learning via productive failure. Productive failure

as a method for generating knowledge is a current focus in further developing discovery learning (Abrahamson & Kapur, 2018). It is already being prescribed and used in some engineering programs in Singapore (according to these authors).

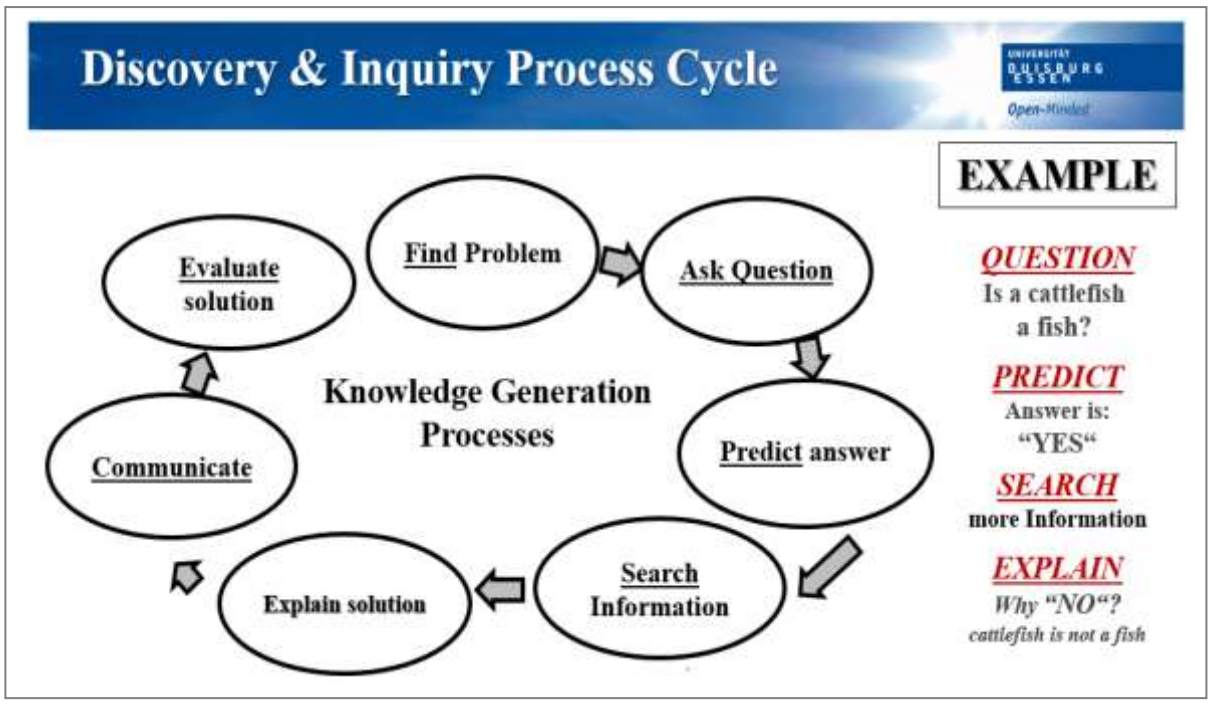


**Figure 5:** The Discovery Process Cycle: Process-oriented instruction.

## Defining characteristics of Cooperative Discovery Learning (CDL)

Taken as a whole, CDL (or Discovery-Oriented Instruction) is a general model, a framework for designing and providing instruction in classrooms and groups. CDL as a concept is defined in terms of the following seven characteristics (represented in Figure 6). Each of them is implemented to varying degrees in the teaching models for educating gifted learners above (see Figure 4).

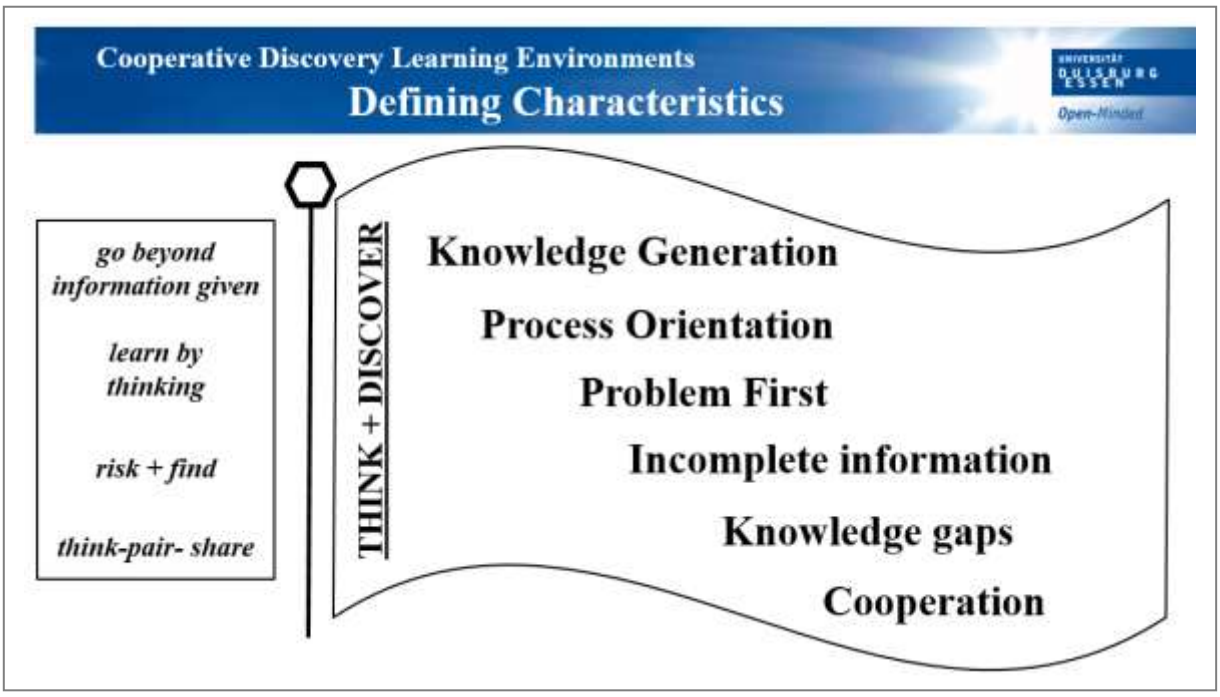

**Figure 6:** Cooperative Discovery Learning: The CDL flag with seven defining characteristics

1. Knowledge-generation means that the to-be-acquired knowledge is at least partially generated by the student. In the earliest version, students received non-abstracted examples as learning materials and had to infer (by inductive reasoning) the abstract knowledge.
2. Process-orientation, which is now required in all Science, Engineering, Technology, and Mathematics subjects (STEM) (e.g., Moog, et al., 2014), means that teaching, and all of its instructional components, should focus on the thinking processes of the students. The function of these processes is to generate knowledge as organized structures by abstracting, elaborating, or further deepening prior, self-attained knowledge. This applies to experience- or evidence-based skills in the same way (e.g., questioning skills; Neber & Anton, 2008). Figure 5 illustrates the internal processes required for generating knowledge as a discovery or inquiry cycle.
3. Problem-first instruction means that the students get tasks, problems or challenges without having the required knowledge or skills for answering, solving or mastering these challenges. If the required knowledge will be explicitly provided (e.g., by lecturing or direct teacher instruction), it is done only after the students have first struggled with the problem (for educating gifted students, the problems are preferably complex and ill-defined). Problem-based learning (PBL) is the best example of this approach (e.g., Neber & Neuhaus, 2017).
4. With knowledge availability, the students should have a prior but basic familiarity with the subject (e.g., definitions or rules). They should use this incomplete knowledge for formulating their own questions and hypotheses about the given assignment. Guesswork should be excluded in favor of knowledge-based, educated guesses, predictions and hypotheses. Accessing prior knowledge for these processes is required for restructuring, differentiating, or even replacing their already existing knowledge (Gijlers & de Jong, 2005).
5. Incompleteness as an instructional approach means that the teacher, textbook, domain experts and parents do not provide complete, well-organized information that is required for solving the problem. As a consequence, the teacher has to develop a new role and act as a tutor (Vygotsky, 1978). Evidence shows that this is quite challenging, takes time and should be a meaningful component of corresponding teacher training programs (Verduijn-Meijer, 2016).
6. Cooperation means that cooperative learning methods are applied when orchestrating the thinking and solution processes required for generating knowledge. This means more than just learning in groups. All of these methods organize sequences of think-pair-share phases, ensuring that each student contributes to the achievements of the group (Bruening & Saum, 2019), and are strongly recommended for teacher training.
7. Progressive implementation is required because of the complexity of the CDL framework. This includes varying the levels of guidance and structure. First, a high level of guiding the learning processes (e.g., by direct instruction) is required. Then, the level should be progressively reduced; this should be done quickly with higher achievers to prevent over-scripting, and more slowly for less-than-average learners in order to mitigate the cognitive load. Progressive implementation can be realized, for example, through the Process-Oriented Guided-Inquiry Learning (POGIL) method (Hanson, 2006). I have developed Object-Generating-Instruction (OGI) as a similar approach (Neber, 1997), which is currently more refined in mathematics education. Progressive implementation allows for a mixed-methods approach to instruction (as in POGIL or OGI), as well as flexible combinations of learning processes and strategies for developing "expertise for the future" (Durkin, Rittle-Johnson & Star, 2015).

## Common standards of teaching in traditional schools and gifted programs enable integrative solutions

The current standards for university-based education programs in traditional curricula and the recently revised standards for teachers in gifted education are closely aligned. Both aim to provide competences for implementing new ways of teaching that involve the cognitive abilities of all students, as well as teaching a broad diversity of students within the same classroom – including students with higher learning aptitudes. Replacing the restrictive traditional instruction with more varied and flexible learning environments is a common goal across all schools.

For example, the National Council for Teaching Mathematics' (NCTM, 2000) recommendations for standard math classes include contextualized, authentic problems that are of genuine interest to students, higher levels of intellectually challenging tasks, and more adequate support for students, which encourages them to collaborate and cooperate, leading them to discover important concepts and acquire problem-solving skills on their own (Harris & Hofer, 2009). These suggestions have similar applications when teaching highly gifted students.

This is another indicator that the standards for university-based teacher education overlap with the recently revised standards for those wishing to work with gifted students. Van Tassel-Baska, who has chaired the committee that governs these standards, emphasizes competences for integrative teaching in heterogeneous classrooms, including skills for learners with differing intellectual potentials and cultural backgrounds (Van Tassel-Baska & Johnson, 2007). According to these leading authors, deep connections to both general and special education are required, and they call for strong links to research on learning and instruction in other domains. Cognitive science is considered to be particularly important for attaining higher levels of understanding, problem-solving and collaboration among gifted students. In the past, these links have been excluded, and gifted education represented a closed system for research and development on giftedness. The old standards for educating teachers of the gifted have been revised in this respect, making it possible to benefit from the achievements of research and development on schooling and instruction in the learning sciences.

These converging developments will help in opening the previously closed community of gifted educators. Conversely, standard education will profit from what has been attained via the education of gifted students. Such developments present possibilities for creating innovative classrooms of the future that are more flexible, diverse, interactive and challenging; they emphasize the strengths of all students while paying particular attention to students with a greater ability for acquiring knowledge, thereby developing their competences as well as their identities and personalities (Neber & Sennebogen, 2011).

Public schools, in particular, could profit from already existing programs, services, and differentiated solutions. Models for educating the gifted could be used as blueprints for traditional schools and may provide the required support for teachers in meeting the needs of the potentially underserved high achievers and gifted learners in their classrooms. Encouraging these teachers and strengthening their willingness to accommodate their students' needs are prerequisites for effective implementation of gifted programs in public schools and classrooms (Coleman & Gallagher, 1995; Tebbs & Subhi-Yamin, 2006).

In Germany, more and more traditional schools are aware of the possibilities and available blueprints provided by gifted education programs. In particular, many secondary schools currently offer a variety of internal and external differentiations (acceleration as well as enrichment) that have been developed in the domain of gifted education. For example, the Helmholtz Gymnasium in Bonn, a secondary school, offers multilingual classes with three, instead of two, languages (Latin, French, Spanish or Chinese), and the possibility of earning an International Baccalaureate in addition to the German Abitur. In science, intensified physics, chemistry, and computer science courses with more credit hours per week and additional advanced study groups are offered for extraordinarily high-achieving students. Similar programs exist for the arts and music (including membership in orchestras). In addition to these curricula enrichments, all kinds of accelerations are possible, inclusive grade skipping (maximally three grades are allowed), or early college entrance. Meanwhile, most of the secondary schools in Germany offer similar solutions and further support and services that attract not only highly gifted or high-achievement learners, but all students (and their parents).

The limited number of state-controlled, gifted schools in Germany is not actively creating initiatives to support these ambitious developments at traditional schools. However, various states and ministries are beginning to implement classes specifically for those identified as highly gifted students at selected secondary schools. In Bavaria, for instance, eight schools have been chosen. These also serve as counseling and dissemination centers for all other schools, as well (Bavarian State Ministry

for Education, 2019). Overall, there is a strong tendency for blending different kinds of German schools into integrated institutions that provide adequate and flexible solutions for all students.

## Conclusion

The information contributed in this text could help in further developing gifted and talented education programs on the classroom level and progressively implementing them by applying the discovery-oriented framework.

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## About the Author

**Heinz Neber** has been a professor of Instructional Psychology at the University of Essen (Germany) and has been the first director of the international "Psychology of Excellence" Master Studies Program at the Ludwig-Maximilians-University (LMU) in Munich (Germany). He graduated as a Primary Teacher and as a Master of Psychology (both at the University of Wuerzburg, Germany). As a post-graduate, he spent one study year at the University of California at San Diego (UCSD), and at the Carnegie-Mellon University (CMU) in Pittsburgh. Currently, he is a member of the ICIE, providing workshops on Problem-Based Learning (PBL), is offering seminars on inquiry learning and teaching at the University of Essen, and he is an appointed advisor for establishing a student study center in STEM subjects at a large school center in Germany. His publications cover books and articles on "Learning by Discovery", "Spontaneous Learning" (is the title of the dissertation as well), "Self-regulated Learning", "Applied Problem Solving Psychology", "Cooperative Learning" and "Learning computer programming" (all in German). Among other themes, his published research studies are about the role of Questioning in secondary school subjects (e.g., chemistry, history, and religion). Together with professor Kurt Heller, he evaluated the German Student Academy (a summer school for highly gifted students), and investigated regular teacher's ability in identifying their gifted students).

## Address

**Prof. D. Heinz Neber**;
Mathildenstr. 30;
D-45130 Essen;
Germany.

**e-Mail:** heinz.neber@online.de

# No Such Thing as Just a Game: A Briefing on 3D-Briefing

**Christine Boyko-Head**
Mohawk College of Applied Arts and Technology, Hamilton, Canada

**Keywords:** 3D-Briefing; creative and critical thinking; oral and written communication; pedagogy; essay writing.

## The Back Story

During the sweltering summer of 2001, I went to Netanya, Israel to teach Arts and Society for Lesley University's Masters of Education program. My Cambridge Massachusetts-based institution gave me an envelope containing tips on how to navigate the culturally-diverse experience. The package included a chart detailing how Israeli's perceive Americans, and how Americans perceive Israelis. Being a white Canadian female, I found the chart less than helpful and troublingly stereotypical. The only heartening tip in the package was to have lots of ice-breakers, energizers and simple theatre games on hand. As a playwright, I could do that. These games were to be used as fillers and playful exercises to break any tension, fear or frustration the students may have due to "external factors".

Day two of the five day course was interrupted by one of those external factors: a suicide bomber targeted a Tel Aviv street. All learning stopped, except mine, as cell phones quickly appeared and buzzed into action. Was momma alright? Was grandpa safe? Did sister go to the mall, today? Televisions rolled into classrooms and grainy, chaotic images flickered details across the screen. As abruptly as the commotion came, it dispersed into cathartic laughing, singing and dancing. Family members were safe, injuries were minor, the confusion contained.

This moment was what the envelope anticipated. This moment was my opportunity to guide my students to safety. This moment was for my planned ice-breaker. This moment was a disaster in teaching, but a triumph in learning. This moment altered my pedagogy and practice forever. This moment in 2001 initiated the focus of this paper in 2020. This moment of failure led to the educational innovation I call 3D-Briefing.

## Introduction

I always felt teaching was a performative art: one can prepare, but the outcome is never planned. Three simple questions and over 150 classes later solidified that feeling into a pedagogical belief and practice. Three simple questions repeatedly gave rise to an emergent learning opportunity co-created by everyone in the classroom. Three simple questions honoured learners' diverse experiences, knowledge and skills. Rooted in curiosity, courage and creativity, 3D-Briefing became an all-embracing framework for thinking, communicating and learning. Creating an equitable, inclusive and differentiated learning environment, 3D Briefing is an over-arching pedagogical process that delivers a transparent, reliable system overturning educational paradigms about content, teacher-student identity, responsibility, and assessment.

Momentarily returning to 2001, I want to explain that the contents of the instructional envelope set me up for failure as a teacher, but success as a learner. First, the information was premised on previous evidence collected by other instructors who observed that once a crisis was averted, Israeli students would release anxiety through creative play. This truth, however, was erroneously connected to common Western educational paradigms about play. Namely, that play was for children, not adults, and it certainly was not linked to any serious learning as found at the post-secondary or graduate level.

Prevailing assumptions about play and arts-oriented activities in education place them beneath (STEM) learning. Play is viewed as a "time out", a time filler, a place holder before or after formal learning. As a time out it has little educational or cognitive function. Its purpose is much like a stretch before and after an athletic endeavour. While athletes know the importance of stretching, the audience only sees the race. Ergo, play has little to no serious learning potential and ice breakers, energizers and theatre games exist in an educational vacuum having and leaving no cognitive, social or psychological impact on the individual or the group.

While artists have seen a different picture, neurological studies have since challenged this dismissal of play and arts-oriented activities. But, I wasn't dealing with primary students. My audience were adults and they refused to do an innocuous ice breaker. Stunned and not knowing what to do, I sat on the floor before them and asked my innocent three questions: what just happened? So what is the significance of this? Now what might we learn about this refusal that will influence future interactions? This was the beginning of my journey as a learner and the end of my role as a conventional teacher. Simultaneously, it was the first important step in developing 3D-Briefing as a comprehensive framework for transferable skills such as critical and creative thinking, problem solving, and equitable collaboration manifested through quality, empathetic communication.

## From 'no, but, to 'yes, and . . . '.

Effective communication is about relationship building. Likewise, experience, according to John Dewey, is always a transaction between an individual and the environment (1938). The experience of communication is interpersonal and, especially in its written form, requires critical reflection on this social transaction in order to make it relevant and significant. Unfortunately, relevance, like learning, is not always automatic. The structuring of thoughts can be jumbled, elusive, one-dimensional, and unorganized making verbal and written communication and its relational imperative challenging, and sometimes debilitating for learners.

The 3D-Briefing model is my attempt to rectify communication challenges and a pedagogy of poverty (Haberman, 1991) by using a simple framework that levels the learning playing field.

For over 25 years, I have seen learners struggle with critical thinking and thoughtful writing at various educational levels. Their struggles in applying a reliable critical thinking process to formulate ideas transfers to a structural deficiency in the communication of those ideas. According to Pinker (2014), the way a writer organizes their thoughts is not the same way a reader needs to experience those thoughts. Since none of my learners had read Pinker, they did not realize the distinction between the raw thought and the organized sharing of that thought. As a result, I witnessed student writing that breached the transaction between writer and reader by lacking focus and coherence. Further jeopardizing communication's social contract, these papers displayed a scarcity of genuine purpose based on the writer's interests and passions (Wagner, 2015).

In addition to producing a lacklustre artifact deficient in focus, coherence, purpose and passion, many novice writers leap straight to a point. This *in media res* position leaves readers whirling and questioning the transaction between writer and reader. Insecure, apprehensive and unversed in communicating their thoughts, novice writers ignore clearly identifying what is at issue and dive into familiar, analytical tropes. Not having clear tools to take their thinking beyond the mundane, novice writers also lack confidence in extending their analysis to real-world applications and relevance based on social positioning.

This dreary trend in writing pointed to an educational deficit in the teaching, not the learning, of communication and critical thinking as transferable skills. By the time learners reached my post-secondary classroom, I assumed they were equipped with basic thinking and communicating tools. It didn't take long to realize my assumptions were wrong. Even learners who showed promise applied a randomized talent in their written work that might, or might not, articulate, relevant 360 degree thinking.

Specifically, my post-secondary learners needed help in identifying what was to be analysed, interpreting the significance of their analysis and then exploring how that analysis applied to their daily lives and the lives of others. Besides a thinking framework, they needed a communicating framework that made quality communication accessible to everyone. This framework also needed to be reliable for all communication acts in order for it to be useful and not just another schema they had to memorize. A tall order for sure. Then I recalled the success experienced in Netanya when three simple debriefing questions made the thinking, interpreting, and communicating process transparent, consistent and empathetic.

## From De-Briefing to 3D-Briefing

De-briefing traditionally follows an activity and is reflective in nature. The common method of debriefing uses like, dislike, change as its mantra and is derived from military and corporate training. According to Brians (2016), this method is often controlled and interpreted by an authoritative figure and not the actual participant in the task. Imagine this type of language coming from a teacher. The disparaging tone signals a pessimistic, "no, but. . ." attitude. According to Dweck and others, classrooms are filled with students who have internalized a deficit mindset and the language of the standard debriefing model would only accentuate students' sense of inadequacy and defeat.

My Netanya graduate learners, and my college learners form various disciplines, helped me transform the negative language of common debriefing into a 3-dimensional, reliable and affirming thinking and writing process. 3D-Briefing was not about what a person liked or disliked. "What, so what, now what" was a positive-looking, constructivist, comprehensive way to discover and uncover the curriculum's learning outcomes, real-world significance and relevance, as well as learners' individualized applications of those outcomes based on their diverse world views.

Learners practiced 3D-Briefing on everything we did: community building activities, opening exercises, assigned readings, videos, group work, class interactions and even exams. I could see them gaining confidence in their critical competencies, their individualized ideas, personal voice, and ultimately their writing abilities. In general, by following a scaffold method on exactly how to think and communicate, learners were free to focus on the what and why of their thoughts.

3D-Briefings's progressive, lyrical cluster of "What, So what, Now what" (Figure 1) encourages a constructive, emergent pedagogical approach applicable to a wide variety of learning scenarios. Furthermore, these three simple questions provide a 360 degree perspective on texts, images, actions, and behaviours; they function as a structuring mechanism for critical and creative thinking, solution finding, action planning, and quality written and oral communication. Learners no longer have to struggle with numerous formulas and formats. It all distilled into one model.

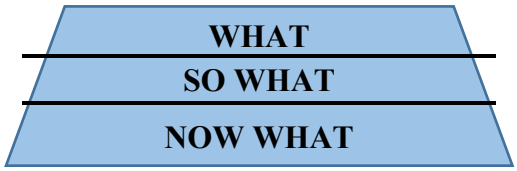


**Figure 1**: 3D-Briefing.

## What is 3D-Briefing

Widely used in corporate and military training, "What, So what, Now what," is prominent in clinical reflective enquiry (Rolfe, 2001), specifically paramedic training; it presents an emergent problem solving attitude based on curiosity, optimism and empathy. Its success in clinical reflection is dependent upon participant input, where the patient conveys information to the professional who then analyzes and acts on that information. In the classroom this method translates into a user-driven process encouraging an open, "yes, and ..." philosophy rather than a closed, "no, but . . ." proposition by an authority figure.

A multi-perspective, exploratory framework applicable to all critical thinking, creative and communication acts, 3D-Briefing synthesizes meticulous enquiry questions with a user-focused, equitable stance toward meaning production. It scaffolds identification, interpretation, evaluation, reflection and action in a user-empowered, three step process operating on diverse cognitive, structural and contextual levels (Figure 2). The three, specific memorable phrases can be used with any content, in any context, for any type of communication or interaction, and doubles as an organizing system moving learners toward deeper thinking.

| Content | Context | Communication Act |
|---|---|---|
| Humanities, Sciences, Social Sciences, Technology, Business Personal, Professional, etc. | Formal, Informal, Individual work, Collective work, Private, Public, etc. | Essay, Report, Presentation, Performance, Discussion, Feedback, Proposal, Narrative, Testimony, Reflection, etc. |

**Figure 2:** Diverse cognitive, structural and contextual levels.

Each 3D-Briefing questioning level invites divergent and convergent thinking, the fundamental actions in creativity, and aligns with Bloom's Learning Taxonomy (Figure 3). Learners move from lower order thinking, identifying and describing, to higher order thinking, interpreting, analyzing, reflecting, and creating new ideas for future actions. In this way, 3D-Briefing makes learning transparent by emphasizing the structural accessibility of critical thinking regardless of the learner's context and ability.

To elaborate, the first level asks learners to identify facts: What is this text, image or behaviour? What were we asked to do? What happened? At this starting point, learners use divergent thinking to list all possible facts relating to the debriefed object or event. Other factual, closed questions, such as who, when, where, can occur here. This identification of what learners are dealing with is essential to the thinking process because without proper identification of the artifact or event the second tier's analytical richness would be depleted. Ironically, this level is often skipped by learners accustomed to a product-driven focus, rather than a process-oriented perspective.

The second inquiry level demands that he content identified in the first level be interpreted and analyzed within specific contexts: So what does this mean? So what is the significance of this to society? So what is the importance of this to 21st Century youth working in Europe? In essence, this is an open-ended, "why" question. Once again, learners use divergent thinking to list every possible significance of the identified facts relating to the object or event. However, unlike tier one's factual list, this list is expansive since meaning and impact derives from individual learners' multiple contexts and viewpoints.

The third level requires learners to apply a personal subtext to the information identified and interpreted: Now what does this have to do with my situation? Now what did I learn about myself and others? Now what new actions will this enquiry motivate us to do next time? Here, learners reflect and evaluate all possible connections between content, contextual significance, and individualized relevance. Basically, this level explores how the issue fits into our lives and future actions. Again, learners use divergent thinking to synthesize all previous material into differentiated action steps appropriate to each learner's developmental competencies, goals, and ambitions.

Convergent thinking, or the selection of key points presented in each tier, may or may not occur. If the point of the exercise is to generate a finished product, say a response or essay, a condensing of ideas from level two and three's divergent list is necessary. Level one is already factually regulated. The reason for prioritizing is because if divergent thinking were carried out properly there would be too many ideas to deal with. So, the list of possible interpretations (so what),

and actions (now what) needs narrowing. Criteria for selection would more than likely come in the form of assignment goals, learning outcomes and objectives, or rubrics.

| 3D-Briefing Questions | Answer Types | Bloom's Taxonomy | Actions |
|---|---|---|---|
| **WHAT** | Facts,<br>Statistics,<br>Empirical Observations, | Remember<br>Understand | Identify facts, directions, literal content |
| **SO WHAT** | Values,<br>Beliefs,<br>Attitudes, Assumptions,<br>Biases, | Discuss<br>Analyze<br>Apply | Interpret data for meaning<br>Explore data for meaning within various contexts and world views<br>Connect significance to other ideas, meanings, contexts and world views |
| **NOW WHAT** | Reflection, Evaluation, Creation of Policy and Action Steps | Apply<br>Evaluate<br>Create | Relate previous information to one's own context.<br>Objectively judge and evaluate information based on criteria.<br>Generate new thinking and problem solving ideas leading to positive personal growth |

**Figure 3:** 3D-Briefing and Bloom's Taxonomy.

## So what is the significance of 3D-Briefing?

Positioning every learner as a critical thinker, 3D-Briefing practices an equitable, democratic process shifting the centre of meaning and power from one leader to many learners. This shift reinforces the values of inclusive, diverse, equitable education. Multiple perspectives, personal experiences, and individualized learning are encouraged, respected, accepted and validated. The traditional one-way transaction of debriefing and classroom instruction is now a polyphonic process between multiple individuals, their multiple experiences, and multiple worldviews. This multiplicity increases innovation and creative potential.

Second, educational research states that content relevance and learner autonomy are key to academic achievement (Yuhas, 2014). 3D-Briefing encourages learners to become producers, rather than passive receivers, of content. While the instructor may facilitate the originating learning opportunity, the 3D-Briefing process relies on learners' mining the content for individualized relevance based on their level of cognitive ability, prior knowledge, experiences, and personal learning needs.

Ultimately, 3D-Briefing shifts who controls and creates the curriculum from instructor to learner. This shift to a learner-driven process links content to learner relevance, autonomy and competence in the meaning-making process, thereby nurturing learners' self-efficacy in the learning experience (Boyko-Head, 2018).

Highlighting learner sovereignty over what they learn, how they learn it, and why they learn it, 3D-Briefing clearly makes the individual responsible for their own educational development. Since the questions encourage divergent then convergent thinking practices, its user-centred focus also emphasizes the importance of when learning takes place as the systematic questions can be revisited as learners' needs change. Significantly, once learners know the model they have a tool that they can apply to various scenarios throughout their lives. In essence, the hope would be that learners internalize the model's questioning framework, thereby guiding an automatic and consistent critical approach to all interactions.

## Now what are all the ways we might use 3D-Briefing?

3D-Briefing is a universal, flexible framework appropriate for any age group, at any level of learning, with any content area. This versatility means the framework is capable of adapting to the learners' diverse and changing needs throughout their learning life cycle. This legacy of self-generated relevance demonstrates the value of learner autonomy over what and how learning happens. It challenges inequitable structures and mindsets by placing the responsibility of development and growth in the learners' hands as they answer the scaffolding questions from first level identification to second level significance and third level application in their personal contexts.

As our world gains in complexity, our teaching and learning tools don't have to become just as complex. Currently, we are requiring learners to concentrate on memorizing diverse structures, as well as complicated questions for critical enquiry that they may, or may not, have ever been taught. As a result, learners are spending energy on the container rather than the wine within.

On the contrary, 3D-Briefing's structure is simple and repetitive, thus focusing learner energy where it belongs – on thinking and communicating. 3D-Briefing deepens the learner's cognitive and emotional awareness while, like any good wine, it develops depth and sophistication as it matures along with the learner. Put another way, a child learns their alphabet as the foundation for a rich, developmentally-appropriate vocabulary. The alphabet never changes throughout the child's life, yet they learn to combine those letters in ever more complicated and sophisticated ways. Likewise, learners use the 3D-Briefing questions as the foundation for developmentally-appropriate critical thinking. The 3D-Briefing structure remains constant while learners add developmentally – appropriate complexity to their thinking and communicating, not to the foundational framework. This generates a learning environment that "is stronger and more persistent if new knowledge is built in connection with prior knowledge" (Bransford et al, 1999). The 3D-Briefing model allows for such a full-body dynamic to exist.

Now, let's look at why 3D-Briefing's three simple questions are so effective.

## Three important questions

According to Postman (1979), "all our knowledge results from questions, which is another way of saying that question-asking is our most important intellectual tool" (p140). Likewise, Holt (1982) states that "we are by nature question-asking, answer-making, problem-solving animals" (p189). But, Robinson, Wagner, Gardner and others sadly report that the questioning that marks our creativity and imagination is smothered by our education system. Our product-driven, over-assessed educational environment means we often leap to analysis and solutions without considering if we are addressing the right problem in the first place.

To verify this questioning crisis, Venatamanan (2019) draws attention to various disasters within the last few decades that could have been minimized if we practiced better questioning and imagining techniques. Burell also pointed to the catastrophic results of our failure to ask the right questions prior to and even during a crisis. Covid-19, Ebola, 9/11, Chernoble and other global catastrophes impacted millions of people because of a lack in imagination and critical thinking.

Likewise, Morgan and Saxton (1994) highlight the essential role that asking questions play in the learning process. They also state that while it might be human nature to question, questioning is a complicated business. Questioning becomes even more challenging in the internet age where pre-formulated knowledge, and fake knowledge are at our finger tips. Clearly, not all questions are created equal. Not all learners know how to question equally well, either. But, 3D-Briefing can make questioning for deep meaning less complicated.

As mentioned earlier, traditional de-briefing also asks three questions: what did you like, what did you dislike and what would you change. Not only do these terms seek the negative, they point the learner in a specific, limiting direction. In this regard, they are convergent questions when learners haven't even diverged yet. Furthermore, they insinuate a right answer, rather than multiple possibilities.

In contrast, 3D-Briefing consists of three divergent questions: what, so what, now what. These questions organize the critical thinking process within three accessible question clusters classified by intentions rather than type. The words we speak matter. (Johnson, Choice words). Thus, other than in the first tier which elicits factual information, the other two questions encourage multiple perspectives rather than an authoritative, imposed, one-answer sub-text. The second question, SO WHAT, invites and accepts interpretations from everyone. The third question, NOW WHAT, calls for evaluation, reflection and creative action, also from everyone.

## Three important intentions

The first questioning tier asks learners to identify factual information. It can be classified as an "on the line" question. There may be many answers, but they are not infinite as a result of divergent or connotative thinking. Learners' answers should be identical, if they belong to a homogenous cultural and learning environment. *Book, libro, kitab, shu* is still an object consisting of pages with words/images. If a learner identified the artifact under consideration as a movie some clarification would be needed. Finally, this tier is deductive and involves convergent thinking in order to reduce and define the area of inquiry. Consensus becomes a necessary outcome.

The second questioning tier asks learners to articulate their interpretations of the facts presented in the first tier. It can be classified as a between the lines question. Now there *will be* multiple answers as a result of divergent, connotative thinking. These answers may or may not be identical to everyone else's, despite cultural and learning allegiances. In this level, the indefinite object of the first tier, now becomes the definite object in the second: a book is *The Koran, The Bible*, *The Little Prince*. This tier is inductive and involves an expanding of the area of inquiry as learners make connections between disparate things, articulate their attitudes, biases, points of view, and share interpretations based on their cognitive, social and emotional positionings. In this way, they explore covert meanings, hidden agendas and subtexts. Finally, this tier highlights the model's culturally-responsive and inclusive nature because homogeneous and conforming answers are not a necessary outcome.

The third questioning tier asks learners to share their evaluations, reflections and creative solutions. It can be classified as a beyond the line question. Like the second tier, this tier will elicit many responses that may or may not be identical to everyone else's. The definite object of the second tier, now becomes the personal and political object of this final tier. A book in the first tier, becomes the *Iliad* in the second, and is now *My Book* articulating my individualized learning journey and goals. This tier is reflective and creative. It calls learners to evaluate the past and present in order to lead them toward new perspectives, new thinking and new actions as agents of change regarding what might happen if. . . .

## 3D-Briefing as pedagogy

3D-Briefing is a valuable tool for creating a learning environment based on equitable, diverse, inclusive pedagogy. The three questions subvert the traditional model of teaching and learning where the teacher, as sole authority, pours content, usually irrelevant, into passive students. These students then regurgitate this information in inauthentic assessments. At best, these assessments address 3D-Briefings' first two tiers of learning. Rarely, would a standardized test focus on the third tier.

I began my teaching career as a studious follower of what I had experienced and what the manuals said I should do. Remember that envelope? But, my curiosity, my discomfort, my personality, my thirst for authentic knowledge left me vulnerable and open to change. My experience in Israel was profound because I applied the 3D-Briefing questions to my own failure and became a creative educator because of it.

When I applied the 3D-Briefing questions to that class in Netanya, and to other situations thereafter, the cracks in the traditional educational model revealed themselves. What happened? So what was the significance of these events? Now what did I learn from this that I will take forward into

the next situation? I realized no one person can be an absolute authority on anything. There is always more to learn and to be a true leader one must know when to follow. Furthermore, content is shaped by context, and contexts shift continually due to internal and external factors. In addition to context is the truth of diverse perspectives and the value of recognizing our vision as subjective and reflective of who and where we are in time. Thus, learning is not a solitary process. It is a reciprocal, social event involving and evolving everyone. Finally, as Dewey (1938) wrote almost 100 years ago, we learn not through experience alone, but through reflection on those experiences as they engage with who we are and who we want to be.

3D-Briefing dismantled my approach to teaching by helping me see that my discomfort was not a deficit, but a sign that I was not an authoritative teacher. My strength was for me to remain a learner while just happening to facilitate a classroom. This new role allowed me to model a co-creative process that valued a learner-centred, culturally-responsive, individualized, and highly reflective approach to learning.

From these big realizations came an awareness of other significances of the 3D-Briefing process to teaching. By using this method, each class followed a constructivist arrangement where learners identified and co-created content and meaning (What, so what, now what). This meant that while I might be responsible for the originating learning moment/artifact (though not necessarily), learners were responsible for their own growth. Only they could surmise their next steps through reflection on and the creation of personal and professional action steps (Now what). This display of agency stemmed from valuing learners prior and current experiences, knowledge, social and emotional contexts. When explained, their analysis and interpretations were never wrong because they were individualized (So what, now what). This allowed for the creation of an equitable opportunity for all learners to engage with the artifact/moment (What, so what, now what), and to integrate interdisciplinary viewpoints and learning outcomes (So what, now what). These disparate connections and synergies granted space for minimizing the familiar and maximizing the diverse through challenges, questions and new discoveries (So what, now what).

This innovative environment also meant that we could address important, yet non-curricular issues such as character traits, cultural-responsiveness, inclusion, equity, diversity, self-awareness, resilience, grit, etc. (So what, now what). Finally, the ritualized practice of 3D-Briefing meant that the recipe for fine wine was revealed. The three simple questions made thinking and communicating a transparent process accessible to everyone (What, so what, now what).

A versatile, pedagogical practice, 3D-Briefing can become an internalized script applied to every scenario inside and outside the classroom. Its general benefits to education, as well as other sectors where analysis and action steps are required, include:

1. offering an easy to remember, all-inclusive, transferable framework for creative, critical thinking and communication;
2. reducing intimidation, fear and self-doubt around critical thinking and communicating by making the process transparent and scaffolded;
3. building confidence and self-efficacy by valuing prior knowledge, skills and experiences;
4. increasing engagement by encouraging divergent answers that are culturally and personally relevant;
5. creating time for personal reflection that leads to increased responsibility and self-efficacy around actionable plans for the future;
6. transferring the framework to other processes such as problem solving, feedback, assessment, etc., thereby simplifying the form and increasing content quality;
7. reinforcing the importance of user-focused design;
8. giving everyone the opportunity to articulate their thoughts in a differentiated, individualized manner;
9. providing a positive, non-judgmental learning and growing space; and,

10. creating value-added components to every moment, even ice breakers and games.

These ten points indicate a creative, positive learning environment. While not everything of value can be measured, our education system requires just that – measures of success. How do we measure empathy and leadership? How might we assess for critical and creative thinking? Learner success relies on the demonstration of acquired and mastered skills. Traditionally and consistently, these skills are measured by standardized assessments. Most assessments play to the strengths of specific learners while disregarding the learning preferences and styles of others (Wagner & Dintersmith, 2015, p 206). Character traits, such as perseverance, self-discipline and resourcefulness, are almost impossible to measure by filling in blank bubbles. Likewise, the core competencies that matter most for work, learning and living in the 21st Century, critical thinking, creative problem solving, communication and collaboration, also burst the testing bubble. What learners must do to demonstrate core competencies is to articulate their learning in established and expected written and oral genres. The application of 3D-Briefing to communication acts is what we will explore next.

## 3D-Briefing as a Communication Structure

Many have pointed to the fact that humans are inclined to speech, but writing is not a natural tendency. Is it any wonder that learners struggle with written communication when they can clearly present their ideas orally?

According to Pinker (2014), the order of thoughts within a writer is different from the order in which those thoughts can be easily recovered by a reader (p115). The reasons can vary: writers are too close to the information; they overlook the reader's need for clarity, scaffolding and coherence; they can't order and code their mental arguments into clear linguistic structures; and, many writers falsely believe that academic writing needs to be complex and convoluted in order to be acceptable.

According to Mauk, Stayer, and Mauk (2014) the expression of complex thinking has made the essay ubiquitous on college campuses. Other subject-specific genres, such as the report, review, profile, memoir, etc., give learners the opportunity to externally articulate internal thinking processes. Terminology can lead learners astray and rather than clearly sharing their ideas, they can worry about over the form. Is this a report, or an essay, and what is the difference? Returning to our wine metaphor, the container can take on different shapes and sizes, but the liquid it holds must be good for us even to care.

3D-Briefing mirrors quality thinking by asking questions that help learners to step from low order thinking to high order thinking. It scaffolds complexity of thought without adding complexity of structure. The systematic journey from text to context, and context to subtext moves learners along a critical continuum appropriate to every level of the writing process from sentence, to paragraph, to entire essay. This structural repetition is what makes it accessible and easy to use for any writing level. Figure 4, below, illustrates how this agile system works.

| 3D-Briefing Question | WHAT? | SO WHAT? | NOW WHAT? |
|---|---|---|---|
| Cognitive Level | Literal | Analytical/Interpretative | Reflective/Evaluative/Creative |
| Evidence | Empirical Facts | Values, Beliefs, Biases, Assumptions, | Past, Present, Future |
| Reading Type | On the line | Between the lines | Beyond the lines |
| Outcomes | Convergent Information | Divergent Interpretations | Differentiated Solutions and Actions |
| Paragraph Alignment | Topic sentence | Supporting sentence | Transition sentence |
| Essay Alignment | Introduction | Body Paragraphs | Conclusion |

**Figure 4:** 3D-Briefing as an agile system.

Figure 4 shows how the three simplel questions cover various learning objectives making them accessible and easily retrieved for diverse contexts. However, we will look at 3D-Briefing's specific application for written communication.

## 3D-Briefing the Paragraph

A paragraph is a clustering of sentences referring to one idea. In an essay, a series of paragraphs functions like rungs in a ladder helping the reader understand the larger argument. It is difficult to reach the top of a ladder without taking it one step at a time. Likewise, it can be difficult writing a persuasive argument without leading the reader through your thinking one point, or one paragraph, at a time. The challenge in writing paragraphs, then, can come in keeping the paragraph focused, coherent and relevant to one point only.

The following 3D-Briefing template encourages paragraph clarity, focus and critical depth. While I do not advocate for the use of templates, they serve as practice toward the overall aim of clear communication. Once this has been achieved, writers should enliven the sentences through concise, appropriate commentary, summarizing, paraphrasing, direct quoting. This will make the writing fluid, dynamic and reflective of the writer's authentic voice and style.

**The essay's main argument: _____**

**Paragraph's Topic Sentence**

What is the one point being made in this paragraph?

1. "This paragraph claims that _____".

**Supporting sentences**

So what evidence do I have to support this claim?

2. "The claim that _____ is supported by _____".

So what is the significance of this claim and its evidence to the field of enquiry?

3. The claim that _____, supported by _____ is significant because _____.

**Reinforcing sentences**

Now what is the specific connection between this point and the main argument?

4. "The connection between (paragraph's claim and evidence)_____ and (main claim)_____ is that _____".

**Transition sentence**

Now what is the next step in building my argument?

5. "This point about _____ leads to the next paragraph's claim which is _____".

## 3D-Briefing the Essay

An essay is a series of well-constructed, focused, coherent paragraphs building the writer's main argument one point, one paragraph at a time. The main argument is the meaningful, specific

claim the writer is making about an issue. Every written act, despite length and purpose, should be organized into three main sections: introduction, body and conclusion. 3D-Briefing aligns with this structure.

## Introduction

First, an engaging introduction grabs the reader's attention by using a variety of strategies such as facts, statistics, compelling questions, storytelling, or a creative surprise. It also states the essay's main claim clearly and confidently, and may include the pathway the argument will take throughout the paper. Depending on the scope of the assignment, and creativity of the writer, introductions may require more than one paragraph, Nevertheless, the introduction should fulfill its function of announcing the argument, and enticing the reader into the paper.

## Body

Credible and convincing body paragraphs follow the introduction. Each paragraph should focus on one point building the reader's understanding of, and interest in, the main claim. These properly paragraphed sub-points are supported by valid and reliable evidence from various sources that are summarized, paraphrased or directly cited. A complex point may require multiple paragraphs. Still, the importance in paragraphing is to maintain focus, coherence and unity. The essay's body should reflect the writer's logical and clear thinking process around developing the main claim, persuasively and accurately and not a pre-set number of paragraphs.

## Conclusion

Finally, the conclusion reminds the reader of the journey taken in the preceding paragraphs. This may include reviewing key points, summarizing evidence, restating the sub-points, evaluating gaps and omissions, as well as clarifying the essay's contribution to the field of enquiry. It also may use engagement techniques, as in the introduction, only this time to wrap up the argument and release the reader back into the world with new thinking. Thus, the conclusion makes the information presented in the essay relevant to the reader, complete with calls to action, or recommendations based on the information and evidence provided.

## 3D-Briefing in the essay structure

A modest essay might give each 3D-Briefing question its own paragraph.

| Modest Essay Structure | Structuring Questions |
|---|---|
| Introduction | • Engaging Technique<br>• What is the topic and the main argument?<br>• So what is the significance of this to society, or the field of enquiry?<br>• Now what evidence is there supporting this argument? |
| Body: Segment Paragraph #1 | • What is the main argument? |
| Paragraph #2 | • So What is the significance of this? |
| Paragraph #3 | • Now what evidence supports this argument? |
| Conclusion | • What was argued?<br>• So what was the significance and the evidence?<br>• Now what should the reader do with this new insight?<br>• Engagement Technique Releasing the Reader |

A complex essay may integrate all three questions within each paragraph, or even play with the order of each 3D-Briefing section.

| Complex Essay | Structuring Questions |
|---|---|
| INTRODUCTION<br>(may consist of more than one paragraph depending on scope) | ▪ Engaging Technique<br>▪ What is the main argument?<br>▪ So what is the significance of this to society, or the field of enquiry?<br>▪ Now what evidence is there supporting this argument? |
| Body Segment<br>Paragraph #1 | o What is this paragraph's main point?<br>o So what is the significance of this point?<br>o So what evidence supports it?<br>o Now what does this analysis contribute to the main argument?<br>o Now what does this paragraph's point lead to next? |
| Paragraph #2 | ▪ What is the connection between the last point and this new point? What is this paragraph's main point?<br>▪ So what is the significance of this point?<br>▪ So what evidence supports this point?<br>▪ Now what does this analysis contribute to the main argument?<br>▪ Now what does this point lead to next? |
| Paragraph #3 | o What is the connection between the last point and this new point? What is this paragraph's main point?<br>o So what is the significance of this point?<br>o So what evidence supports this point?<br>o Now what does this analysis contribute to the main argument? Now what does this point lead to next? |
| Conclusion Segment | ▪ What did I argue throughout the paper?<br>▪ So what is the significance of all these points?<br>▪ Now what action steps does the essay encourage readers to do based on this information?<br>▪ Engagement technique releasing the reader. |

All activities, exercises, artifacts and experiences can be 3D-Briefed. I encourage 3D-Briefing as a culminating learning and reflection tool. Applying 3D-Briefing's three tiers of inquiry transforms everything, even seemingly simple games, into rich learning opportunities. Don't skip or rush through the levels. Allow learners to sit with the questions and ponder their potential. The rewards will surely follow.

## Conclusion

Scholars of culturally-responsive education have noted an increase in a culture of poverty within education. Lectures, rote memorization, templates, out-dated skills, irrelevant content are all depriving learners of the critical, creative and communication skills these individuals will need to combat a volatile, uncertain, complex and ambiguous (VUCA) future (Adams, 2012). According to Hammond (2015), learners struggle because educators "don't offer them sufficient opportunities to develop the cognitive skills and habits of mind that would prepare them to take on more advanced academic tasks" (14). Furthermore, growing concerns over inadequate reading, writing, emotional skills and complex problem solving, reflects the global labour market's identification of a gap in skills graduates have and the skills employers need (WEF, 2016). 3D-Briefing looks like a static template; it is really an agile guide for how to develop a critical habit of mind and kaleidoscopic vision.

Steven Pinker (2014) says the purpose of writing is to present the truth in a clear and simple manner so that the reader can follow the writer's journey of ideas. What, so what, now what encourages and celebrates the individual learner and their thinking processes.

Overall, 3D-Briefing provides an effective structure for creative, critical thinking and effective written and oral communication that shadows learners throughout their lives. Progressing from summary to evaluation, the literal to the reflective, the concrete to the creative,

3D-Briefing offers a sequential framework for idea planning, paragraph organization and essay structuring. The process is comprehensive and clear. It is easy to remember, to transfer and to apply to any scenario. With practice, it can become an internalized mindset where critical thinking and clear communication guides our actions. In short, it turns everything, even a simple game, into a rich learning opportunity.

- **Click the following link for an interactive 3D-Briefing tree:** https://www.thinglink.com/scene/1359196223151538177
- **Click this link for learner's guide on 3D-Briefing for Better Communication:** https://anyflip.com/ddxez/cmme/

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## About the Author

**Christine Boyko-Head**, is an artist-educator specializing in innovative curriculum development, arts-based integration, creativity and personal development through the arts. She earned her Ph.D in English Literature from McMaster University. She is a certified Foursight Thinking Preference and Design Thinking facilitator and a Values Institute intercultural compentency auditor. She founded a theatre company creating social justice plays for young audiences, helped start a national magazine for/by young people, converted her Ph.D dissertation into a historical fiction and fund raised $!.3m for her community. Her interests swirl around minimizing the familiar in order to maximize the diverse. She has published, taught and presented nationally and internationally with a focus on developing equitable, empathetic collaborative experiences. Her new venture, Kaleidoscope Learning Solutions, amplifies creativity as a way to help educators think differently, learn flexibly and live creativity. She teaches at Mohawk College and lives on the shores of Lake Erie in Southern Ontario, Canada.

## Address

Dr. Christine Boyko-Head;
McKeil School of Business, Communications, Creative Industries and Liberal Studies;
Mohawk College of Applied Arts and Technology;
135 Fennell Ave W.;
Hamilton, ON Canada L9C 0E5.
**e-Mail:** Christine.boyko-head@mohawkcollege.ca
www.kaleidoscope-ls.com

# A Life-Transformative Education for the 21st Century: Exploring, Creating, and Leading Through Honors

**Jaclyn M. Chancey; Jennifer Lease Butts**
Enrichment Programs, University of Connecticut, Storrs, Connecticut, USA

## Abstract

This article explores the theoretical underpinnings of life-transformative education and gifted education and applies them to a university honors program. Life-transformative education requires authentic learning experiences and rich mentorship relationships to promote happiness, well-being, and a sense of purpose. This is intended for all students, so the literature on gifted education is used to differentiate an honors education. Several competing paradigms exist, and the University of Connecticut Honors Program bases its theoretical framework and program design on the talent development models of Joseph Renzulli. The article concludes with a closer look at the honors leadership experience and preparing students to solve 21st century problems.

**Keywords:** College honors; university honors; life-transformative education; gifted education; leadership development.

## A life-transformative education for the 21st century: Exploring, creating, and leading through honors

The events of 2020 have been a constant reminder of the need to adapt even as circumstances are continually changing, as almost everything we know about the practice of higher education has been turned on its head over the past few months. Scholarly habits remind us to turn to research and literature for guidance. Even twenty years into the 21st century, it is still common to see articles appearing that discuss what higher education should be, consist of, and look like in the current century. Many higher education practitioners have spent their careers in these liminal years spanning the last century and the current one and are now being asked to continue unfinished work from the past and weave it into envisioned themes for the future, even when the future is literally evolving by the minute.

One method of bringing calm to chaos is to draw upon sound practices – to go back to what is known to be effective in promoting student learning, growth, and development as an anchor in the proverbial storm. The format of interactions with students may have shifted over the past year, yet the fundamental nature of these connections has become more important than ever. It has been vital to find new ways to engage students, to promote creativity as a means of resiliency, and to develop the talents and skills of students so that they are better equipped to face the challenges ahead.

This article aims to explore foundational research and theories pertaining to student growth and development, student learning, creativity, and talent development from the last thirty years and bring these ideas forward to create new models for higher education in the 21st century, with the example of a theoretically-based and research-informed honors education serving as a model for consideration and implementation. To begin, broad constructs describing the aims and goals of a 21st century college education will be outlined. Next, the article will explore conceptions of giftedness in college students, including differentiation, gifted individuals, and talent development. The article will then consider the translation of theory to practice via the description of a model for honors education employed at the University of Connecticut Honors Program. Finally, the article will conclude with an examination of the leadership challenges facing students in the 21st century and the role of collegiate education in preparing them with the problems solving skills, creativity, and empathy necessary to address these challenges, create solutions, and lead in their implementation.

## Life-transformative education

A recently formed group of college presidents and provosts, the Coalition for Life-Transformative Education (CLTE) has authored a white paper arguing that, if the 20th century goal for a college graduate was financial security and upward mobility, the 21st century goals should add a sense of purpose, social engagement, a healthy lifestyle, and engagement at work or in a career (CLTE, n.d.). Higher education can promote well-being and happiness in addition to a mastery of materials and skills. To do this, colleges and university must "engender in students three things: identity, agency, and purpose" (CLTE, n.d., p. 8). Furthermore, the authors propose that these are fostered through a *life-transformative education* (LTE), which has two key features:

(1) Authentic learning experiences in which students apply what they have learned to real world situations, often with real clients and professional mentors, and (2) emotionally supportive mentors, the kind of mentor who not only advises and encourages but who shares a genuine interest in each student's hopes and dreams. (CLTE, n.d., p. 8)

The coalition posits that the goal of higher education should be to bring life-transformative education to scale, such that every college student engages in experiential learning in an emotionally supportive environment.

Much of the scholarship that informed the components of LTE has been written in response to recent articles and studies about the state of higher education. The emphasis on helping students to develop identity, agency, and a sense of purpose has existed in the literature on identity development and the psychosocial development of college students for many years, though. The parallels between identity development and the concept of self-authorship, for example, correlate to all three of the LTE concepts of identity, agency, and purpose. In addition, the relevance of peers, mentors, and learning-based relationships is also worth exploring as an area of overlap between theories and the concepts of LTE.

The college student development literature is replete with articles on identity development in a variety of formats. There are numerous researchers who have found that the years students spend in college coincide with the years of transition to adulthood, and therefore present an excellent opportunity to encourage positive growth and development (Baxter Magolda, 1992; Chickering & Reisser, 1993; Erikson, 1963). Developed via a longitudinal study of college students and drawing upon the self-authorship work of Kegan (1994), Marcia Baxter Magolda's (2001) concept of self-authorship involves moving from an external view of self to one that is defined internally. Helping students to rely less on authority and more on their own views and ideas is a cornerstone of higher education; designing educational practices that help them to trust their internal voice, build their internal foundation, and secure their internal commitments (Baxter Magolda, 2008) is key.

Both Baxter Magolda (2001) and Kegan (1994) note that relationships are pivotal vehicles in the development of self-authorship. These relationships can be formed between students and their faculty/staff mentors or among peers. Research supports the fact that peer relationships in particular are an important source of growth and development for college students (Astin, 1993; Baxter Magolda, 1992; Chickering & Reisser, 1993; Kegan, 1994; Pascarella & Terenzini, 1991). Peers help shape an individual's identity through encouraging one another to develop autonomy through interdependence, manage emotions, and develop mature interpersonal relationships (Chickering & Reisser, 1993). It is a paradox that peer relationships can be integral to self-authorship, growth, and development, yet it is a paradox that allows for the sum of interactions to spur change and maximize growth and learning during the developmental college years.

The goals of LTE along with identity development and self-authorship are applicable to all students in higher education. These concepts are most effective, though, when they can be implemented in the aggregate for all students and simultaneously tailored to meet the needs of sub-populations of students. For example, the developmental needs around identity development and self-authorship are different for returning adult students than they are for students in the traditional age

range of 18 to 22 years old. BIPOC students also have needs specific to their identity development that should be considered, in addition to giving consideration to the ways structural racism and systems of oppression shape the environment in which these students learn. Gifted students are another sub-population worthy of a more tailored approach to learning and development. As such, consideration of the literature on gifted students in colleges provides a helpful framework for this discussion.

## Conceptions of giftedness in college students

At any post-secondary institution, no matter how selective, there will be some students with significantly higher levels of academic talent than the institution's average, and their educational needs may not be met through the standard curriculum (Robinson, 1997). There is a small but growing body of knowledge concerning how successful colleges have been at filling this gap for "gifted" students (Rinn & Plucker, 2004, 2019; Robinson, 1997), but there is also disagreement as to the nature of this gap and the definition of giftedness itself. The three paradigms of gifted education proposed by Dai and Chen (2013) are useful lenses through which to view diverse conceptions of giftedness and how they might apply to college students in general and to an honors program specifically.

### *The differentiation paradigm*

Proponents of differentiation emphasize that every student has individual needs that vary across contexts. Thus, rather than focus on "gifted" education *per se*, they discuss ways in which each student's needs can be identified and served in classrooms and in other educational settings. Researchers like Borland (2005) resist the label of giftedness at all. Others (e.g., Robinson, 2005) discuss gifted education as parallel to other types of special education services: a defined population of students has needs that are significantly different from the norm, and without specific attention those needs will not be met.

The biggest strength of differentiation is its flexibility. However, it may not be effective in meeting the needs of gifted students in the elementary and secondary grades (Hertberg-Davis, 2009). This poses significant concerns for a college or university setting, where faculty members' professional training and credentialling rewards disciplinary expertise far above any pedagogical skill. Furthermore, differentiation's centering of individual student needs in all contexts lends itself to institution-wide practices more than to a distinct honors program within a larger college or university.

### *The gifted child paradigm*

Dai and Chen (2013) grouped several seminal theories under the "gifted child" umbrella, most notably the early work of Lewis Terman and Leta Hollingworth. Terman's and Hollingworth's focus on IQ as the sole measure of giftedness has largely fallen out of favor, but the more general idea that a child may be identified as having a trait of "giftedness" has not. In fact, many U.S. states define gifted students based in part on standardized test scores and/or classroom performance (National Association for Gifted Children & Council of State Program Directors for the Gifted, 2000).

Gifted child paradigms have contributed social-emotional theories that can be useful in a college or university setting, including asynchrony (Morelock, 1996; Silverman, 1997) and overexcitabilities (Daniels & Piechowski, 2008, Piechowski, 1986). Some university honors programs also operate in a gifted child model, using standardized test scores for the bulk of their admissions decisions. Unfortunately, this places honors in the position of perpetuating racial and socioeconomic inequities from elementary and secondary education (Geiser, 2009; Smith & Vitus Zagurski, 2013).

### *The talent development paradigm*

In some ways, talent development conceptions could be seen as sharing the best features of the other two paradigms, at least when considering relevance to a college or university honors program. They generally include some form of identification, but the criteria are flexible and include context, such as using a holistic admissions process that uses multiple indicators for suitability for

honors work. Services provided are likewise flexible, since they are intended to develop students' growth and development in a specific talent area. There are multiple theories that fit this paradigm, and the University of Connecticut is the home of one of the preeminent scholars in this area, Board of Trustees Distinguished Professor Joseph Renzulli. His conception of giftedness, which is detailed further in the next section, proved to be best suited for implementation at the UConn Honors Program.

## From theory to practice

The University of Connecticut (UConn) is an institutional member of the Coalition for Life-Transformative Education (CLTE), and as such is committed to bringing life-transformative experiences to every student on all UConn campuses. UConn is in year two of LTE implementation, and though there have been some delays related to COVID-19, the university community is making excellent progress in bringing this initiative forward. The UConn Honors Program adopted a new theoretical framework in 2016 and followed this with new program requirements in 2018. As detailed below, the UConn Honors framework and implementation is fit seamlessly within the LTE paradigm, allowing honors to serve as a "test case" for the larger university LTE initiative.

### *Theoretical framework for UConn honors*

As life-transformative education begins to take shape as the cornerstone of a UConn undergraduate education, how should an honors education differ from the overall UConn undergraduate experience? In 2016, the UConn Honors Program governance board began to answer that question by adopting a theoretical framework made up of three foundational theories. The first is the Three Ring Conception of Giftedness, in which Renzulli provides the operational definition of giftedness:

> Giftedness consists of an interaction among three basic clusters of human traits — these clusters being above-average general abilities, high levels of task commitment, and high levels of creativity. Gifted and talented children are those possessing or capable of developing this composite set of traits and applying them to any potentially valuable area of human performance. (Renzulli, 1978, p. 261)

Renzulli refers to this type of gifted behavior as creative productivity, which is the core goal of UConn Honors. The Three Ring Conception of Giftedness guides admissions, welcoming students who may have been identified as gifted by their elementary or secondary schools as well as those gifted learners who, for a variety of reasons, were not identified. This framework promotes a broad net for identification (Renzulli & Reis, 1997); approximately 10% of University of Connecticut undergraduates are enrolled in the honors program.

The second foundational theory, the Enrichment Triad Model (Renzulli, 1976), describes three types of enrichment that help students move from the potential for gifted behaviors to demonstrating them. Type 1 enrichment focuses on broadening students' exposure to fields or potential problems to solve, so that they may find something that excites their creativity and task commitment. In Type 2 enrichment activities, students build advanced skills that they will need for creative productivity. These skills might be very specific to a student's project or more generally related to one of the three rings. Finally, Type 3 activities are those that provide direct support for creative productivity: helping students align their three rings, create something new, and disseminate it outside of the classroom. Even though the Enrichment Triad Model was developed in elementary and secondary schools, nothing limits it to such settings. Most honors programs are designed to provide learning and activities above and beyond typical options for college students. Since enrichment is defined as anything outside the standard curriculum, these three types of activities may take place in honors classes as well as co-curricular settings.

Renzulli's more recent work gives direction to creative productivity while also describing some of the co-cognitive factors that affect whether a student moves from potential to actual creative

productivity. Operation Houndstooth (Renzulli, 2002) addresses the question of what influences someone to *make a difference* and positively affect the world around them; in doing so, Renzulli explicitly connects social good, creative productivity, and life satisfaction or happiness. The six factors in the model (optimism, courage, romance with a topic or discipline, sensitivity to human concerns, energy, and vision or sense of destiny) can be addressed during any of the three types of enrichment or through other curricular or co-curricular activities. Including this final component in the theoretical framework further clarifies the goals of UConn Honors: creative productivity helps change the world, and it also helps honors students to be happier and more satisfied with their lives. This echoes the goals of life-transformative education as well.

### *Updating UConn honors after 50 years*

The adoption of the theoretical framework was the beginning of a two-year process of redesigning the UConn Honors requirements. Putting the framework into practice required a large amount of translation, as all of the research and published implementations of Renzulli's work were situated in elementary and secondary education. (See Renzulli & Reis, 1997, for a thorough treatment of this topic.) To clarify what changes occurred and the reasoning behind them, this section will briefly describe the previous set of requirements, issues that had arisen, and principles guiding the redesign before moving on to detail the new requirements and awards.

Prior to 2018, UConn Honors operated in what is known as a "2+2" model, in which students spent their first two years completing honors in general education and similar courses and their second two years fulfilling honors requirements in their major. Like many similar programs, UConn Honors awarded a mid-career certificate and transcript notation for the general honors requirements, and only the honors in the major requirements were included in the honors degree. Over time, students began to express frustration with the mid-career certificate, simultaneously being unclear regarding its value and wishing that the effort they put forth over the first two years would be recognized at graduation. The relative rigidity of the 2+2 structure also made it difficult to offer the full honors experience to students who entered honors at the end of their first year: they were not yet ready to start honors in their major, but they could not complete their mid-career certificate requirements in a single year.

While it was clear that the 2+2 model no longer fit the needs of UConn Honors, there were strengths that needed to be maintained, especially the fact that over 50% of students who enter the university as honors students graduate with the honors degree. Despite the independence of the two awards, students who earned the mid-career certificate were three times as likely to earn an honors degree when compared to their peers who did not earn the certificate, a relationship that held for over 15 years. In 2003, changes were made to students' honors experience during their first and second years, primarily related to building honors community through a required residential learning community and redesigned first-year experiences courses. The first cohort affected by these changes completed both awards at substantially higher rates, and these increased rates were sustained over successive cohorts (Goodstein & Szarek, 2013). When individual students' engagement with the mid-career certificate requirements was investigated in connection with likelihood of honors graduation, relationships were found with early engagement in honors courses, taking at least one specially designed interdisciplinary honors course, and attending designated honors events (Chancey & Szarek, 2018).

A desire to update honors to reflect many changes over the fifty years of the program resulted in the decision to create new honors requirements. A task force of faculty, staff, and students was convened in 2016 to develop the new requirements. They were challenged to create a program that would be sufficiently flexible to accommodate students of any major, at any University of Connecticut campus, who enter at any of three admissions points; would be able to scale to serve 10% of UConn undergraduates without bottlenecks; would meet the National Collegiate Honors Council (2017) guideline that honors should constitute 20-25% of a student's coursework without adding to the total number of credits required for degree; and was aligned with the new theoretical framework,

and to do all of this without losing the strengths of the existing structure. The result was two overlapping graduation awards, which are described in the following sections and summarized in Table 1.

## Honors scholar in the major

The Honors Scholar in the Major award represents depth of study and creative productivity within a discipline. The coursework component of the award consists of 15 honors credits in the major or related fields. (To put this in context, most undergraduate degrees require a total of 120 credits, with 36 in the major or a related area, over an expected four-year career, and most courses are worth 3 or 4 credits.) At least 3 of the 15 honors credits are earned in while working on the student's honors thesis. There is also a co-curricular "Engagement in the Major Field" requirement, in which the student and their faculty honors advisor agree upon a co-curricular experience that will enrich the student's learning in a manner appropriate to the field.

As shown in Table 1, this award consists of Type 2 and Type 3 enrichment activities. Type 3 activities are the goal of the honors experience: creative productivity, represented here by the student's thesis. The standards for the thesis are set at the department level and may not always resemble a scholarly research thesis, so long as students apply their disciplinary knowledge and skills to create a unique product that is beyond what is expected of undergraduates in that major. The other honors credits in the major or related are largely Type 2 experiences, in that they build the discipline-specific skills that lead to the thesis. Engagement in the major field is intentionally delegated to the departments and individual honors advisors, so those experiences could fit anywhere in the framework depending on the field and on a student's needs, but most appear to be either Type 2 skill development (such as required membership in a professional organization) or some extension of the thesis Type 3 (such as presenting at a local research conference).

The lack of Type 1 experiences in the Honors Scholar in the Major award structure is not necessarily out of sync with the UConn Honors theoretical framework. Creative productivity is always the end goal of a Renzulli-based program. The different types of enrichment solely exist as a way to get students to that point. Because this award is located completely *within a major*, the intentional exploration found in Type 1 activities may not be needed. On the other hand, some classes or other in-major experiences also may serve as explorations of the different sub-fields within the major or problems that the student may address in their thesis.

The Honors Scholar in the Major award is very similar to the previous honors graduation award, which was simply Honors Scholar. From a theoretical perspective, the connection to the major field is strengthened, resulting in the removal of a couple of breadth requirements that took place outside of the major. The most significant change, though, is the addition of the engagement in the major requirement, which resulted from the task force's belief that a high-quality honors experience took place both inside and outside the classroom.

## University honors laureate

The University Honors Laureate (UHL) award represents additional breadth of honors work, including intentional exploration as well as creative productivity beyond the major field. UHL consists of 30 honors credits plus three co-curricular requirements. Students must earn the Honors Scholar in the Major award in order to earn UHL, and the 15 honors credits required for Honors Scholar count toward the 30 total honors credits required for UHL. The specific requirements for these 30 honors credits and co-curricular experiences are detailed below and summarized in Table 1.

Intentional exploration within the curriculum (Type 1 enrichment) is represented by multiple overlapping distribution requirements within the 30 honors credits. Students must earn at least 3 honors credits in each of three epistemological divisions: arts and humanities; social sciences; and science, technology, engineering, and mathematics. They must also earn at least 3 honors credits in

courses designated as fulfilling a diversity & multiculturalism requirement; this directly addresses some of the Houndstooth-related factors in addition to serving as Type 1 enrichment. Finally, students must earn at least 3 honors credits in courses designed to provide an honors interdisciplinary experience, exposing them to new possibilities as well as introducing them to the skills inherent to interdisciplinary work (Type 2).

Exploration also occurs outside of the classroom through the honors events requirement. Students attend and reflect upon at least 10 honors events across 5 categories: career, professional, and personal development; honors community development; academic and interdisciplinary engagement; multiculturalism and global citizenship; and social change, service, and sustainability. Most of these event categories also promote the development of Houndstooth factors. For example, an academic and interdisciplinary engagement event might seek to spark romance with a topic or discipline, while an event in the social change, service, and sustainability category would likely promote sensitivity to human concerns.

Students who complete the UHL requirements demonstrate creative productivity through two additional co-curricular requirements. The first, called "Academics in Action," is almost entirely student defined, so long as their experience is (1) academic in nature; (2) representative of creativity or innovation; and (3) shared with an authentic audience. Students may not use their thesis for this requirement, but they may use an extension of their thesis, and some students are able to use their engagement in the major field experiences. Other students choose to do something outside of their major for this requirement. The other co-curricular Type 3 requirement, which also addresses many Houndstooth factors, is the UHL Leadership Experience. This requirement is described in detail in the following section.

**Table 1:** University of Connecticut honors award requirements aligned with elements of theoretical framework.

| Requirement | Type 1 | Type 2 | Type 3 | Houndstooth |
|---|---|---|---|---|
| **Honors Scholar in the Major** | | | | |
| 15 honors credits in the major or related | | X | | |
| Approved thesis | | | X | |
| Engagement in major field | | X[a] | X[a] | |
| **University Honors Laureate (additional requirements only)** | | | | |
| 15 honors credits | | X | | |
| Epistemological distribution | X | | | |
| Diversity & multiculturalism | X | | | X |
| Interdisciplinarity | X | X | | |
| Honors events | X | | | X |
| Academics in Action | | | X | |
| Leadership Experience | | X | X | X |

[a] The Engagement in major field requirement is determined at the department level. Some have opted for additional Type 2 experiences while others have determined that Type 3 is more appropriate. Type 1 is possible but unlikely.

The University Honors Laureate award is a major change for UConn Honors, representing a three- or four-year honors experience rather than the previous 2+2 model. It does carry forward the important features of the mid-career certificate, including the special honors interdisciplinary courses, an enhanced honors events requirement, and the expectation that students engage in honors coursework early and consistently. The removal of the "first two-years" and "second two-years" structure also means that there is more flexibility inherent in the completion of UHL compared to the

previous model; students can join the Honors Program at any entry point allowed in the admissions process and complete the UHL requirements. The theoretical framework and intentional design of the new components also allows for clearer messaging for current and prospective students: UConn Honors helps students *explore*, *create,* and *lead*.

## University honors laureate leadership experience: Preparing students for 21st century problems

The Leadership Experience for students completing the UHL requirements combines the Operation Houndstooth factors of sensitivity to human concerns, optimism, courage, and vision or sense of destiny with the LTE concepts of developing identity, agency, and purpose. While most honors students enter college with some form of leadership experience, this activity helps students hone their natural talents, learn new leadership skills, apply those skills to a problem of their own choosing, and prepare to solve the known and unknown challenges that await in the 21st century.

The UHL Leadership experience consists of three phases, each of which incorporates reflective learning in addition to peer coaching (UConn Honors, n.d.). Reflection is conducted through an ePortfolio, the use of which can maximize the effectiveness of high impact educational practice (Watson, Kuh, Rhodes, Light, & Chen, 2016). The use of these peer coaches, called Honors Guides for Peer Success (Honors GPSes), intentionally leverages the known influence of peers in this stage of students' identity development while providing another mentoring relationship as they develop agency and purpose as leaders.

The first phase (preparation and planning) begins when students attend an Honors GPS-led workshop. This workshop explains the process, the timeline typically followed, and the use of the ePortfolio system where students will record their plans, activities, and reflections. More importantly, this is where students begin to articulate their own personal definitions of leadership and consider their role in multiple communities. As the first phase continues, students develop a Leadership Action Plan that in which they select a community, identify a problem, and develop a feasible intervention that aligns with their community's needs and their own definition of leadership. They complete the Leadership Action Plan with individual feedback and coaching from an Honors GPS.

The second phase is simply Action. Students enact their leadership plan and can continue to rely on coaching from their assigned Honors GPS as needed. It is important to note that, while the Leadership Action Plan should be *feasible*, success should also not be guaranteed. Through coaching, students learn from failure—possibly even more than they do from success—and this failure does not prevent them from completing the UHL Leadership Experience.

A student's Leadership Experience concludes with the third phase: Reflection. Students are prompted to reflect on any changes that have taken place in their community of as a result of their leadership, any changes that took place in themselves, their own learning, and how this experience may influence their future plans. Additional coaching during this phase leverages the partnership created with the Honors GPS to further solidify the student's learning.

Implementing the Leadership Experience, as well as the other University Honors Laureate co-curricular requirements, posed some logistical challenges. There are over 2,400 students enrolled in the UConn Honors Program, and there was no existing mechanism to track experiences that existed outside the classroom. The implementation of an ePortfolio system provided this while also enhancing student reflective practices and creating records that may be analyzed for assessment and program evaluation. Reflective learning also requires substantive feedback; the Honors GPS peer advising team is a cost-effective staffing model for feedback and coaching at this large scale.

## A hopeful vision for the future

The process to redefine a UConn Honors education began prior to the arrival of the Life-Transformative Education initiative on the campus, yet the Renzulli-based theoretical model,

implemented through Honors Scholar in the Major and University Honors Laureate, and the guiding practices of LTE are complementary and supportive of one another. Each acts as a bolster for the other, creating an experience that is greater than the sum of its parts. Students will have greater sense of self, purpose and direction, and confidence regarding their skills and talents. This self-definition will have occurred via relationships with others, which promotes empathy and connection: two vital attributes for working together to combat systemic oppression and face other global problems. Complex problems surely lie ahead in the rest of the 21st century, but they can be solved if college graduates leave campus with the tools to create and implement change for the common good, as well as having proven themselves already capable of doing so.

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## Address

**Jaclyn M. Chancey**;
UConn Honors Program, Unit 4147;
368 Fairfield Way, Storrs, CT 06269-4147; USA.

**e-Mail:** jaclyn.chancey@uconn.edu

# Post-Secondary Education in the Inner-City: Breaking barriers and building bridges in a divided city

**Shauna MacKinnon**
University of Winnipeg, Manitoba, Canada

## Abstract

The Department of Urban and Inner-City Studies (UICS) is a department in the faculty of Arts at the University of Winnipeg in Manitoba, Canada. The Department is located outside of the main campus in one of Canada's poorest neighbourhoods. UICS is intentionally located here to offer access to postsecondary education to people who might not otherwise attend university. Our department aims to encourage people who have come to believe that university is 'not for them'. It also serves to bring students from other areas of the city into the neighbourhood to begin to dispel long held misconceptions about the North End. We continue to develop our critical, place-based model in the spirit of putting 'reconciliation into action'. As described by Senator Murray Sinclair, the former Chair of the Truth and Reconciliation Commission of Canada, it is "'up to society' to step up and take the actions that are needed." (CBC 2017). At UICS, we are committed to 'stepping up' by creating opportunities for learning through honest dialogue, and challenging systemic divides in our community.

**Keywords:** Postsecondary education; Winnipeg; honest dialogue; Indigenous students.

## The Department of Urban and Inner-City Studies: Critical place-based learning in Winnipeg's North End

Like many urban centres, the City of Winnipeg continues to deal with deep racial and class divides. Winnipeg's North End has historically been home to a high number of working-class immigrants, refugees, and low-income Indigenous families who have migrated from First Nations. Some settle in the North End because it is affordable. Others choose the North End because they have family and friends there. While the North End has long suffered from the stereotypical narrative of being a dangerous and undesirable place to live— a location of last resort—many who live in the North End feel safe and welcome there.

In addition to the geographic and class divide, Winnipeg is most notably divided between Indigenous and non-Indigenous people. Winnipeg has the highest Indigenous population of any city in Canada and the number is growing. Canada's most recent census (2016) shows 92,810 (12.2 percent) of Winnipeg's population self-identified as Indigenous (First Nations, Métis and Inuit), increasing from 11. 13 percent in 2011. A high percentage of people in the North End identify as Indigenous. Forty percent of people in the William Whyte neighbourhood in North Point Douglas community (Figure 1) where UICS is located identify as Indigenous, compared with 12 percent in all of Winnipeg.

It is also the case that North End neighbourhoods in the inner-city measure poorly on a number of indicators. In the William Whyte neighbourhood upwards of 38 percent of individuals live in poverty (LICO-AT) compared with 13.2 percent in all of Winnipeg (Winnipeg Neighbourhood Profiles). The poverty rate is highest in neighbourhoods like William Whyte which are located closest to the inner-city boundaries.

It is commonly known that there is a strong correlation between education and poverty. In Winnipeg, the proportion of inner-city adults with less than a high school diploma is double the proportion in the non-inner city (MPHM 2018). In William Whyte, more than 40 percent of people over the age of 15 report have no certificate, degree or diploma, compared with 17 percent of individuals in all of Winnipeg (Winnipeg Neighbourhood Profiles). Here households are twice as

likely to experience overcrowding compared to non-inner-city households (MPHM 2018). This is important because research shows that access to safe, adequate and stable housing is important to student success (Cunningham & MacDonald 2012).


**Figure 1:** City of Winnipeg communities.
(Map accessed https://www.gov.mb.ca/fs/misc/loc/print,winnipeg.html).

There is also a high number of inner-city children in the care of Child and Family Services (CFS), 90 percent of whom are Indigenous. This has implications for education outcomes. According to the Child and Family Service Division in the Province of Manitoba, approximately 500 youth exit CFS annually without essential life skills. They are largely unprepared to live independently as adults. Children who grow up in foster care are less likely to graduate from high school and have a greater likelihood of suffering from mental illness, chronic unemployment, homelessness, and incarceration (MPHM 2018). All of the indicators outlined above have implications for education outcomes and the perpetuation of poverty and social exclusion. In Winnipeg, Indigenous people are more likely to measure poorly on many of these indicators.

Although there is a growing population identifying as visible minority (38 percent in 2016), North End Neighbourhoods have largely become Indigenous spaces. Fully 40 percent of people in William Whyte identified as Indigenous in 2016. This is relevant to our understanding of the colonial context of education in Canada. We know that Indigenous children are not doing as well in school compared to other Manitoba children and that education attainment for Indigenous people continues to compare poorly with non-Indigenous people (Chartier, Brownell et al 2020).

We also know that much of the blame can be attributed to the intergenerational trauma resulting from residential school policy. Under the residential school policy (1880s-1990s) children were taken from their parents, educated in a new religion and new language. As described by the TRC (2015), Canada's residential school policy became a central component of the federal government

policy aligned with "cultural genocide" (TRC(a) 2015, 10). The objective was that students would be "absorbed into the body politic" eventually there "would be no Indians, no reserves and no treaty obligations" (TRC(a) 2015,10).

The residential schools failed to achieve their intended goals, but they have left a legacy of despair. They were deeply destructive for Indigenous children, families, and communities. The schools were poorly built, poorly funded, and poorly maintained. Death rates were high, punishment harsh, education inadequate, and the risk of sexual abuse was significant. A notable legacy of the schools is a distrust in education as the proverbial "ticket out of poverty".

This dynamic has led many Indigenous people to leave education at an early age, sometimes returning later as adults. Through the work of the TRC we have learned a great deal about the impact of residential schools. The TRC report includes a number of calls to action that if implemented would begin to redress the damage done, but there is a long way yet to go. Western approaches continue to dominate university curriculum and pedagogical approaches even though the impact of colonialism is fully acknowledged (Gala and Holmes 2020).

The Department of Urban and Inner-City Studies continues to develop course content and a pedagogical approach with an understanding of the devastating effects of colonial policies and programs, including residential schools. Inspired by research demonstrating the benefits of place-based learning, the University of Winnipeg relocated the Department of Urban and Inner-City Studies to the North End. The department joined other postsecondary education programs, crossing the notorious railyards that have long been symbolic of the north-south divide. Initially located in a small basement space on Selkirk Avenue, in 2017 UICS relocated down the street to its new home at Merchants Corner. Once a hotel, bar and beer vendor, Merchants Hotel was reclaimed and repurposed into an intergenerational education facility. The Department of UICS is an anchor tenant along with the community-based Community Education Development Association and its Pathways to Education program. A program provides enhanced supports for youth struggling to complete high school.

This re-location has been significant for a number of reasons. It aligns with research showing that multiple-barriered, racialized and Indigenous students who have struggled to succeed through the typical post-secondary trajectory do far better in small, neighbourhood settings (MacKinnon 2015, Silver 2013). Locating on Selkirk Avenue was also an important gesture to people living in a community that has long been ostracized and excluded. It demonstrated that the University of Winnipeg believed in the importance of bringing education to them. That they matter and that the university welcomes them.

## Reconciliation, decolonization and critical place-based pedagogy

The continued oppression of Indigenous people in Canada, and in the spatialized marginalized inner-city neighbourhoods in Winnipeg, calls for a localized critical pedagogy that aims to facilitate processes and create safe spaces for students to make sense of their realities within their 'specific historical, political and social context' (Smith 1999, 186). Although the University of Winnipeg made clear its mandate to 'indigenize' in 2015, the Department of UICS has been on this path since relocating to the North End in 2011. We have developed, and continue to refine, a pedagogical framework that melds decolonizing content with critical-placed based pedagogies. Our experience has shown that bringing critical pedagogies into inner city, colonized spaces can have a transformative impact on the lives of students from all walks of life.

Place-based pedagogy in our context is an approach to education that centres learning about inner-city issues in the neighbourhoods where issues are experienced. It offers a small, safe, encouraging space for Indigenous and other students who have been excluded, to shed their internal doubts, heal from trauma, explore what is possible, build confidence and embrace the idea that acquiring a university degree is achievable. We want our students to know – to believe – that university is "for them" too.

> Our approach is consistent with the theoretical foundations of social justice education, rooted in an understanding of systemic oppression (Bell 2016, Freire 2006). We have learned through research and practice that for many Indigenous students and others who have been pushed to the margins, pedagogies that challenge Eurocentric narratives, privilege Indigenous knowledge and emphasize the 'imperative for righting the wrongs of colonial domination, and an ethical stance in relation to social justice for those peoples enslaved and disempowered by persistent forms of coloniality' (Zembylas 2019, 404) are essential. Although we refer to these features as central elements of decolonizing pedagogy, we do so with an understanding that decolonization and reconciliation will not be achieved through pedagogy alone. Nonetheless, we have learned in our inner-city context that integrating these features can be transformative for students who have internalized the colonial narrative that they are inferior (Memmi 1965). Our approach also aligns with social justice education approaches that 'create learning communities where members share and learn from teacher's experiences, reflect on their own and others' experiences to make sense of larger structural systems of advantage and disadvantage and create new meanings for themselves' (Adams 2016, 29).

Faculty and staff in the Department of Urban and Inner-City Studies believe strongly in the place-based approach that continues to evolve. We have learned a few important lessons since relocating to Selkirk Avenue in 2011. Although the initial purpose of locating in the North End was to make university accessible to a neighbourhood with all of the challenges associated with poverty and systemic racism, something more profound is happening here. University of Winnipeg students from the southside of the city are coming to the North End to study with us. These students are interested in learning more about urban and inner-city issues from the perspective of those with lived experience. We have learned that bringing Indigenous and non-Indigenous students from various backgrounds to study in an Indigenous space with a high number of Indigenous students, in small classrooms and with instructors who create a safe space for dialogue, can have a profound impact in the spirit of reconciliation.

## Reconciliation begins with education

Understandably, the legacy of residential school policy has led many of the Indigenous residents in the neighbourhood to distrust mainstream education. Our research informed pedagogical approach begins with this understanding. Although we are not an Indigenous studies department, in all of our courses we acknowledge the "truth" about colonial policies and the centrality of reconciliation in correcting past and present harms. We integrate both Western methods and Indigenous ways of knowing, being and learning; an approach that our students embrace. In this regard, UICS was ahead of the curve, learning to adopt a process of indigenization and reconciliation before its importance was highlighted in the Truth and Reconciliation Commission reports (Fiola & MacKinnon 2018, TRC 2015). We agree with TRC Chair, Justice Murry Sinclair, that "education is the key to reconciliation" (Macleans 2016). That it is about:

> "atonement. It's about making amends. It's about apology. It's about recognizing responsibility. It's about accounting for what has gone on. But ultimately, it's about commitment to maintaining that mutually respectful relationship throughout, recognizing that, even when you establish it, there will be challenges to it." (Sinclair 2017).

We have learned that the process of reconciliation can be uncomfortable, and we need to accept and work through that discomfort together. It challenges non-Indigenous students to learn how they continue to benefit from the historical oppression of others. In the urban context, reconciliation can begin with non-Indigenous people stepping out of their comfort zones to learn about colonization and its related effects in spaces where oppression is most intense. This is what many of the students who study with us at Merchants Corner are doing.

The students who reside outside of the North End are often tentative when they initially come to Merchants Corner. This is not particularly surprising. Many of these students have lived their entire lives in Winnipeg yet have never visited the North End. Many learned from an early age to fear the North End. These students who are typically white and many of them tell us that their parents are not particularly keen on their taking courses on Selkirk Avenue because they fear for their safety.

Although they desire to learn the truth about our divided city, they come with preconceived ideas about the North End that are often racist. Hesitant at first, they begin to challenge these beliefs, mainly because of what they learn from their peers but also from course content that explores the root causes of poverty. They learn from their classmates who have lived in poverty in the inner city, the impact that poverty has had on their lives. They learn from their Indigenous peers who know first had of the damage caused by intergenerational trauma of colonization and systemic racism, including that which gave us residential schools and the child welfare "sixties scoop" (Johnston 1983; TRC 2015). It forces privileged white students to examine how the intersections of their experiences shape the way they view and experience the world. They learn to critically reflect on how well-intended charitable actions can serve to perpetuate injustice and systemic oppression. They learn that 'reconciliation' requires non-Indigenous people to advocate for necessary systemic changes. Engaging in critical placed-based learning provides students with tools to more fully understand systemic racism, injustice, inequality and oppression by bringing them outside of the ivory tower into real-world sites of oppression, in real time. It provides students from diverse backgrounds an opportunity to learn about, from, with, and in the community, and to be actively engaged in progressive social change as allies.

We have learned that meaningful dialogue through place-based learning with those who we perceive as 'different' can be a powerful and transformative experience. Take the example of Jim and Joe (not their real names). Jim is an Indigenous male who was enrolled in my Introduction to Urban and Inner-City Studies course in 2016. On the first day of class he sat beside Joe, a white male from the southside of the City. Jim and Joe were similar in age, early to mid 20s, and were likely drawn to sit together because they were the only two males in a class of 25 students.

As we typically do on the first day of class, we went around the circle (our classrooms are set up with tables and chairs organized in a circle) with students introducing themselves and sharing with their classmates a few words on why they chose the course. Jim was forthcoming in sharing that he was on probation for a crime that he had committed. He was pursuing his education hoping to take a different path. Joe squirmed a bit as Jim spoke. When it was his turn to speak, he shared that he was a criminal justice student and interested in applying to be a police officer. He took the course because he thought it would be interesting to learn more about the inner-city given the high level of crime in the area. The class chuckled a bit at the irony of Jim and Joe sitting next to each other. But we respectfully moved on, continuing with our introductions. Jim and Joe continued to sit beside each other throughout the term. They would chat a bit before and after class and then went their separate ways. On the last day of clas, we did a final round of sharing, this time each sharing something we learned over the term.

When we came to Jim and Joe, each shared about their experience sitting beside each other throughout the term. They acknowledged how very different their lives had been — each from very different backgrounds and experiences. They said they appreciated having sat next to each other over the term and engaging with someone that they would not have typically been exposed to. They noted that being in a small non-judgmental class environment, where neither wielded power over the other, made this possible. Joe in particular acknowledged the importance of better understanding the context of Jim's experience as he pursued his interest in policing and the power that came with that role.

It was a transformational day for all of us in the classroom. I don't know what happened after that day. I expect that Jim and Joe went their separate ways and very likely never spoke again. I don't really know because I didn't see either of them again. I only know that each were exposed, for 3 hours a week over 3 months to someone they likely would not otherwise have spoken with and that it had an impact on them.

A similar experience was shared by a student in a written reflection of her experience in that same course. She wrote:

> In September, when I first started Introduction to Urban and Inner -City studies, I was very scared. I walked in not knowing what to expect. I came into the class, sat down and looked around. I noticed that it was a mixed class–half Aboriginal and half white. This surprised me

> because I expected everyone in class would be Aboriginal given the fact that it is located on Selkirk Avenue. I was very intimidated...*the Professor started the class and on that first day everyone was very quiet. She gave us a program outline. The topics and words that were used in the first class were very unfamiliar to me. I felt overwhelmed. I did not know the definitions and meanings of most of the words and I felt like the white students in class would judge me and look down on me. I felt the white students would be so much smarter than I am and I would end up looking like a dumb Indian or Halfbreed.*
>
> *I spoke to the professor after class and she reassured me that most of the students were probably feeling the same way. I felt relieved and encouraged and was ready to give the class a chance and make a go of it.*
>
> *As the weeks went by, we learned about gentrification in neighbourhoods and how it affects the individuals living in the communities. Many people end up getting pushed out of their neighbourhoods with nowhere to go. We learned about city planning and how much Winnipeg needs and spends to run the city. We learned about urban sprawl and had discussions on how it would be a better idea for the city to fix the old roads in the North End than to pay for new infrastructure in the suburbs. We watched the mayoral election and had discussions on what each candidate was promising and talked about whether they were actually the people they presented to be.*
>
> *Learning about the 1919 Winnipeg general strike was also very interesting to learn about. It brought attention to the divide in the city at that time. Wealthier people lived in the south end of the city and the poor immigrant workers lived in the north end. The difference today is that it is Native people who are more likely to live in the North End.*
>
> We had many discussions in class. We learned to trust each other. Each one of us had our own views but respected each other, even though many of us would never have talked to each other on the street if we had not met in class. The professor made it a safe place and welcomed everyone's opinions. Now when I see my classmates at the main campus, it is funny because they will be standing with their friends when they see me, and they'll shout out "HI!" Then they "high five" me in the hall while their friends stand there looking at them with a confused look.
>
> Overall, I learned a lot about the city of Winnipeg and had a great time in class (student reflection December 2014)

Another student, this one a middle-class white student from the south side of the city, shared this:

> I'm grateful for having taken this class…Having an open class format was very powerful as everyone came with their own knowledge and experience and I learned a lot hearing what they had to say…It's been different from my past university experience in a really positive way.
>
> I think just being on this campus [Merchants Corner] has taught me so much about relationships and the importance of connecting with people. I've formed personal relationships with some of my peers that have changed the way I see myself, and how I related to other people (student reflection December 2018)

An important part of learning is the revelation that there is much we don't know about what we think we know. For the following student, learning this was important.

> I took this class because I thought I had a good amount of knowledge about the content that was going to be taught. I didn't know how off the mark I was going to be….this class has given me an in depth understanding on matters that should be discussed about this city. I learned to look at things from a different perspective …I got to learn from others' life experiences (student reflection 2019).

The perspectives shared by the above students are typical of what we hear at Merchants Corner. Students tell us that the environment inspires them to explore their prejudices and to think hard about racism and oppression and what can be done – personally and structurally.

## Pedagogy and Covid-19

I wrote this paper at the height of the Covid-19 pandemic, so it seems pertinent to reflect on the implications for our department and the students who study with us. Universities in Manitoba have shifted to online learning. Our department has adapted as best it can, offering our courses through alternative online formats. It's not an ideal way to learn at the best of times, but it is particularly counterintuitive to our pedagogical approach.

Some of our courses are impossible to teach online and we have had to cancel them. Instructors have responded by creating new courses more conducive to online formats and are doing their best to offer flexible options for students. The changes have been particularly challenging for our students with more complicated lives. We are surveying our students to better understand the impact on their learning, and we'll have more to say on this in the coming months. Our initial observation is that the more typical university student (middle class, younger students), are adapting fairly well. Older students, Indigenous students, newcomer students, single parents, those living in poverty with less-than-ideal housing and study space, are struggling more. Some have chosen to delay their education until they can return to the classroom setting. Some students continue to actively engage in the classroom discussions online, but others have become quiet. It's near impossible to create the same level of safe trusting environment on Zoom. It is far too easy to hide in the background. Easy to be invisible by disabling the video. Easy to look away.

As one white student from a rural community shared in class at the end of the term before the pandemic, sitting in a circle in the small Merchants Corner classroom with a diverse group of students "forced" him for the first time to focus his attention and really listen to his peers, even when it was uncomfortable to hear the painful truths of their experiences. Sitting in the circle required him to look into people's eyes rather than at their backs.

As many of our Indigenous friends and students tell us, "this is the power of the circle", which is central to our pedagogical approach. For now, we will continue to do what we must do to curtail the spread of the virus. But like the students who study with us at Merchants Corner, I look forward to the time when we can back to the "circle".


Students with instructor in the Introduction to Urban and Inner-City Studies class. 2019.

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## About the Author

Dr. MacKinnon is Associate Professor, Chair of the Department of Urban and Inner-City studies, and Principal Investigator of the Manitoba Researcher Alliance (MRA), a community led research consortium. The MRA was recently awarded a 7-year partnership grant from the Social Science Humanities Research Council (SSHRC) for the "Solutions to Poverty: Challenges and Possibilities" project. Dr. MacKinnon has conducted research on social and economic issues for over 20 years with a focus on public policy, poverty and inequality. Dr. MacKinnon is proud to be the Chair of the Department of Urban and Inner-City Studies, situated in Merchants Corner in the heart of Winnipeg's North End. She believes strongly in place-based pedagogical approach that privileges the voices and experiences of those who have been excluded from mainstream education. Dr. MacKinnon believes that bringing Indigenous and non-Indigenous people to learn together in the small, supportive space in Winnipeg's North End is an important step in the truth and reconciliation process.

# Closing the Spiritual Circle of Life: The Unconditional Love Revolution

**Christiane Kirsch**
Academy for Creativity and Higher Consciousness, Luxembourg.

## Abstract
This article presents and combines theories and philosophies on the spiritual rebirthing and ascension process emanating from psychology, comparative mythology, and comparative religion. It addresses various states of the soul encountered on the mystical journey to Divine Union and the various ways God assists human beings in completing this process, both personally and collectively. The analysis of the soul regeneration process — the science of the saints — addresses human sanctification during earthly existence and eventually beyond if the worldly life does not suffice to complete this process. Furthermore, the role of the Divine Feminine in salvation history is highlighted as well as the importance of the alchemical communion between divine counterparts in the inauguration of the Millennium of Peace leading toward the New Jerusalem.

"There is no power that can stop me in my flight toward God" (St. Faustina, 1981/2005, §761).

**Keywords:** Ascension; Divine Feminine; unconditional love; psychology; comparative mythology; comparative religion.

This article begins by introducing the various states of the soul experienced in the ascension process, leading toward God's plan to assist human beings in completing this process, in which the Divine Mother and the alchemical nature of sacred partnerships play a crucial role. Ultimately, it depicts the impending step in the psychological, cultural, and spiritual evolution of mankind, which will close the spiritual circle of life. Although some individuals have been prepared to assist and guide others, it is a collective journey that requires every individual's active participation.

This article highlights the complementary and integrative nature of various religious doctrines, which should not be considered mutually exclusive. Although some passages are more "Christian"-oriented, the author insists on mentioning that she honors every path as unique and personally tailored.

The present time of crisis has induced a "spiritual awakening" in numerous individuals, often through trials and hardships. The quest for meaning and stability has never been as intense as it is now. This reality provides a fertile ground for developing spiritual intelligence and awareness, considering that spiritual growth and positive transformation are impossible without suffering.

The subsequently described soul-stages also apply on the collective level. After the collective "Dark Night," humanity will experience a collective "Illumination," to use the words of St. John of the Cross. In analogy to posttraumatic growth, the surmounting of this crisis will yield unprecedented changes and unbounded collective creativity if society is willing to learn the inevitable lessons and complete the "ascension process." These lessons specifically refer to sustainable development and animal protection.

There are no coincidences in life. With the present crisis, humanity is reaping a harvest of its actions. However, the "darkness" of the present time is merely an illusion. Truth must be exposed before positive changes can be implemented. Thus, it is not a time for self-pitying but a time to realize the tremendous changes resulting from this global "purification process," using the transformative power of suffering. It is a time to recognize the magnitude of global interconnectivity and collective

consciousness while grasping humans' infinite potential for both constructive and destructive creativity. It is a time to rejoice and reinvent our ways of living for the sake of actively co-creating a future based on global peace, justice, harmony, and collective coherence.

## Mystic journey of spiritual rebirth

### Alchemical transformation of mind, body, and spirit

Human beings are inherently spiritual. The spark of divine intelligence resides within our soul, the heart center (Murray, 1897/2015; St. Teresa of Ávila, 1852/2015). Denying that spark results in denying oneself.

This section delves deeply into profound spiritual wisdom on the powerful journey through progressively transcendent levels of consciousness in the quest for mystical communion with God. Throughout history, human beings have used various ways to reach out to God and strive for divine communion that are valid and complementary. However, some ways are more straightforward and imminent than others.

According to St. Teresa of Ávila (1852/2015), the spiritual rebirthing process is initiated by a divine call, which may come in the form of a specific life event that induces a complete requestioning of existence and the subsequent lifting of the veil of reality. This unfailing call propels a person into a spiritual crisis that initiates profound inner transformation and culminates in a complete regeneration of mind, body, and spirit (Judith, 2016). The mystical journey to Divine Union is referred to as "the Hero's Journey" in comparative mythology (Campbell, 2003), "the Way of the Cross" in mystical theology (St. John of the Cross, 1953/2003), and "Kundalini rising" in Hinduism (Judith, 2016). In the domain of psychology, the stages of personality development are described by Maslow's hierarchy of needs (Maslow, 1943) and the theory of positive disintegration (Dabrowski, 1967), which is a forerunner of the theory of posttraumatic growth (Tedeschi & Calhoun, 1995).

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"All who have this hope in him purify themselves, just as he is pure" (1John 3:3 New International Version).

A process of profound psychological and spiritual "self-emptying" follows the initial call, known as "kenosis" in Christian theology (Philippians 2:7), "the Dark Night of the Soul" in mystical theology (St. John of the Cross, 1953/2003), and "the phase of trials and temptations" in comparative mythology (Campbell, 2003). Mystical theology is the "branch of theology that deals with the attainment of direct communion of the soul with God" (Lexico, n.d.). In mystical theology, the Dark Night is followed by the stages of Illumination and Divine Union (St. John of the Cross, 1953/2003). In the psychological domain, these stages are mirrored in Wallas' four-stage model of the creative process: Preparation, Incubation, Illumination, and Verification/Implementation (Wallas, 1926). In comparative mythology, Divine Union is denoted as "the Mastery of Two Worlds" or "the Restoration of Divine Order" (Campbell, 2003), and in Kabbalah (Kosinec, 2019), it is referred to as "Correcting the World." Kabbalah is a "medieval and modern system of Jewish theosophy, mysticism, and thaumaturgy marked by belief in creation through emanation and a cipher method of interpreting Scripture" (Merriam-Webster, n.d.).

In the Vedic tradition, it is believed that during Kundalini rising, the creative Divine Feminine fire of transmutation, which lies dormant at the base of the spine, awakens to purify the chakra system from karmic discharges (Judith, 2016). Vedic is defined as "of or relating to the Vedas, the language in which they are written, or Hindu history and culture between 1500 B.C. and 500 B.C." (Merriam-Webster, n.d.). Judith highlighted that the chakra system, an ancient metaphysical concept, is progressively explained by quantum physics. The chakras are energetic vortexes that act as portals to higher existential planes and, through purification and balancing, offer incomparable opportunities for personal growth and transformation. Although this process commonly rises along the spinal column, it can occasionally be reversed or take a distinct route (Judith, 2016). Analogous to the famous poem by St. John of the Cross (1953/2003), "Dark Night of the Soul," the purging

focusing on the lower chakras involves the sensory part of the soul, whereas the second more intense purging focuses on the higher chakras, the spiritual part of the soul. Judith (2016) highlighted that although the purging experience is painful, especially when resisted or without proper guidance and preparation, it is inevitable in spiritual regeneration. Thus, the soul's complex psychology under the purifying influence of grace is referred to as the "Dark Night" or the "Night of Faith" in mystical theology (St. John of the Cross, 1953/2003).

"When all the knots of the heart are unclosed, then even here in this human birth, the mortal becomes immortal. This is the whole teaching of the Scriptures" ("The Upanishads," as cited in Judith, 2016, p. 198).

Judith (2016) explained how the implications of past actions metaphysically manifest as energetic patterns within the chakra system. These karmic tensions and impurities hinder the body's free energy flow and are discernible as "dark spots" within the body's electromagnetic field emanating from the human heart (McCraty, 2003). Judith explained that this is how karma reduces mental and emotional wellbeing and causes physical disease: "'There is no peace,' says the LORD, 'for the wicked'" (Isaiah 48:22). Although they are not equivalent, some aspects of the Hindu understanding of Karma—the law of cause and effect—are comparable with the Christian notion of sin—the implications of thoughts, words, and actions: "His sins are kept on record" (Hosea 13:12).

Furthermore, Galatians 6:7-8 states that a man reaps what he sows, distinguishing between two mutually exclusive alternatives: the way of the Spirit and the way of sinful behavior. "For the flesh desires what is contrary to the Spirit, and the Spirit what is contrary to the flesh. They are in conflict with each other, so that you are not to do whatever you want" (Galatians 5:17). These passages illustrate that the law of cause and effect is a universal principle, determining everyone's destiny: "Anyone who does wrong will be repaid for their wrongs, and there is no favoritism" (Colossians 3:25).

Hawkins (2015) explained that consciousness research confirms the view of Creation as a reflection of divine harmony, justice, and balance. Hence, there is no way to escape God's judgment. We choose to harvest either destruction or eternal life because neutrality in thought and action is nonexistent and delusional: "The heart is deceitful above all things and beyond cure" (Jeremiah 17:9).

In the Vedic tradition, the attainment of Divine Union is denoted by the opening of the Crown Chakra, a point of no return in the transformation process, leading to a lasting experience of spiritual bliss, supreme consciousness, and enlightenment (Judith, 2016). Judith explained that this mystical communion with God ensues from the alchemical marriage between the Divine Feminine and Divine Masculine energies, a notion that is also present within the Christian tradition (Musso, 2018). In Christian theology (Murray, 2019; St. Teresa of Ávila, 1852/2015), Divine Union corresponds to the advent of spiritual "resurrection," accompanied by the perceptible metamorphosis of mind, body, and spirit and the development of charismatic gifts: "For in Christ all the fullness of the Deity lives in bodily form, and in Christ you have been brought to fullness" (Colossians 2:9-19). At this stage in the mystical journey, a person is ready to enter divine service and accomplish their life mission, involving some form of humanitarian engagement (Murray, 2019; St. Teresa of Ávila, 1852/2015; Ubaldi, 2016): "Each of you should use whatever gift you have received to serve others, as faithful stewards of God's grace in its various forms" (1 Peter 4:10).

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"It is confidence and nothing but confidence that must lead us to Love" (St. Thérèse of Lisieux, 1898/2010, §197).

Various religious currents agree that the complete surrendering to the divine will is the most imminent way to reach divine communion (Kosinec, 2019; Murray, 2019; St. Catherine of Siena, 1907/2009; St. Teresa of Ávila, 1852/2015). "There is no fear in love" (1 John 4:18). This surrendering, accompanied by a joyful divine service (Murray, 2019; Roche, 1934), outweighs an exemplary prayer routine and severe penances, which should never be self-inflicted: "Such regulations indeed have an appearance of wisdom, with their self-imposed worship, their false

humility and their harsh treatment of the body, but they lack any value in restraining sensual indulgence" (Colossians 2:23). Instead, people should gracefully embrace their afflictions, sacrificing them to God as atonement for personal and collective sins.

## Decoding approved Marian apparitions

### Mary's call to action

Sr. Anne (2016a), currently called Mary K. Farran, contended that approved Marian apparitions form a gigantic mosaic that must be decoded, interpreting repeated apparitions as extremely important and urgent: "For the day of the Lord is near" (Joel 1:15). Sr. Anne (2016a) remarked that in 1830, Mary's apparitions took on a new form, including universal messages dedicated to the entire human collective. In 1830, Mary laid the first stepping stone for created Her Militia Immaculate, which is not for cowards: the burning torches of Mary must be strong in love because the Fatima message prophesied that men would witness the death of sentiments (Sr. Anne, 2016b).

> To you, Lord, I call, for fire has devoured the pastures in the wilderness and flames have burned up all the trees of the field. Even the wild animals pant for you; the streams of water have dried up and fire has devoured the pastures in the wilderness. (Joel 1:19-20)

Revelation 8:7 and 16:8-9 prophesied that the sun would be unusually hot in the latter days, and the land would dry out: The fourth angel poured out his bowl on the sun, and the sun was allowed to scorch people with fire. They were seared by the intense heat and they cursed the name of God, who had control over these plagues, but they refused to repent and glorify him. (Revelation 16:8-9)

In 1984, Mary affirmed in San Nicolas Argentina that humanity has been led to "pollute" (Sr. Anne, 2020), alluding that collective karma or sinful behavior contributes toward the energetic "pollution" of the environment and to global warming, along with the well-known industrial factors. On the New Earth, which will be inhabited by upright souls, the air will be pure and fresh: "In this place the air is perfectly pure. There is no night but only the brilliant day of the sacred humanity, the resplendent, spotless sun of the Divinity, the blazing furnace of love" (Montfort, 1987/2002, §261).

Researchers from the HeartMath Institute in California asserted that the planetary ascension process intensified in 2012, and the collective shift in consciousness is ongoing (Martin, 2012). According to Martin (2012), December 21, 2012, marked several turning points. The Mayan calendar ended on this specific date, marked by a unique galactic alignment coinciding with the Winter Solstice, only occurring every 25,800 years.

Martin (2012) explained that this cosmic cycle is known as the Precession of the Equinox or the Great Year and that a collective focus around that time may have reinforced the commencing shift in consciousness. It was not the End of the World as predicted but the end of the world as we know it (Watkins, 2020). December 21, 2012, marked the end of an era governed by Satan and the initiation of an era governed by the hearts of Jesus and Mary (Sr. Anne, 2016d). Ergo, we are walking toward the New Jerusalem, steadily but surely.

## Salvation history

### The return of the divine feminine

Human history is not what people have been led to believe (Horowitz, 2001; Melchizedek, 2003). Kosinec (2019) explained that after the initial fall from the state of grace, humanity has been continuously questing to reascend to a higher state of consciousness. According to Kabbalah (Kosinec, 2019), the aim of personal and collective existence consists of regaining mystical union with God through reconquering the Golden Age (Swedenborg, 1871, 2015), also referred to as the Garden of Eden. Christmas 2018 was incredibly special in this regard as the Light of the World mystically returned to expose all that is dark and hidden. The World is awakening, and we have a fascinating journey during the most enthralling time in Earth's history to be alive.

This period in human history is marked by the return of the Divine Feminine, which is alluded to by Mary appearing as standing on the Globe in Amsterdam (1945-1959) and proclaiming Herself as the Lady of All Nations, who will save the World and initiate a new era (Sr. Anne, 2016c). Horowitz (2001) mentioned that humanity's fall from a state of grace is mirrored in the departing from a state of unity toward a state of duality, marked by masculine patriarchal energies. Both men and women are currently rediscovering Divine Feminine attributes within themselves, which have been repressed for so long.

Whereas the life and teachings of the masculine Redeemer are incredibly famous, this outcome is not yet the case for His female counterpart, the Virgin Mary. The Divine Feminine plays an essential and complementary part in salvation that has long been ignored and forgotten. Therefore, Mary's life and Her unique role in salvation history are currently attracting increased attention (Sr. Mary of Ágreda, 1978/2012). Ascension is only possible for humans with and through Mary, as conveyed by Roman Catholic Mariology (Liguori, 1968/2012; Montfort, 1987/2002), in which Mary is qualified as the Queen of Mercy, the Channel of Graces, the Tree of Life, and the Gate of Heaven. Mary is our celestial map to Heaven, referring to the star of the sea, "Maris Stella," guiding the navigators to port (Liguori, 1968/2012). Thus, if this channel is closed, the cycle of life and death goes on eternally, and salvation is not possible. Therefore, let us all welcome the Divine Feminine with great reverence.

## God's plan for salvation

### Divine partnerships for the sanctification of humanity

Contrary to common beliefs, celibacy is not the fastest means of sanctification, although it is a respectful choice (Swedenborg, 1871, 2015). Sanctification originates in the alchemical marriage between the Divine Feminine and the Divine Masculine energies (Judith, 2016; Prophet, 1999), as exemplified by the mystical communion between Jesus and Mary (Musso, 2018). Swedenborg (1871, 2015) emphasized that humanity's fall was accompanied by a gradual decline of true marital love throughout the ages; thus, we are currently living in the Iron Age. Swedenborg was an 18th-century Christian theologian, scientist, philosopher, and mystic who had an extensive series of spiritual experiences that he documented in his writings.

The time has come for the collective to be made aware of the "Twin Flames," including their identity, origin, and purpose. According to Jewish mysticism (Ginsburgh, 1999), Twin Souls originated in the same spiritual essence, which had been separated to manifest as the Divine Feminine and the Divine Masculine (Genesis 2:21). This explanation implies that these divine lovers share the same soul, and upon full reunion, their two hearts beat as one (Swedenborg, 1871, 2015). Prophet (1999) explained that through their ethereal and physical reunion, Twin Souls are closing the spiritual circle of life by assisting humanity to reascend to a higher state of consciousness.

Correspondingly, in 2015, Jesus revealed to Esultanza that beyond the dark clouds of death is the arbor of families who will heroically announce the beauty of love (Esultanza, 2015b). Jesus proclaimed that these divine partners would give birth to a new humanity, a new generation of children whose souls originate from the higher dimensions (Virtue, 2005):

> A multitude of luminous souls is being prepared, who will illuminate the darkness. Jesus places immense confidence in these new couples—walking in the footsteps of Tobias and Sarah—which He lovingly calls His sons and daughters, this generation that is called to give birth to a new, pacific, and cheerful humanity, under the blazing sign of divine Love. (Esultanza 2015a, p. 11)

Jesus and Mary are the role models for all Divine Feminine and Divine Masculine that are currently incarnated to assist humanity in its evolution of consciousness and the regaining of its state of grace. Thus, Redemption is the joint mission of the Divine Feminine and the Divine Masculine. In imitation of Jesus and Mary, their alchemical reunion will transcend the duality between life and death, time, and eternity (Musso, 2018). This transcendence of time and space leads to the reversal of the biological aging process, which was not originally planned: "He will wipe every tear from their

eyes. There will be no more death or mourning or crying or pain, for the old order of things has passed away" (Revelation 21:4). It is a noteworthy observation that Jesus was crucified at age 33, and Mary remained 33 year old throughout Her entire lifetime, although She was assumed into Heaven at an advanced age (Brown, 1951/2018; Sr. Mary of Ágreda, 1978/2012).

Prophet (1999) elaborated on the principles of alchemical marriage as a quest for wholeness within, explaining that Twin Souls instigate a spiritual awakening in one another because they share the same and unique blueprint of identity, activating a purification and inner transformation process upon their initial physical or ethereal encounter. Through this process, their souls are regaining their original core frequency, and an alchemical merging of the masculine and feminine energies takes place within them in preparation for their soul communion. Hence, the Divine Feminine and Divine Masculine embody more balanced versions of masculine and feminine energies. Throughout history, female saints have been known as intellectual and highly spiritual women, both charming and beautiful (Butler, 1833/1995; Southern, 2011). They are enchantresses with intense motherly energy (Southern, 2011). Male saints are known as strong yet sensitive men who are unafraid to express emotions and have not denied their feminine side (Butler, 1833/1995).

Prophet (1999) explained that through the communion of the divine lovers' soul essence, a synergy occurs that raises collective consciousness. The author clarified that their soul communion precedes their physical reunion and assures its smooth outlet. Thus, Twin Souls can reunite in a worldly marriage only after embodying their divine selves via betrothal in Christ in a mystical marriage. They must entirely fall in love with themselves before they can genuinely love one another. Upon their ultimate reunion, Twin Souls initiate a New Era, not only in their personal love life but for the entire human collective. Their physical reunion also allows them to take up their shared public mission (Murray, 2019; Prophet, 1999; St. Teresa of Ávila, 1852/2015; Ubaldi, 2016).

Nevertheless, their perceived separation is only an illusion that must be transcended, for due to their shared blueprint of identity, Twin Flames are always reunited on the soulish level and enjoy perpetual energetic communication (Prophet, 1999). Despite this unbreakable bond, the seemingly unsurmountable life obstacles that caused their physical separation, initially create such an intense agony and longing in both Twins that it pushes them to swiftly move through their own Hero's Journey (Jellouschek, 2010). They tackle the trials and temptations within their healing, purification, and conversion to consecrate their lives to divine service. Love is their motive and locomotive, and only through the completion of this process, they permanently adopt unity consciousness and realize that they were never separated (Prophet, 1999). Prophet explained that once the attachment to their beloved's physical presence is lost, and they surrender entirely to the divine process, they start to reattract one another and are ready to engage in physical matrimony.

Twin Souls heal one another through their ethereal or physical encounter, as exemplified in the Biblical story of Tobias and Sarah (Tobit 3-12), showcasing that the female twin soul is divinely protected as she cannot engage in any prolonged intimate worldly relationship, except with her twin soul. Additionally, in some cases, a spell is cast on one or both twins by dark forces to prevent them from ever reuniting. Sarah lost seven husbands during her wedding nights because a demon was in love with her and wanted her for himself. Only her twin soul, Tobias, could deliver Sarah from this spell and heal her through a special fish that Archangel Raphael had commissioned him to offer her. For this reason, Archangel Raphael functions as a protector and guide for all Twin Souls.

## Sacred marriage – Unconditional love

### The conquest of paradise

This section showcases the spiritual dimension of love and marriage. "Love" is the secret ingredient in the ascension process (Sr. Mary of Ágreda, 1978/2012). According to an ancient Jewish tradition, "*LAV*," the Hebrew transliteration of the English word "love," is one of God's seventy-two sacred names (Huss, 2005).

It was revealed to Swedenborg (1871, 2015) that gender characteristics perpetuate in the afterlife and that, in Heaven, divine spouses engage in a higher form of marriage. The author specified that heavenly conjugal love is characterized by the marriage of love and wisdom, in which the wife personifies love and goodness, and the husband embodies wisdom and truth. Prophet (1999) explained that divine lovers, who originate from higher dimensions, are incarnated to teach humanity the critical lesson of unconditional love. In exemplifying Holy Matrimony and conveying its importance and reason for establishment (Prophet, 1999), they revive the template of divine love that originates from the ancients of the Golden Age (Swedenborg, 1871, 2015).

Because humanity evolves from the collective activation of the Solar Plexus Chakra—marked by the quest for personal power and dominance—toward the activation of the Heart Chakra, in the future, only divine partnerships founded on unconditional love and directly reflecting the harmony within a greater pattern will come into existence (Judith, 2016). Hence, karmic relationships will no longer be necessary. Prophet (1999) distinguished between karmic partners, soul mates, and twin souls. The author explained that whereas karmic partners assist one another in evolving on the soulish level, soul mates are incarnated to serve one another, and the twin soul's existence is dedicated to the service of God and humanity.

Swedenborg (1871, 2015) explained that the marriage of twin souls or divine soulmates does not end with their earthly existence; they ultimately ascend together as some already have. Thus, those people who were married to their soul counterpart during their earthly existence remain together after ascension, whereas for those who were in karmic relationships, God associates them with their twin soul or divine soulmate. After ascension, divine counterparts share a common body that they occupy at will beyond their separate bodies (Swedenborg, 1871, 2015). Therefore, divine spouses live in complete communion of thoughts and feelings, especially those souls who lived during the Golden Age of our planet, the Garden of Eden.

Furthermore, Swedenborg (1871, 2015) emphasized that in Heaven, celibacy is not a popular "lifestyle" because it does not draw souls closer toward the center of Heaven. Even in the highest Heaven, conjugal love corresponds to the uppermost expression of divine communion. Notably, the author described those who choose celibacy as "geographically" separated from those living in communion of love and wisdom, so they are not affected by their "lower" state of consciousness.

Regarding the Twin Soul's joint ministry, it is noteworthy that most of Christ's disciples were married couples. Therefore, Mark 6:7 states that Jesus sent them out two by two. This Bible passage, describing a feature of Christ's life and His followers, has been inadequately interpreted, misunderstanding that the New Testament was written in patriarchal times when it was uncommon to refer to a man's wife explicitly. It can be deduced from Sr. Anne's writings on the Garden Family and Royal Priests (2017a, 2017b) that in Eden, priests once married. However, after the fall of humanity and the gradual corruption of true conjugal love, some people were called to consecrated celibacy to contribute to the restoration of divine order (Sr. Anne, 2016a). Thus, in the original plan, celibacy was unnecessary because the sacredness of marriage was preserved.

Furthermore, according to Swedenborg (1871, 2015), the priesthood also exists in Heaven and contrary to some worldly confessions, it is not withheld from feminine souls and does not require celibacy. Swedenborg (1871, 2015) related that in Heaven, the High Priest is married to the High Priestess, and their house is on top of a hill in the center of their community. Their ministry—the celebration of religious offices comparable to terrestrial offices—is mutual and complementary:

> "The Lord God said, 'It is not good for the man to be alone. I will make a helper suitable for him'" (Genesis 2:18).

Ergo, it can be deduced from Swedenborg's writings that the preserved sacredness of marriage—the alchemical communion of divine masculine and feminine energies (Musso, 2018)—reinforces the epiphany of transubstantiation while not affecting the celebration of mass by a married priest as worldly marriage infected by lust and its sinful pleasures does.

Swedenborg (1871, 2015) emphasized that because worldly love and marriage have been inverted, they are now essentially based on physical lust and egoistic desires. Kuby (2009) emphasized that we must give love a chance because once physical contact is initiated, it is doubtful, if not impossible, to achieve emotional or spiritual intimacy. Ideally, partners' spiritual intimacy is meant to precede emotional and physical intimacy (Prince & Prince, 1986/2011). Thus, friendship leads to courtship, leading to the Sacrament of Holy Matrimony (Prince & Prince, 1986/2011).

Research has established that "major histocompatibility complex" can determine genetic compatibility between partners through chemosensory communication, without physical or intimate interaction (Wedekind et al., 1995). "Major histocompatibility complex is a set of cell surface proteins essential for the acquired immune system to recognize foreign molecules in vertebrates, which in turn determines histocompatibility" (ScienceDirect, n.d.). Thus, major histocompatibility complex is a group of genes, expressed as proteins on the cell surfaces of all nucleated cells in vertebrates, which are unconsciously perceived through subtle olfactory cues by individuals in the quest of a romantic partner (Sergeant, 2010).

Ergo, most people automatically choose a mating partner who is genetically complementary (Roberts & Little, 2008), ensuring that their offspring possess optimal immune system diversity and functioning (Kromer et al., 2016). This complementarity enhances sexual desire and satisfaction as well as the desire to procreate (Kromer et al., 2016). Artificial perfumes change or mask the natural body odor, and birth control pills interfere with the ability to recognize genetic compatibility through olfactory cues (Roberts et al., 2008). Hence, both perfumes and birth control pills should be avoided in the quest for the optimal genetic match.

Beyond the implementation of diverse mating strategies, most importantly, God selects a partner for everybody who is compatible in all imaginable senses—including physical, emotional, and spiritual levels—if people pray for the perfect partner (Kuby, 2009; Prince & Prince, 1986/2011): "Delight yourself in the Lord, and he will give you the desires of your heart" (Psalm 37:4 English Standard Version). The challenge is to patiently wait and prepare for the welcoming of a higher love, which demands great spiritual maturity and advancement in the conversion process, instead of imploring God's approval for a personal choice (Prince & Prince, 1986/2011).

> Let us close this section with a beautiful prayer to heal a divine partnership.
> Dear Lord,
> I offer You this prayer to help me with my current relationship situation. Please take away all the pain and hurt in my heart. Fill it with love, joy, patience, and understanding. Bless me and my partner so that we may never surrender to whatever challenges that come our way. Fill our hearts with love for each other and may You make each of us realize the other's worth. Please touch the heart of my partner. Fill it with much love for me. Make our complicated relationship uncomplicated. I seek for Your mercy and blessing that You may allow us to spend the rest of our lives with each other. Please make this feeling mutual for both of us. Lead us not into temptation. Guide us wherever we go. Always put us in each other's hearts and minds. Thank You, Lord, for hearing my prayer. I love You. Amen.

## Conclusion – Closing the circle – Co-creating the new earth

The time has come to realize the expression of the heart. Ascension is the mystery of love revealed. Human beings will let their true nature rise and live up to their highest potential in the years to come. They will gradually move into alignment of mind, body, and spirit, balancing masculine and feminine energies in preparation for divine communion. Hence, divine partnerships will begin to manifest in the physical. This manifestation is the prospect of the years ahead. The collective transcendence of suffering is our chance to transform the landscape of our reality and implement the power of our imagination and creative abilities to manifest the future that we desire. Therefore, let us collectively unite to manifest Heaven upon Earth.

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## About the Author

**Christiane Kirsch**, *Ph.D.*, holds a Doctorate in Psychology from the University of Luxembourg. She continued her postdoctoral studies at the Marconi Institute for Creativity in Bologna and founded the Academy for Creativity and Higher Consciousness in Luxembourg, an institute for research and intervention on inspired creativity, transpersonal psychology, and the healing arts. She is affiliated with the University of Luxembourg as an external researcher.

## Address

**Dr. Christiane Kirsch**;
52, avenue Pasteur, L-2310, Luxembourg.

**e-Mail:** Christiane.Kirsch@ext.uni.lu

# A Long Poem: Take Time to…

**Helen Lepp Friesen**
The University of Winnipeg, Manitoba, Canada

## Abstract

In "A Long Poem: Take Time to …", I relate how the people on one city block engaged in a community based "long poem" art project during the Covid-19 pandemic. Arranged in two parts, this paper first looks at the literature on community art and its impact on personal and social health and wellbeing. Second, I describe how a street community art and poetry project led to social engagement, dialogue, healthy interaction, and good memories.

**Keywords:** Community art; Covid-19; engagement; poetry; writing.

## Introduction

"Those who do not have the power over the story that dominates their lives -- power to retell it, rethink it, deconstruct it, joke about it, and change it as times change --truly are powerless because they cannot think new thoughts" (Salman Rushdie, Quotable Quotes).

The Covid-19 pandemic extracted power from most people's daily lives, but individuals and communities still maintained a semblance of power to deconstruct, retell, and rethink their response to challenging extenuating circumstances. A common theme during the Covid-19 pandemic was the frustration with homeschooling suddenly thrust mostly upon mothers, as they continued with their own work from home.

Fathers also felt the impact of confinement, but traditionally mothers pick up the extra load (Santos Machado et al., 2019; Staniscuaski et al., 2020). Since my children were grown and no longer at home, I sympathized with the parents. My ideas to help by holding a home cooking, sewing, or woodworking class were not possible because of social distancing. Then I landed on an idea that could and did work: a community sidewalk chalk project. I brainstormed a few ideas, jotted down a rough draft and sent it to a mother down the street asking whether her teenage artist daughter would like to participate. An enthusiastic response back and we had a project with a few more neighbours expressing interest to join.

Since "[r]esearch on community art is relatively new and scarce" (Lowe, 2020, p. 359), it is important to explore its impact and benefit. Art can either be placed or localised in a public place (Verschelden et al., 2012). Art placed in a public space is usually made by the artist in a private studio and then installed and later publicly revealed; the artist may never interact with the public directly. On the other hand, art localised in a public space is made on site, either because it does not fit in an indoor studio or because it has "site-specific features" (Verschelden et al., 2012, p. 280).

The "Take Time to…" long poem community art project was localised, both because it was too large to fit in a studio and it was site-specific. The street became the studio because an art piece measuring 4.9 ft. by 387 ft. would not exactly fit into a regular art studio.

Arranged in two parts, this paper first looks at the literature on community art and its impact on personal and social health and wellbeing. Second, I describe how a street community art and poetry project led to social engagement, dialogue, healthy interaction, and good memories fostered during a difficult time.

### Literature on community art and its health benefits

The late 1960s brought social and political change in Europe and North America, which also changed the art world (Crehan, 2011). During this time, three British artists, Martin Goodrich, Jim Ives, and Barbara Wheeler-Early, who had a transformative experience in their fine-art education,

were convinced that art could transform lives in general. They resisted the conventional elitist gallery art that they had been trained for and imagined bringing art to all people, instead of just those who could afford entrance to art galleries or had a particular taste in art. Their goal was for art to be inclusive rather than exclusive, and for it to be community oriented instead of individualistic. "The art world had enormous power; it defines what counts as art, what does not and what makes some art good and some bad" (Crehan, 2011, p. 18). Ives and Goodrich grew up in working-class families and had observed that the "art world was cut off from ordinary life: There was a big world out there that wasn't touched by galleries, there was the general public that hadn't been really engaged in this creative process in the way we thought was possible" (Crehan, 2011, p. 34).

Moving art away from a traditional interpretation and implementation led to community art with motives other than the usual power and money. Art became a medium for activism, a different kind of empowerment, transformation, and even healing. Gray (2012) says that communal art projects promote empowerment and enhance participation. Community psychology has pioneered empowerment as a complex process occurring on multiple personal, community, and organizational levels that directly strengthens and builds capacity for social change (Jacobs, 2010). Psychological empowerment refers to a person's ability to decide and take control over their own health decisions; community empowerment refers to a group's ability to manage health challenges; organizational empowerment refers to how well the public and private sectors cooperate to strengthen the community (Jacobs, 2010; Israel et al., 1994). Not only does art have the potential for being an effective medium for empowerment and social change, but also "creativity is a necessary, ordinary, and universal human activity" (Clover, 2007, p. 514). Clover (2007) says that "[t]he imagination and creativity are powerful tools inherent to all human beings and in all societies that can enable risk-taking, reclaim space, reinvigorate community development, and engagement by creatively and simultaneously exercising and contesting power within the neo-conservative landscape" (p. 513).

In her article "Feminist Aesthetic Practice of Community Development: The Case of Myths and Mirrors Community Arts" Clover (2007) describes the process whereby groups of people come together to engage in unique art projects. With the assistance of an artist, the group collectively designs and creates an artistic representation of the social issues they are facing. The aims of the art projects are to promote healing, belonging, acting publicly together, celebrating the public work, and providing opportunity for community discussion (Clover, 2007). We often lack imagination for creative possibilities, and yet, when faced with difficulties, we tend to create new imaginary worlds in which our challenges fade, allowing for internal empowerment to supersede the lack of empowerment our situation presents (Clover, 2006; Williamson, 1992). In our imaginary worlds we strive to understand our surroundings, and Vieira (2019) says that "[b]odies are essential in processes of literate meaning making" (p. 21). Meaning making and deconstruction happen through art and writing that does not necessarily fit into the gallery art of the past, but rather onto the roughness of streets and into sidewalk cracks.

Community art leaves a footprint of a group's identity. Jokela (2008) identifies as an environmental artist and claims that places have a more profound effect on him than people. He was always interested in the "marks people left on the landscape: like reindeer fences, lumberjacks' cabins, villages along a river, and fishery buildings on the Arctic Ocean" (Jokela, 2008, p. 3). "I could experience the narratives infused in these objects and feel how people had found their place amid nature, on this planet, and under this sky" (Jokela, 2008, p. 3).

Sidewalks are the generic footprints that city architects designed as safe pedestrian transitways: pedestrians are sometimes included and sometimes excluded. Sidewalks almost always have cracks in them and when they age, they gain even more cracks. Verschelden et al. (2012) talk about "urban cracks as arenas for social and political struggle" (p. 282). Urban cracks are a sort of palimpsest, something reused or changed but still revealing a trace of what was previously there:

> "Urban cracks demonstrate that destruction is part of construction. A palimpsest is not simply a multi-layered piece of parchment, but rather a fragment with a destroyed base. A palimpsestuous reading of urban cracks can reveal more about the precarious nature of urban

> planning and city life. Precisely because of this, architects and urban planners often use the palimpsest as a metaphorical concept in urban development" (Verschelden et al., 2012, p. 283).

Using sidewalk chalk as our medium of our community art project was apropos, because of its transient nature dependent on the weather for how long it lasts. Even when rain washes its distinct features, a faded shadow remains with blurred lines of color and shapes.

Surface and Ryan (2018) talk about the power of combining art and writing. The workshops they observed:

> emphasize process over product – slowing down, making detailed observations, drawing on emotions, playing with words and ideas, sharing and reflecting. We highlight parallels between the writing and art- making processes, and frame the literary and historical contexts of the works of art. Our goal is to enable visitors to deepen their practice as writers – whatever that practice may be – while discovering real connections to works of art and the creative process" (Surface & Ryan, 2018, p. 356).

Writing about art provides depth to the experience. Lowe (2000) suggests that art can bring cohesion to the breakdown of social fabric. "Community art serves as a catalyst for developing community because it is both the setting for group solidarity building and the symbol of group identity" (p. 357). The "Take Time to…" community art project brought cohesion in a tumultuous time, provided a transient and precarious footprint of Covid-19, and furnished a space for dialogue.

## The long poem in art

With the sudden change in everyday routines, society seemed to stand still in hushed expectation when Covid-19 hit. Young people that were otherwise used to packing up books in backpacks and trundling off to school in the morning, were now suddenly at home with various instructions on how to complete school work independently. Parents that were otherwise off to work, were now at home either laid off from their jobs or expected to fulfill duties and carry out tasks remotely, all while keeping kids engaged in remote learning at the same time. No one had the psychological power to make decisions about their own health, and control was far beyond a personal choice. In an environment where concern for personal and community health was very high, there was widespread acceptance that personal and community disempowerment was preferable to individual access to the power and freedom to move where we wanted. With a world turned upside down and an out-of-control sensation, empowerment and participation in an art project (Gray, 2012) seemed like one way that a community could engage in an activity that they felt they had control over, as artificial as that may seem.

My rough draft of my idea for the sidewalk chalk long poem "Take Time to …" consisted of a list of ideas, which I sent to my friend:

Hi Amy,

> How is it going at your house? Hope you are all staying well. I was wondering whether your daughter would like to be part of a community art project using the medium of sidewalk chalk? All from a distance of course. I thought it could be called something like "Take time to..." and we could draw sidewalk chalk illustrations on sidewalk blocks along our side of the street, starting at one end and ending at the other end. Each numbered word or phrase would be on a sidewalk block along with an illustration or two. Whoever participates can add whatever ideas they like. The script could go something like this: Take time to …. sing; laugh; make music; read; swing; garden; applaud frontline workers like healthcare professional, grocery clerks, truck; make special meals; wave; call family and friends; blow balloons; make snow people; make sidewalk chalk paintings; smile; bake; climb trees; splash in puddles; do art; do crafts; sail paper sailboats; draw; paint; pray; make cookies; bake bread; clean house; talk with neighbors at a distance; care; think; do yoga; look at the clouds; enjoy sunsets; play an instrument; pull weeds (or not); write; do taxes (or not); dress up; drum; jump up and down; learn a new language; Take time to …..
>
> Improvisation welcome.

We would always stay far apart from each other and illustrate our individual sidewalk blocks.

Helen

> My friend's daughter was up for the challenge. When a sunny day arrived, we were ready to start with a few buckets of sidewalk chalk on different locations on the block. Mothers, fathers, and children of all ages participated as we covered about 70 sidewalk squares with art and word messages. The message started on both ends of the street: "Take Time to…" The blocks in between featured words and the accompanying drawings like: splash in puddles, sail paper boats, read, and garden. The poem could be read from either direction.

When the community sidewalk chalk art was finished, we sat back and watched community members walk by and enjoy the art. As children passed by, engaged in the activity prompts like jumping up and down, or adding their piece with chalk we had left out for further participation. Adults slowed down as they laughed and talked about what they were reading. We did not hear the dialogues that the art inspired, but we did see the smiles. The sidewalk chalk art provided conversation, interest, laughter, and interaction before the rain washed it all away.

Community building was a strong proponent of the community art projects that Lowe (2000) observed. Although in our project, by nature of the situation, we were required to work individually, we nevertheless all worked on the same larger project, which also established community in a unique way. The narratives and drawings illustrated how the people on our street felt about the situation, and although they were powerless to change the loneliness of self-isolation, they had the power to pick up chalk and convey a message that inspired others. Art is a powerful tool that has the ability to prompt civic dialogue, engagement, and the imagination for change to occur (Clover, 2006). Writing about our community art project and analyzing its role and impact provided depth to the experience. Vieira (2019) does not claim that writing is an automatic panacea for all societal ills, and although the long poem community art project could not heal the community of Covid-19, it could provide a remedial kind of retelling and rethinking of our new environment that was lifegiving.

The children on the street remembered the sidewalk chalk painting long after the rain had washed it away. Recently, on a sunny afternoon when friends were over, we brought the sidewalk chalk out to make some drawings. Without notifying the neighborhood children who had participated on the "Take Time to…" project, suddenly there they were, running down the sidewalk wanting to know whether they could join in on our sidewalk painting again. Of course....

Artists: Buxton Road Neighbours
Fresh Air Studio

Title: A Long Poem: Take Time to…

Medium: Sidewalk chalk
Dimensions: 4.9 ft. x 387 ft.
Gift to the neighborhood


MAKE
MUSIC!


Learn a new
language.
hola
Guten Tag
Tanz


JUMP
UP!
(and down)


Do taxes
(or not)


Do Sidewalk
Chalk


WRITE!


LEARN
A NEW
SKILL


Build a fire


LOVE


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## About the Author

**Dr. Helen Lepp Friesen** teaches in the Rhetoric, Writing, and Communications department at The University of Winnipeg. Outstanding points in her career are meeting and having the privilege of working with hundreds of enthusiastic, talented students. Her research and writing interests are multimodal writing in culturally-diverse classes, including writing classes in prison. During her Research Study leave in 2019, Friesen taught a Composition course at San Quentin State Prison north of San Francisco and also conducted research on the topic of teaching and taking classes in prison through Adams State University in Colorado. She enjoys outdoor activities such as skating, snow sculpting, biking, tennis, running, and of course sidewalk chalk.

# When are People Considered "Ahead of Their Time"? Based on the Case Study of Janusz Korczak

**Shoshana Rosemarin**
Ariel University, Israel

## Abstract

Very rarely is one considered ahead of his/her time. Janusz Korczak has been described by so many as being such a person. His criticism of the educational system in his time served as a motivational force for his innovative pedagogy. His beliefs, techniques and methods have been echoed by experts in special education as well as in gifted education a few decades after his lifetime. The analysis of Korczak's relevant criticism, as well as his unique ideas is chosen as a prototype for the question raised in the title. A short analysis of the work of Feurstein and Renzulli is provided, both of whom reflect the main principles of Korczak.

**Keywords:** Criticism; innovative pedagogy; liberal education; in-formal education; democratic school.

People are different from each other in their abilities, achievements and aspirations. People are categorized, according to various norms, as average, below average and above it, as talented, gifted and very rarely as geniuses. But even more rarely will the title "ahead of his / her time" be attached to somebody. Since that title has been attached nowadays by so many to Janusz Korczak, the analysis of the ideals in education developed from his pedagogy could serve as a prototype for that issue.

## Part one: Janusz Korczak as a prototype

### a. Biography

Janusz Korczak, the pen name of Henryk Goldzmit, was born in Warsaw, Poland, on July 22, 1878 (Efron, 2008). From a very early age, he developed sensitivity toward the sufferings of impoverished children, who, as he felt, suffered the most from the outcomes of inequalities. At the age of 33, a literary success and established as a pediatrician, he left his clinical practice and accepted the position of director of an orphanage for Jewish children, "Children's Home", and several years later " Our Home" for Christian children. Both institutions operated according to his unique educational methods. For more than 30 years, Korczak, who never had a family of his own, had dedicated his life to disadvantaged children aged 7-14 from Warsaw's poor neighborhoods. He lived with them, worked with them, taught them, and learned from them. During those years Korczak felt that the responsibility for cultivating their moral growth lay with him and the institutions' educators, until he and the 200 Jewish children, together with the whole staff, were sent to their death during the 2nd World War on August 7, 1942. (Although he was offered his freedom, he refused to abandon his group of children, and marched with them in their last journey).

Korczak's life story and pedagogy were intertwined. At the heart of Korczak's pedagogical vision was the belief that children are humanity's only hope and that "mending the world means mending education" (Efron,2008).

## b. Korczak's criticism of education

Korczak was a vigorous critic of the schools in general (Kahana 1986), a few decades before that same criticism started to echo around the world. He thought that schools did not arouse children's interest in learning, they did not nurture the goodness and honesty of each child, neither did they try to prevent careerism, and minor ambitions. A different program should be planned for the development of their intellect and self-confidence.

Korczak thought that grades or report cards could not achieve the real goal of imparting knowledge for its own sake.

Korczak thought that there was a gap between schools and "real life". Furthermore, there was no distinction between the material that should be remembered and the one that could be retrieved from books, (Efron, 2005)

Moreover, he believed that schools ignored the deep needs of children and the difficulties and obstacles that they faced. The tough rules that schools impose, the constant criticism towards the students and disbelief in them should be replaced by a deeper belief in the children's abilities. Its significance surpasses that of love. This notion could be expressed in inviting them to be involved in establishing the procedures of the school (Kahana, 1986).

The teacher should not try to mold the character of his students according to his own opinion or taste, and thus, destroy the uniqueness of each of them. This kind of education was considered by Korczak as an act of taming.

About fifty years after his time a similar criticism was published in a document, written by students in Montgomery County in the United States under the title "Wanted Humanistic Education." The students complained that schools were based on fear; they empowered dishonesty; ruined the pleasure of learning, and encouraged obedience to authority (Cohen, 1989).

A seventh grader Israeli boy wrote in a newspaper titled "Politics" an article titled "Only Puppets". He claimed that schools lacked adaptation to changing times. Since schools maintained fixed laws that lacked flexibility, they could be considered as closed institutions. They were dull and charmless places that inhabited generations upon generations of students who acted like robots, according to those unchangeable laws. Beyond all of that, he claimed that talent seemed to be the greatest enemy of teachers (Lapid, 1988).

Many radical educators from the fifties and sixties of the twentieth century echo Korczak's criticism. Postman, Goodman, Freire Kozol, Holt, Kohl and many others thought like Korczak (in the beginning of the twentieth century) that schools detach the children from real life, and strive for uniformity in an artificial surrounding. They prevent the nurturance of creativity, they miss relevancy for the children's lives and cause harm in many areas. As a result, children have lost their interest in learning, the ability to delve into a subject, at the same time they also lack commitment or joy resulting from naïve discoveries of what exist around them (Cohen, 1989).

## c. Korczak's Unique Pedagogy

Korczak believed that a better education depends on a different understanding of children. The child is a complete person, not a person in the making, but a person here and now. Childhood is an end in and of itself, and children are entitled to a fulfilling life. Korczak's ideas entered the first international Declaration of the Rights of the Child in Geneva in 1924 (Shner, 2015).

He was not only a theoretician like a few of his contemporaries in the early 20$^{th}$ century, but also a "total" educator who combined both rich writings about education and pioneering practice (Efron, 2005). Korczak believed that the way to facilitate moral character was by evoking in the young a disposition for goodness, justice and truth that would vibrate throughout their lives. This could be achieved through living and engaging authentically with moral values. A genuine experience

of equity, democracy, and personal and community empowerment would endow the young with the skills and dispositions to strive to make these ideals ingrained in the society at large. (Efron, 2008)

Korczak understood that education was the tool necessary to equip the individual with the skills to create a new democratic society based on cooperation. In such a school cooperation, rather than competition would rule (Engel, 2008).His belief in a democratic, cooperative, moral world led Korczak to establish the procedure of mentoring, by which a senior child would become a mentor of a newcomer. The mentor's job was to guide his apprentice, and while doing it he would learn to recognize their difficulties and characteristics and would document them. He believed that education needed to develop the child's initiative, independence, individuality, and self-direction. Self-determination replaced obedience and dependence (Engel,2013).

At the time when questions and the fog that accompanies the uncertainty of "I don't know" seemed as a torturous void, Korczak recognized the vibrant power of the question, as an enticement for research, for new thoughts and creative solutions. This idea has currently become very popular and relevant.

The educator should see his role as a mentor, whose goal is to nurture the student's thinking skills, and to confront him with the sources of knowledge, not authoritatively, but rather as guides for clarification and examination of his way.

Korczak is known and remembered for his utmost love and respect for children. He believed that the educator had to understand and accept the student as a unique individual. Only an educator, who dislikes thought, will be disappointed by differences and angered by variety.

Korczak believed that reflecting on one's own childhood uncertainties, inner struggles, and failures, enables the educator to see the world from the children's perspective, sense their feelings and thoughts, be sympathetic to their ethical conflicts, and forgive them for their mistakes.

Korczak's insight has been proven to be tremendously modern. He believed that education should not be understood as a technical process, where the act of learning involves only a total acceptance of what had been taught by the teacher. Education in a broad and integral sense should imply personal relationship. Only personal bonds between the teacher and his student would ensure the student's extensive development, and not just cognitive training and instruction (Boschki R, 2005).

Moreover, he claimed that the mystery and uniqueness that each child presents is guided by 3 questions: What was the child's past? Who is the child now? How can the educator assist the child to achieve his or her potential? This meant that in order to get a thorough knowledge of a child, the educator should make an effort to get the relevant data on the child from as many sources as possible.

The value of Korczak's work was never in the specific content of study, nor can it be reduced to a set of formulas, strategies or methods (Efron, 2008). He was skeptical of educational "recipes" and prescriptions. Korczak regarded education as an individual, creative, dynamic process, which is dependent on place, time, and environmental conditions (Engel 2013, p. 122).

Moreover, Korczak thought that creating a fixed educational philosophy or methodology would reduce life processes and dynamic relationships to theoretical schemes, and replace the constant and ongoing touch with real educational activity. Pedagogy, according to korczak, is based on and grows from the slow experience of every educator (Cohen, 1989).

## d. Techniques Used in the Orphanages

Korczak's unique pedagogy was associated with the notion of "children's democracy" that he implemented in both of his orphanages – as exemplified by a Children's Parliament, a Children's Court, and a Children's Newspaper, constituting altogether a rational children's community (Shner 2015). He stressed the significance of respecting each child's distinctive individuality, by attending to

his natural order of development (Engel, 2013). This would mean, first of all, allowing each student to learn according to his own pace. The student's pace of learning and his level of achievements were believed to be determined basically by the student's cognitive ability. Yet, Korczak, long before Goleman, established the concept of Emotional intelligence, and pointed to the fact that besides the familiar I.Q there is another factor, not less important, but unfortunately ignored by schools, which he named "the intelligence of the heart, or the character".

Secondly, Korczak realized, a few decades before Gardner, (who established the theory of multiple intelligences), that children are different from each other in their channels of communication, and thus, the use of divergent teaching methods, seems crucial (Kahana, 1986).

As part of his goal to get to know each child as a whole, Korczak used the technique of sociogram, by which he got to know the social status of each of the children. The procedure of social evaluation was an ongoing process in the orphanages as a preparation to real life. This technique became a popular tool in guidance counseling a few decades later (Cohen, 1989).

According to Korczak the quality of knowledge is much more important than its quantity, and thus, it is preferable to get deeply involved in one subject (chosen by the student), than to touch many of them superficially. That notion has become one of the basic principles in gifted education.

Korczak, together with the other teachers in the orphanages lived in a real community with the children. They shared their meals and work, and came together for assemblies (in the Children's Parliament). In his days his "respect for the child" pedagogy was considered radical (Boschki, 2005, p.120).

Korczak took part in all the chores in the orphanages, and by doing so he served as a model for the rest of the staff. They had to "learn" to take part in every task, and also to tutor the children to perform any assignment needed in the kitchen, dining room, toilets, laundry, library, playroom, or even taking care of sick children The message to everyone involved was that every chore had the same value (Dror, 2008).That idea was echoed a few decades later by Tannenbaum while searching for a definition for a gifted child, he stated that gifted is "one who shows consistently remarkable performance in any worthwhile line of human endeavor" (including non-academic domains). (Tannenbaum, 1983, p. 8).

The lists of assignments were prepared very often by the children on duty. The assignments would be summed up daily, and those summaries would serve as a basis for the discussion, held with the adults, raising ideas for possible improvements.

In addition to its being a home for the needy children, in 1923 the orphanage started to fulfill the function of a teaching college ("Bursa") for students who majored in education or psychology. The students could use the facilities of the orphanage in return for four hours of daily work. Korczak and Stefa, his partner, guided the young educators during their work in the orphanage. The method of integrating pedagogical learning with practical work is considered as one of Korczak's great educational innovations, which preceded the "practicum", used in every teaching college today. As a matter of fact, it was an implementation of the medical internship, used in the academic hospital, which Korczak had known so well from his medical experience. The use of case studies in teaching training, which is so common nowadays, is also considered as one of Korczak's innovations. The cases written by the teaching students, under Korczak's supervision, were analyzed, both personally and as a group exercise (Dror, 2008).

Moreover, the seeds to the NLP method (Neurological, Linguistic Programming) were also planted by Korczak, by using the modeling method, besides the personal experience, during the training period.

The distinction between "in-formal" and "non-formal" education is clear nowadays. In-formal education is an ongoing, lifetime process, where people learn from their everyday experiences, while

non formal education refers to educational activity that takes place outside the framework of formal education. Yet, for Korczak both of them were part of his unique pedagogy in the orphanages. The children learned from their experiences during their meetings with their peers and their mentors, as well as from the organized non formal institutions, in which all of them served in turns (Kahana, 1986).

Moreover, priority was given to field-trips rather than classroom learning, especially when studying geography or foreign languages. This is just one of numerous and varied educational experiences, that according to Korczak, would foster a rich and multifaceted personality (Aloni, 2013). It might be concluded that Korczak preferred learning from life experiences to learning from books (Cohen, 1989).

The staff members who moved to Israel, summarized Korczak's work, and using his model, developed similar educational methods in their institutions. During the last decades Democratic schools have been established in Israel, as well as throughout the world, where "Korczakian" tools are used (Dror, 2008).

During Korczak's visits to the communal settlements (Kibutz) in Israel, he was impressed by the "mixed kindergarten" approach. And since he assumed that mental ages, rather than chronological ones, should be the criteria for grouping classes, Korczak implemented this concept in his orphanages. Three decades later multi-age grouping was opened up in various non- formal frameworks in Israel, including some boarding schools. Since the end of the Fifties (of the twentieth century).This approach became customary also in formal educational frameworks, when classes were too small.

Korczak met the children at their level and patiently, forgivingly but determinedly, helped them to improve (Efron, 2008).

Many Israeli boarding schools have adapted Korczak's model of school life forty years later. Like him, they tried to teach the students the ability to examine every issue from various points of view. On one hand the educational, ideological view, and on the other hand the practical, economical view. That capability would serve the students in their future life when facing the need to examine complex situations (Dror, 2008).

## Part two: A sample of Korczak's followers

### a. Special Education / Reuven Feuerstein

Feuerstein and Korczak shared similar beliefs, and even though Feuerstein lived so many years after Korczak, he was still considered a revolutionist among his peers, the psychologists. During his whole career, he expressed his belief in cognitive modifiability (at any age, and in every condition), and in the responsibility of a skilled mediator to liberate the child's potential.

Feuerstein's educational experience resembled that of Korczak's. He also encountered children who suffered during World War II. Feuerstein served as a Director of Psychological Services of Youth Aliyah in Europe (Immigration for young people), a service that assigned prospective Jewish candidates for emigration from all over the European continent to various educational programs in Israel. In addition, young people came from different countries, where the dominant culture was different from the western one (Feuerstein, 1980). In the fifties of the previous century Feuerstein researched Moroccan, Jewish, and Berber children in collaboration with several members of the Genevan school. Upon their arrival, the children, were subjected to a series of tests, including IQ tests, assuming that they could predict what the child would be able to achieve or do in the future. Such a conventional practice was based on either of the two presumptions:

1. "Intelligence is a faculty that develops with little influence from experience".
2. The extent of the variation existing in the development-fostering quality of experience across cultures and social classes is quite minor. (Feuerstein, 1980, p. vii).

The poor results that most of the children achieved in those tests improved whenever Feuerstein interviewed them.

Based on that experience, Feuerstein started to question the current beliefs regarding the stability of intelligence. "What if intelligence was not a fixed attribute, measurable once and for all? What if intelligence could be taught?" (Feuerstein & Richelle 1979; 2002, p.10).

Influenced by Piaget on one hand and Vygotsky on the other hand, Feuerstein went one step further and created the theory of *Mediated Learning Experience* in which he assigned a major role to a human mediator. According to Feuerstein, all learning interactions can be divided into direct learning and mediated learning. Learning, mediated by a skilled human being, is indispensable for a child because the mediator assists in developing the child's prerequisites that then make direct learning effective.

Those two notions in his theory (the need for thinking prerequisites, and for a mediator to foster their development) played a significant role in Korczak's pedagogy as well, a few decades earlier. Korczak wanted the children to learn, yet, he believed that "beyond the skills and knowledge they would acquire, they should *learn* to think independently and to take charge of their own lives, thereby becoming contributing members of their democratic society (Engel, 2008).

The need for human mediation was implemented in the orphanages by training older children to mentor the children, who were new and those who faced social difficulties. The mentors were active partners in the process of education (Efron, 2008).

Feuerstein's theory of "Mediated Learning Experience" (MLE) consists of two complementary instruments - the diagnostic and the therapeutic. The diagnostic one – the Learning Potential Assessment Device (LPAD) is meant to assess the individual's potential, rather than to provide an inventory of what he has learned and of his current problem solving ability. The dynamic approach of the assessment process, involves testing in the act of learning and assessing the process of learning, thus specifying changes in cognitive strategies and styles. That information is then used as a guideline to what and how should be taught.

The therapeutic instrument – Instrumental Enrichment (IE), (Feuerstein et al. 1980) is aimed to correct deficient cognitive functions through systematic exercises, which include the creative part of implementation to everyday life. While treated individually, instruments would be selected according to the results of the LPAD (Feuerstein et al., 1979).

Unlike Feuerstein, Korczak did not leave (Cohen 1989) a fixed educational philosophy or methodology, but his general conduct echoes in Feuerstein's basic beliefs. (Dror, 2008) Inspired by his medical experience, Korczak saw the significance of constant overall assessment of every child, by which he could notice minute changes, and apply his treatment accordingly. In general, that was Feuerstein's aim in creating his two instruments.

Korczak, like Feuerstein, did stress the significance of meaningfulness in learning (Cohen, 1989) The teacher should do his best to convey his material in a way that it would attract the student, since learning should be an enjoyable process. Moreover, both believed that teaching should be individualized and adapted to the level of the student.

## b. Gifted Education / Renzulli

Renzulli, like his predecessor Korczak, believed that education is a tool to achieve two major goals– the individual one – fulfilling one's potential, and the social one – increasing society's reservoir of contributing people (Renzulli, 2012).

Renzulli, like Korczak and like Feuerstein (Korczak's other follower), criticized the absolute reliance on I.Q tests in the process of identification of ability, and in his case – identifying giftedness. He felt that giftedness develops from an integration of several characteristics. Starting with three - above average ability; task commitment and creativity (Renzulli and Reis, 1986) and moving

gradually to a longer list of characteristics. Like Feuerstein nowadays, and Korczak, who preceded him, Renzulli shows a great concern towards children from underprivileged families, refusing to rely on information that tells us what students already know, and how they compare with others, since those scores reflect the child's background rather than his true potential. Instead, Renzulli suggests the assessment of co-cognitive characteristics, or soft skills, such as interests, motivation, curiosity, planning skills, styles of learning and expression, empathy, creativity, and self-regulation. Those skills are assumed to predict potential contributions better than high scores on standardized tests (Renzulli, 2012).

Renzulli's Schoolwide Enrichment Model (Renzulli and Reis, 1985) consists of three stages: stage one is intended to extend the pool of potentially gifted children by exposing the children to varied enrichment experiences; the goal of stage two is to develop different skills needed for learning and conducting research; and stage three is intended to provide opportunities in which students can apply, under the supervision of a mentor, their interests, knowledge, creative ideas and task commitment to a self-selected problem or area of study, and then present it before an audience. This model integrates elements of identification and nurturance.

Principles of all of those stages were preceded in Korczak's orphanages. Due to his constant assessments and collection of data of the children's habits and conduct, Korczak could detect special talents and did his best together with Stefa, his assistant, to nurture those talents.

One of the children, who became a great painter, got the space and the needed equipment that enabled him to practice. Another child, who showed his interest in photography, got a camera, and became a photographer, and a third one, who expressed a superb musical talent, got a harmonica and turned to be one of the finest musicians in that instrument (Poznanski, 1982).

As mentioned earlier, Korczak tried to include varied enrichment experiences, mainly field trips, which gave him a chance to know the children from an additional perspective.

Communication skills were practiced in all the democratic institutions, especially in the children's newspaper, where the children expressed their opinions regularly.

## Final words

Korczak started his long revolutionary educational journey by clinging to the belief in the power of education to render changes in every individual, and thus, in the whole universe. In order to change the world to a better and moral place to live in, a lot of changes had to be established.

The example set by Korczak's educational praxis serves as an inspiring model of school life across the boundaries of time and place and touches our need to believe in education's responsibility to strive and struggle for a better world' even when it seems an unattainable goal (Efron 2008).

Throughout the article I have highlighted the most significant conducts and techniques he used in the orphanages, as well as the names of some of his followers. Korczak's ideas (and unfortunately, even his criticism) are still relevant to the current educational discourse and stimulate new insights into the role of the educator as a researcher and knowledge producer. Korczak's vision of educational research is considered as far sighted, and his educational thoughts – inspiring and enlightening (Efron, 2005).

The search for a better education, for more reliable measures of ability, and for better tools to nurture the human potential will probably never end, and from time to time the field of education (like any other field) will entitle a person, who lived a few decades earlier, and left significant contributions in the field, that continue to inspire the next generations, as a person who was "ahead of his/her time."

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## About the Author

**Shoshana Rosemarin**, *Ph.D*, musical giftedness. She holds a B.A. in education (teacher training) and English literature, and an M.A. in special education and guidance counseling from Bar Ilan University, Israel. She has worked at Talpiot College as a teacher trainer, at Bar Ilan University in the school of Education, as well as in the Department of Musicology, and at the University Center Ariel in Semaria. She has published numerous theoretical and research articles focusing on teaching, giftedness (general and musical), Mediated Learning and cognitive functions. She has given series of lectures in several certification programs for teachers of gifted students, where she has introduced Renzulli's Model for identification and nurturance of the gifted. She has been a regular presenter in the conferences of the World Council for Gifted and Talented Children for the last 20 years (where she serves as the Israeli delegate), as well as in the European Council for High Ability and in the International Center for Innovation in Education.

## Address


**Dr. Shoshana Rosemarin**;
13 Avivim st. Sha'arey Tikva, Israel.
**e-Mail:** shoshana.rosemarin@gmail.com

# Distinguished Scholar Professor Sally M. Reis

**Taisir Subhi Yamin**
General Director, ICIE, Germany

Sally M. Reis is the former Vice Provost of Academic Affairs at the University of Connecticut, as well as a former Department Head of the Educational Psychology Department in the Neag School of Education. She is a Board of Trustees Distinguished Professor, and a Teaching Fellow in Educational Psychology at the University of Connecticut. She currently holds the Letitia Neag Chair in Educational Psychology. She was a public school teacher and administrator for 12 years, prior to her work at the University of Connecticut (UConn). She has authored more than 250 articles, books, book chapters, monographs and technical reports. She has traveled extensively across the country conducting workshops and providing professional development for school districts on enrichment programs, differentiation, and talent development programs.

Sally also served as Principal Investigator of the National Research Center on the Gifted and Talented for almost two decades. She worked with a research team that has generated over 50 million dollars in grants in the last three decades. Her research interests are related to talent development in all children as well as special populations of gifted and talented students, including: students with learning disabilities, gifted females and diverse groups of talented students who are often underserved. She is also interested in extensions of the Schoolwide Enrichment Model (SEM) for both gifted and talented students and as a way to expand offerings and provide general enrichment to identify talent and potential in students who have not been previously identified as gifted. Her most recent work has involved methods of using gifted education pedagogy to stimulate interests, learning styles and abilities in all children. She is co-author of *The Schoolwide Enrichment Model,* The Secondary Triad Model, Dilemmas in *Talent Development in the Middle Years*, and a book published in 1998 about women's talent development entitled *Work Left Undone: Choices and Compromises of Talented Females.*

Sally has served on several editorial boards and is the past President of the National Association for Gifted Children. She has won many professional awards including being named the Distinguished Scholar by the National Association for Gifted Children for her scholarly contributions to the field, as well as the Distinguished Service Award for outstanding service. She was also named a Board of Trustees Distinguished Professor at the University of Connecticut, awarded to only 3 faculty each year. She was named a Distinguished Scholar by The Center for Education and Study on the Gifted and Talented, University of Northern Colorado, 2007. She won the Neag School of Education Outstanding Research Award in 2006, was given the Educator of the Year Award from Future Problem Solving in 2003. She won the Pi Lambda Theta, Outstanding Educator Award in 2000, and other education awards, and was also named a UConn Teaching Fellow at the University of Connecticut in 1998.

Sally's scholarship is diverse and broad, as summarized by her numerous articles, books, book chapters, monographs, and technical reports. Her specialized research interests relate to diverse populations of gifted and talented students, including students with learning disabilities, gifted females, and culturally and linguistically diverse talented students. The American Psychological Association has cited her one of the 20 most influential psychologists in the world in the area of Talent Development and Gifted Education.

She is most proud of her continuous leadership in the field of gifted education and talent development, as well as enrichment pedagogy, her four decades of running Confratute, the summer residential program for gifted education at UConn, which began in 1978, and has served thousands of teachers and administrators from around the world, exposing them to enrichment and engagement for all children. She also credits her many graduate students, some of which will be contributing to this profile, as contributing to her scholarship and evolution in the field, saying how much she has learned from them. Her graduate students have become lifelong colleagues and friends. These include over 30 former doctoral students, many of whom are distinguished scholars and over 300 Master's degree students who are teachers, administrators and leaders in our field across the country.

Her work is diverse and extends across several themes, as summarized in several articles in this journal. But she believes her greatest gifts are her husband Joe, her daughters Sara and Liza Renzulli, and son Scott Renzulli, as well as their spouses, Nick, Laurie, and Jeff, and her three grandchildren, Samantha, Alexander and Abigail.

# Reflections on an Academic Life

**Sally M. Reis**
University of Connecticut, Storrs, USA

It is an honor to be profiled in this way and I am thankful that it gives me an opportunity to thank and acknowledge some of my colleagues and friends who agreed to write about our relationships and my career. I have been blessed in my life to work with people I respect and admire greatly, from my wonderful husband and partner Joe Renzulli, to special colleagues like Jean Gubbins, Karen Westberg, Sandy Kaplan, Bob Sternberg, Susan Baum, and Carolyn Callahan. I have also been fortunate to work with outstanding graduate students, both at the Master's and Doctoral level, many of whom have become dear friends, such as Marcia Gentry, Stuart Omdal, Terry Neu, Jonathan Plucker, Del Siegle, Marcia Gentry, Liz Fogarty, Betsy McCoach, and many, many others. Each of them has contributed in important ways to my academic, personal, and intellectual journey.

Following my graduation from college in 1973, I became a teacher in a public school system in Pittsburgh while I thought about my next steps, initially focusing on law school. This most likely was my strong positive reaction to and participation in the protests surrounding the Vietnam War. But then, I began feeling the draw of the high poverty students in my 9th grade English classes. I taught 6 classes a day of 30 students in each class and began to understand the work and effort required to be an effective teacher. It was in my first year of teaching that I met Chris, an academically talented, underachieving, turned off gifted girl, who was angry and negative towards school, her teachers and most of the other students in her classes. Chris made me want to learn more about academically

talented students, the choices, they made, the reasons they underachieved and what I could do to motivate and engage them. That in turn led me to coursework at the University of Pittsburgh about gifted education and gifted and creative students, and of course, to the early work of Joseph Renzulli, E. Paul Torrance, James Gallagher, and the continuation of my intellectual journey toward the practical scholar I have become.


I met Joe soon after I returned to my Connecticut hometown from Pittsburgh, where I had become interested in gifted and talented students as a result, like so many of my colleagues, of my work as an English teacher in a large public junior high school that served students in grades 7–9. After meeting and teaching Chris, and eventually having success with her after eliminating her regular

work and engaging her in independent study, I experienced the classic exposure to the need to know more about gifted education, as Chris was and continued to be an incredibly smart and turned-off student who had absolutely no interest in learning anything in my class and whose motivation was waning by the day. Reading about what to do with gifted students also brought me back to the work of James Gallagher and classes at the University of Pittsburgh in gifted education. Eventually, Jack Birch at the University of Pittsburgh recommended that when I returned to my home state of Connecticut, I should contact a young scholar who was doing important work at UConn named Joe Renzulli. I did just that in a phone conversation in 1977.

Subsequently, Joe sent me a mimeographed copy of a two-part article he had written on The Enrichment Triad Model (Renzulli, 1977). This was my first exposure to his work and the ideas that would influence the rest of my professional and personal life. As I had already taken some classes about academically talented students, motivated by my desire to help Chris, and had become interested in learning more, I became friendly with some of the emerging leaders of gifted students in CT. We were a young, irreverent, and creative group who eagerly sought interaction with some of the scholars in my field. My interactions with gifted education experts from the National Leadership Training Institute where I first met Sandy Kaplan, James Gallagher, Harry Passow and others in my field were intellectually and personally stimulating and life -changing. These pioneers were among my earliest intellectual influencers.

At that time, in the mid 1970's, I returned to Connecticut and began teaching in the school district I attended. I was selected to start a gifted program and this brought me the opportunity to

experiment directly with some of Joe's ideas—implementing first an Enrichment Triad Model in middle, then elementary, and last, our high school. Frustrated by the need to give individually administered IQ tests to select students for these gifted programs, and the time and expense this incurred, I became passionate about broadening the notion of who was gifted and who was not, and who could be served by enrichment that seemed to benefit a much broader pool of students. That journey became my life's work and introduced me to some of the collaborators with whom I still work, including Tom Hebert and Michele Femc Bagwell who both worked with me in the gifted program I directed.

Joe has been and continues to be the biggest scholarly influence on my professional life. I take great pride in the outcomes of our successful joint work, for example, the many and diverse ways that students complete in-depth projects, the engaged atmosphere in the Renzulli Academy, the chance to develop innovative ideas, such as Renzulli Learning, and the many schools across the globe that implement the Schoolwide Enrichment Model (SEM). We are especially passionate about schools that are implementing SEM with diverse children who live in areas with high poverty rates, and who have never had the opportunity to engage in enrichment before. We are especially passionate about schools serving high poverty and diverse students that implement the SEM and serve students who have never had the opportunity to engage in enrichment before. We love working with certain kinds of teachers, whom Joe calls "positive malcontents" who question authority, especially when that authority results in rigid and non-creative educational experiences for young people.

In this summary, I expand upon different and related aspects of my work in our field, beginning with an expanded conception of giftedness.

## Expanding conceptions of giftedness and talents

My first publication, the result of my doctoral dissertation, was related to Joe's Three Ring Conception of Giftedness. We were given permission from the state of Connecticut to expand the number of students served in gifted programs in 12 school districts, including the top 15% of

academically talented students, instead of the top 3-5 % or what state guidelines recommended. I was very interested in whether these top academic students could also produce creative products. In this journey, we were also influenced favorably by the expanding conceptions of intelligence of both Robert Sternberg and Howard Gardner, both of whom we had met and who had spoken at UConn. Their work was, and continues to be, both inspiring and influential. My dissertation article, published in Phi Delta Kappan, influenced much of our later school-based practitioner research that would have an impact on schools and educational practices. It was in this article that Joe and I first discussed the utility of a talent pool of students with high potential, students and the notion that more than the top 3-5% could benefit from gifted programs. We also described Joe's often misunderstood idea about a "revolving-door model for identifying and teaching gifted and talented students".

Accompanying this research were the 12 district evaluations, for each of the districts that had participated in our research; these evaluations t had to be written by my colleague and collaborator and friend, E. Jean Gubbins, and my commitment to the districts that I worked with to have their efforts to work with us rewarded with the best possible research study we could conduct and the results that might help them with practice in the future. This study resulted in more flexible identification criteria and local norms being used to identify more students and in particular, more culturally diverse and poor students in urban and suburban districts across our state. The study also resulted in the expansion of the more conventional selection and identification processes that had largely excluded these students from gifted programs in prior years. I still regard this as one of the most important research studies I have ever completed. And after over 250 publications, the letter of acceptance from *Phi Delta Kappan* remains one of the most exciting professional moments of my life.

## Research on the Schoolwide Enrichment Model

I have been the primary researcher on the Schoolwide Enrichment Model (SEM) published first in 1985 (Renzulli & Reis, 1985, 1997, 2014, 2020), combining the previously developed

Enrichment Triad Model into a broader talent development approach, the product of four decades of research and field-testing on this widely used approach. We began experimenting with methods of using the Triad Model to serve a broader pool of students in whom we could develop talents. This work with Joe emerged as the Schoolwide Enrichment Model ).The SEM is one of the most often implemented enrichment models in the world, and we have spent the last four decades developing it, studying its implementation and impact, and traveling in our country and across the globe to expand its implementation. The SEM is used in thousands of school districts across the world, and we remain dedicated to the extensive evaluation and research with others who have worked to investigate the utility and effectiveness of the model. Our research that documents how the use of the SEM can result in the identification of and enrichment services for students from diverse groups and from lower socio-economic backgrounds can be included in an SEM talent pool. We have consulted with over 25 countries and all 50 states on the talent development, enrichment, and differentiation approach described in the SEM.

## Research on the impact of extending gifted education pedagogy

Based on our work on the SEM, we have become increasingly interested in how the pedagogy of the SEM, what we call enrichment pedagogy, can be used to provide more engaging and interesting learning experiences for all students. Several years ago, I had the idea for Renzulli Learning, an on-line SEM pedagogy, with interactive online teaching and learning opportunities that provide personalized learning for students. It was, I believe, one of the best ways for teachers who are already overworked to provide numerous enrichment and differentiated opportunities, using students' achievement levels, interests, and preferred expression styles. We spent four years actively working with a team to build the system, writing most of the text and modifying previous instruments that Joe and I and others had developed.

During that time, I was also working with an Assistant Superintendent in Hartford CT to actively develop the first Renzulli Academy, with the idea that we would implement all components and parts of the SEM, including our related reading work, the Schoolwide Enrichment Model in Reading, as a full and total school approach to investigate how well our urban students with high potential would do in a very different type of school. With a very broad pool of students who were average and above average in achievement and using enrichment pedagogy, we built a climate and a school known for academic excellence and engagement. Without doing any test preparation, our students scored at the top of the district each year in state-wide achievement tests, but more

importantly, they have won "invention convention" competitions, History Day, and many arts and math awards. This work has been among my most important and compelling contributions, a product of over four decades of research and field-testing, that combines the previously developed Enrichment Triad and the SEM.

## Talented readers and the Schoolwide Enrichment Reading Model (SEM-R)

As noted earlier, in some of my most recent work, a team of my former graduate students and colleagues and I conducted research about using enrichment strategies to challenge and engage readers of all achievement levels, but especially focused on talented readers. This work is actually a culmination of previous work, combining my love of reading, my background as an avid reader, and my experience in English language arts and as a reading teacher, as the parent of an early and precocious reader, and previous work on the SEM and curriculum compacting. This research was funded by two large federal grants produced exciting research has been published in competitive educational journals (https://gifted.uconn.edu/semr-pubs/). I worked with an amazing team including Liz Fogarty, Jean Gubbins, Catherine Little, Angela Housand, Brian Housand, Lisa Muller, and Rebecca Eckert, we received federal grants of approximately 6 million dollars grant to investigate, replicate, and publish several research articles about the SEM-R. The major result of this empirical work was that when using SEM-R, teachers could eliminate most of group reading instruction (up to 4-5 hours weekly) and replace it with targeted differentiated reading instruction applied to interest-based books that students select and actually want to read. When teachers implemented SEM-R for an academic year, students participating in the SEM-R, as compared to a randomly assigned treatment group achieved either higher scores or did just as well on standardized tests of reading fluency and achievement. Our results were published in some of the most competitive educational research journals and were a testimony to the efficacy of enrichment- based reading and differentiated instruction.

In other research with my friend and colleague, Marcia Gentry, we studied the use of enrichment clusters for the entire population of two schools in economically disadvantaged urban settings with a high percentage of culturally diverse students. Enrichment clusters provide a regularly scheduled time for students and adults, who share a common interest and purpose, to come together and complete enrichment work; and we found that high end learning opportunities can extend

opportunities for advanced learning to all students, further promoting the notion of Schoolwide Enrichment for all students.

## Research on Curriculum Differentiation and Compacting

Perhaps as a result of the time I spent bored in classes when I was a student, and definitely due to my interactions and advocacy for Chris in my first year of teaching, I became interested in studying how differentiated teaching strategies enable teachers to streamline the regular curriculum, ensure student mastery of basic skills, and provide time for challenging enrichment activities or acceleration activities. This teaching strategy underlying Curriculum Compacting, one of the components of the SEM, enables every student in every classroom to be challenged. The research I conducted with a UConn team on this topic demonstrated that academically talented students can be compacted out of 40-50% of regular curriculum without any decrease in their achievement tests (Reis, Westberg, Kulikowich & Purcell, 1998).

## Research on gifted students with learning and other disabilities, twice exceptional students

The different research studies that I completed investigating the challenges and problems faced by high ability students with learning disabilities (2e) was inspired by my colleague and dear friend, Dr. Susan Baum, who is and remains one of the leading figures in the world in this area. Unbeknown to Joe and me, our oldest daughter, born prematurely after experiencing some loss of oxygen, was identified, subsequent to my early research in this area, as having severe dyslexia, while also having very high verbal aptitude. Sue Baum's work and our subsequent insights about our

daughter continued to motivate me to learn more about this population and the challenges they face (Reis, Neu, & McGuire, 1997). In addition, we learned how to identify appropriately challenging, academic compensation strategies that helped talented students to be successful. I became focused on creating opportunities for educators to provide enrichment and talent development opportunities to these 2e students who have both extreme talents and deficits. Compensation strategies, such as extra time on tests, providing instruction in learning strategies, and a variety of deeper processing strategies, help 2e students learn to work smarter in school but don't ignite their interests or passions about learning. My research in this area remains a major theme of my professional career and will continue with a new federal grant to study 2e students with autism.

## Research on talented students and eminent adults who achieved and underachieve

I also spent four years studying academically talented students who either achieve or underachieve in an urban high school, working with a core group of colleagues to identify alterable factors that had an impact on achievement. This resulted in research I conducted with special colleagues, such as Tom Hébert, and several publications that evolved from that research, including a review of research on underachievement with my colleague Betsy McCoach, published in 2000, and often cited in the literature about this perplexing phenomenon.

Following the broad path of my intellectual journey, some of my favorite and perhaps best-known work, may be my research on talented women and girls. I have loved the longitudinal research I have conducted on this population and have had the opportunity to give speeches on this topic all over the world, having been invited to speak in India, Spain, Germany, Italy, India, England, Australia, New Zealand, Mexico, Argentina, Panama and other countries, as well. Inspired by our

own two smart and independent daughters, my work on girls and women across all domains and life spans resulted in a new conception of eminence in women (Reis, 2005). This conception defined women's talent development as occurring when women with high intellectual, creative, artistic, or leadership ability or potential achieve in an area they choose and make new and important contributions that they consider meaningful to society. The opportunity to conduct this research and propose new theories about women's talent development and creativity has been a highlight of my academic life.

In closing, I feel such gratitude for a career that has been both rewarding and exciting, but most important, for my family, friends, and colleagues. How fortunate I have been to have such a supportive husband, interesting and creative children of whom I am so proud, and siblings who make me laugh and cry, sometimes on the same day. How fortunate am I to have accomplished important work with interesting and intelligent colleagues and friends, persons of integrity and passion who have made my research and teaching so enjoyable. I acknowledge and thank them all—and appreciate the honor this journal has given me, as well as the opportunity to reflect and be thankful for my academic life and work.

{1}

# Sally Reis, Friend, Colleague, and "Leader Extraordinaire"

**Susan Baum**
Provost, Bridges Graduate School, California

I first met Sally when I entered the doctoral program in education of the gifted and talented at the University of Connecticut in 1980. Recently divorced and a mother of three I had no idea what the future would bring. Sally was a few years ahead of me and already successful in implementing a new enrichment model for gifted and talented students, *The Enrichment Triad Model* developed by our mentor, Joseph Renzulli. Indeed, Sally's efforts as a teacher and budding researcher, then, helped to jumpstart this model to become the most popular enrichment model worldwide. Her enthusiasm and passion for advocating for talent development made her a role model for me and my work with Twice Exceptional students. In a sense, I wanted to be like her.


After we both graduated, we found that our professional journeys often intertwined. We both served on the National Association for Gifted Children (NAGC) Board together. I was on executive committee during her years as President of that organization. Every summer for 40 years I have been part of Confratute which she directs and I feel one of her signature contributions to the field. I cherish teaching side by side with Sally during the Three Summers Program at UCONN where we have great joy in finding creative ways to celebrate Joe Renzulli's birthday. Over the years, we also grew to be

close friends as we shared stories about our kids, celebrated family events together, and supported each other during the challenges we faced balancing family and our professional lives.

However, it is those joint projects that I remember as most significant –the ones involving Twice Exceptional children. Working with Sally on grants, joint publications, keynote addresses, symposiums and more enabled me to become a better writer, a better researcher, and a better leader as she always supported my creative ideas and continued to be my best cheer- leader.

Today, we still engage in long, meaningful discussions about life in general, our families, our work, and our continued enthusiasm for what we do. I couldn't ask for a better friend and colleague, nor can I think of someone more deserving than Sally for this honor.

## {2}
# Putting People Over Papers

**Elizabeth Fogarty**
University of St. Thomas

I first met Sally when I was a 5th grade teacher and my principal had finally agreed to send me to Confratute in 2001. I was immediately struck by Sally's kindness and hospitality at the 700-person two-week long professional development event. In fact, I distinctly recall that when I met her, she asked me questions about myself, and when she did, she was genuinely interested in my response. Above all else, Sally cares for those around her by sharing her time and energy generously with others.

Upon sharing that I was interested in the doctoral program at the University of Connecticut, I recall that Sally asked me about whether my mom was a strong presence in my life. Her question demonstrated in a deep way her commitment to understanding those with whom she worked, and I later learned about the positive influence her own mother had played in her life. Sally also understood the toll that a PhD would exact, and wanted to know if I had a strong female mentor in my life, not

because having a male mentor would have been insufficient, but because her research had demonstrated the differences in challenges faced by females and males in the world of academe. Indeed, her work on gifted females has enabled the field of gifted education to recognize and better understand the unique challenges faced by eminent women.

In the early 2000's, Sally received a Javits Grant to study gifted readers and I was lucky enough to be involved. The research, which applied the Schoolwide Enrichment Model framework to the teaching of reading, was particularly powerful in that it moved beyond the field of gifted education to transform reading pedagogy in mainstream classrooms. The emphasis of the SEM-R on student interest was especially important because it provided an addition to the prevailing instructional practices at the time which focused on providing support for struggling readers and seldom allowed for student self-selection, or a challenge for gifted readers. In the SEM-R video, Sally says, ". . . with the current remedial mode in education and the current Gestalt in the country to try to get scores up, I think what we're doing is we're taking away every ounce of pleasure in the reading process and so if we raise scores by a couple of points but the kids don't want to pick up a book after that experience, then we really haven't accomplished anything important." Our research results demonstrated that using SEM-R led to increased reading skills and enjoyment and English language learners showed the greatest growth. Presenting and publishing in journals and at conferences in the reading field allowed for the SEM-R research to challenge the notion of focusing on reading deficits in students, instead using a pedagogical approach based in enrichment and interest demonstrating the power of using enrichment pedagogy with all students; a principle which has been a central tenet in Sally's work over the years.

Despite the fact that she is one of the most prolific researchers in the field of gifted education, Sally positions people over papers by taking a relational focus in her work. She seems to understand that true influence in research and teaching must affect humans personally, before it can affect them academically. I know that to be true in my own experience as one of many graduate students she has mentored personally and professionally over the years; just imagine her influence multiplied by the many thousands of teachers at Confratute and conference audiences over the years multiplied by the hundreds of thousands of students they've reached. Perhaps that's why one of her favorite quotes is: "Never doubt that a small group of thoughtful, committed, citizens can change the world. Indeed, it is the only thing that ever has" (Margaret Mead). Through her research and her kindness, Sally has indeed changed the world.

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# The Incomparable Sally Reis: Mentor, Scholar, Colleague, Friend

**Marcia Gentry**
Purdue University, USA

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Like so many of us who appreciate Sally Reis, I met her one summer when I was sent by my employer to the University of Connecticut to learn more about the gifted education position for which I had just been hired. That was in 1988. She was accessible, smart, kind, open and welcoming. All I knew after spending that first two weeks in Connecticut, was that I needed more. So, I wrote to Sally, and I asked her if I might wear one of the t-shirts and work at *Confratute.* I told her I was a good worker, which was true. From that summer forward, save one summer when I battled breast cancer and the most recent shutdown due to Covid, I spent part of every summer in Connecticut, and in doing so helped develop my professional identity, guided by Sally.

Sally saw something in me, encouraged me to pursue my doctorate, and in doing so, she opened doors for me that I did not even know existed. Now, as I work with my own doctoral advisees, I remember how Sally took care of her graduate students, and I try to pay it forward in true Sally Reis style. Rarely does a day pass that I do not think about Sally and her profound influence upon my life and the lives of others. I am acutely aware that I hold my position today largely due to Sally's mentoring, modeling, teaching, and friendship and the outstanding education she afforded me at UConn. I cherish her friendship, and I consider it an honor to work with Sally as a colleague in our field of gifted education.

Her contributions to the field in terms of scholarship, grants, her graduates, and service including as president of the National Association for Gifted Children (NAGC) and as an American Psychological Association (APA) fellow are well-known and nothing short of superlative. These contributions comprise her long and impressive vita, but beyond her vitae lie her most important contributions. Sally is one of the giants in our field, her scholarship is far-reaching, and her influence is profound. At the same time, she is generous, kind, caring and gracious—a confluence of traits that make her truly one-of-a-kind, and someone everyone respects and admires.

***Sally is generous.*** She always has (or makes) time for a chat, time to offer counsel, to be a mentor and friend. Because she knows what is important in life, her counsel is invaluable. She shares credit, acknowledges those who came before her and lifts up those who come after her. Whether writing a letter, making a phone call, offering advice, or just checking in on her former students, friends, family, and colleagues, her interests and connections are genuine and built from a place of deep caring and generosity. ***Sally is kind.*** She finds the best in everyone, and then helps them find the best in themselves. I believe her kindness helped to make her such an influential leader at UConn and throughout the field. ***Sally is caring.*** Sally is and has always been in demand, she is very busy, but she always finds time for her students, former students, friends, and family. She cares deeply and acts accordingly. During my eight-month breast cancer treatment, she called me at least weekly, and those calls mattered.

***Sally is gracious.*** One only has to spend a few minutes with Sally or hear her speak to know the depth of class and graciousness that guides her words and her actions. She is always and genuinely gracious. Through her writing about gifted women and the manner in which she has lived her scholarly and personal life, she is a model and an inspiration to gifted women across the world. I am not sure she really knows how important she is in the lives of those, like me, who were lucky enough to study with her and to become her friend. I hope this special feature gives her a glimpse into the depth of her influence and reach as a scholar and as an extraordinary human being. The rest of us already knows the incomparable Sally Reis is a rare and special treasure.

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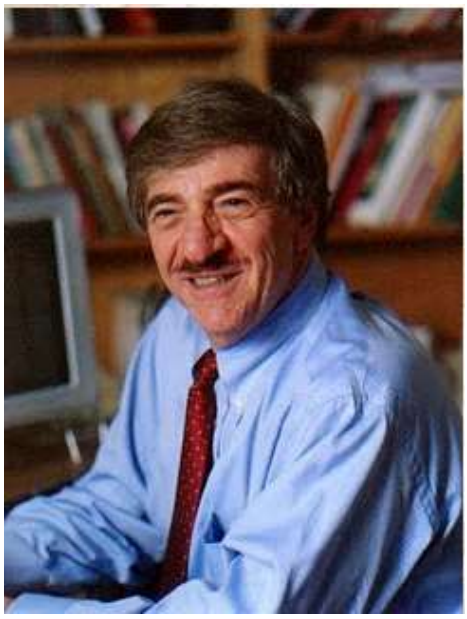
# Sally M. Reis: A Champion of Real and Lasting Change Written in Stone

**Joseph Renzulli**
Neag School of Education, University of Connecticut, USA



A great deal of very good research has taken place in gifted education, but most research has had limited consequential impacts on educational practices and policy making. Sally's work has not only addressed the big questions that challenge our field, but also provided answers to those questions that have had a direct effect on policy and practice.

One of her early studies, for example, resulted in a change in the Connecticut State student identification policy, thus allowing for more opportunities for students who were underrepresented in gifted programs that were based solely on IQ or other cognitive ability and achievement test scores. Working with the state Commissioner of Education, she recruited the superintendents in several districts that served low income and minority students and designed an identification system that used universal screening, local norms, and teacher ratings to identify students who would not have been selected solely on test scores. She provided numerous professional development sessions for implementing the new identification system in participating schools, continued to revise and modify the system to make it more user friendly, and presented her findings to the state department of education and the Connecticut State Task Force on Gifted Education. The Connecticut State Board of Education subsequently approved the recommended changes and this policy change is still in practice to this day, enabling a more flexible identification system that enabled more students who are from lower socio-economic backgrounds. This also enabled more students from culturally diverse backgrounds to participate in gifted and enrichment programs. In the years that followed, a number of other states adopted identification procedures similar more flexible approaches based on Sally's original research.

Another example of Sally's indefatigable determination to make real and sustainable change in schools and classroom practice is a study she conducted for making curriculum modification changes for high ability students in regular classrooms. Realizing that these students participated mainly in pull-out programs, but spent the majority of their time in unchallenging and prescriptive learning environments, she decided to take on the larger challenge of providing regular classroom teachers with training in a process called Curriculum Compacting. Having an impact on this target population is a very different task than influencing gifted education specialists, who, by the very nature of their jobs and commitment to talent development, are generally more open to new ideas than the general teacher population.

She began this challenge by developing a professional development program that she conducted for classroom teachers in the school district where she served as the gifted program coordinator. Knowing that she would need to organize many more training sessions than she could

conduct herself, she used her local experience to develop a videotape professional development model that could be exported to many teachers around the country. Articles pointing out the importance of this process for high achieving students, slides and video clips, and case study materials were built into this professional development model and special training sessions were provided that included teacher's actual experiences and frequently asked questions. A part of this study was convincing superintendents and principals to participate in this professional development and the corresponding experimental study. This was a new addition to the work of teachers, some of whom were quick to complain about the already burdensome nature of their jobs and being overwhelmed with the tidal wave of "innovations" flooding across the country. At the time this research was being conducted, the concept of *differentiation* was becoming very popular in the education literature. As Curriculum Compacting is one strategy that is a regular practice in the differentiation movement, she would more easily engage the attention of superintendents, principals, and policy makes who are generally responsible (and sometimes reluctant) for allowing new initiatives to make their way through the schoolhouse door.

The research was remarkably successful and Sally and her team showed clearly and unequivocally that upwards of 40-70% of the required regular curriculum could be eliminated from reading, math, and science curriculum for identified gifted and talented students without any loss on out –of- grade level student achievement test scores. Other writers have acknowledged that curriculum compacting is the most widely used form of differentiation and acceleration in making accommodations for high achieving students.

A few personal annotations about Sally's style and disposition might help to explain the reasons underlying the many superlative comments provided in this tribute to her work, mentorship, and friendship by her colleagues and former students. My life has been honored and enriched by being married to this remarkable person for almost forty years. In addition to being a wonderful wife and mother to our children, she is truly my best friend and professional colleague. No idea that I have come up with or written about goes out the door without first being reviewed by Sally. And I can say without reservation she is not the least bit reluctant to kick ass if she feels that something is in need of major revision or suggesting that it should go straight into the trash basket. She has contributed creative and innovative ideas to every project we have worked on together. She constantly reminds me that if our work is to have any lasting impact in real schools and classrooms it must first and foremost pass the "common sense test" for the teachers and administrators who are hopefully going to approve and implement it.

A few other areas that you should know about Sally before I try to summarize her most foremost trait in single word! Sally is the mother of three children and three grandchildren. She is also the oldest of six children, has twenty-six cousins, many of whom have children as well. She is considered the matriarch of this extended family, and for anyone in need, she is always there to help. Helping a distraught nephew finish a term paper that is due the next day or searching out the best college options for career decisions, and writing a check for a family member in need is common is her life. And if the phone rings late at night she dresses and rushes out the door to take a sister who is ill to the hospital. She has never uttered a single complaint about serving as the matriarch of our family. Countless numbers of friends have also received the same kinds of guidance, especially in relation to college applications and options for their children.

This story will tell you about the word I have selected to summarize the life of this remarkable woman who is the love of my life and why every day with her is a joyous treasure. We were having a birthday party for Sally and family, friends, and graduate students arrived with flowers, bottles of her favorite wine, and other gifts. I observed one graduate student drive up, open the trunk of her car and struggle to lift out a big stone. She entered the beautiful garden that Sally created in front of our house, removed a trowel from her purse, and proceeded to carve out a crater in the garden in which she placed the stone. On it was carved the one word that anyone who knows Sally will agree is what best describes her and what makes her so special. And that word is ***"Kindness."***

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# Sally Reis, Teacher, Mentor, and Friend

**D. Betsy McCoach**
Neag School of Education, University of Connecticut, USA

I will never forget the excitement that I felt when Dr. Sally Reis called to tell me that I had been admitted to the Ph.D. program in Educational Psychology at the University of Connecticut. Back in 1998, Sally Reis was already a world-renowned researcher in gifted education, President-Elect of the National Association of Gifted Children, and a highly sought -after speaker on nearly every issue related to gifted education. I had read many of her articles, book chapters, and books---she was a celebrity to me.

Sally was my doctoral advisor during my Ph.D. program, and she was so much more than that; she was a mentor, a friend, a confidant, and a role model. I watched as Sally balanced a rigorous academic career with motherhood with grace, ease, and poise. I marvelled at her ability to "make things happen" in our program, in our department, and in the University, as she seamlessly transitioned from Professor to department chair to Vice Provost. I admired her creativity and acumen, her uncanny knack for recognizing opportunities and solving problems. She has been an inspiration to me over the past 22 years, and I have looked to her for guidance and wisdom on countless occasions.

In my first year as a doctoral student, she and I co-authored an article for Gifted Child Quarterly on underachievement that stands as one of my most cited works. She and I have continued to conduct research together on underachievement, SEM-R, Jack Kent Cooke scholars. Working with her is always a pleasure because she is so quick, creative, wise, witty, and positive. Sally is one of the most gifted women that I have ever known, and it has been my honor and pleasure to be her pupil, her mentee, and her friend.

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# Tribute to Sally Reis

**Del Siegle**
Neag School of Education, The University of Connecticut, USA

It is rare for an individual to gain eminence in multiple areas. Dr. Sally Reis is such an individual. Aside from her ground-breaking work with Joe Renzulli on talent development through the Schoolwide Enrichment Model, Sally is the eminent researcher on gifted females, talented readers, and twice-exceptional students. She is currently expanding her early calls to recognize gifted students with learning disabilities by undertaking new cutting-edge research on post-secondary gifted students with autism.

Through her research, publications, leadership, and presentations, Dr. Sally Reis has improved educational opportunities for young people not only in the United States, but around the world. Equally important, she has touched the lives of cohorts of graduate students who have elected to study talent develop with her at the University of Connecticut.

Sally is the single most effective leader I have known. I have never seen Sally encounter a problem she could not solve, a difficult situation she could not defuse or a stranger she did not make feel welcome. I count myself lucky to be among those who have been blessed not only with knowing Sally, but having her as an advisor, collaborator, colleague, administrator, mentor, and friend.

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# Dr. Sally M. Reis: Friend, Colleague, International Leader

**Karen L. Westberg**
Professor Emerita, University of St. Thomas, Minneapolis, Minnesota, USA

Having first met Sally Reis forty-one years ago, I am pleased to see her honored in this profile. When we first met, I was a Masters student and she was a doctoral student at the University of Connecticut. I appreciated her warm, caring nature, and she has been a long-time friend. Without fail, the first thing she says to anyone she meets is, "How are you doing?" Her support and concern for others is renowned, and everyone she meets considers her to be a friend.

Later, I had the good fortune of being Sally's colleague at the University of Connecticut. We continued to socialize, presented at conferences, and collaborated in conducting research at The National Research Center for the Gifted and Talented. One of these studies was the national study on curriculum compacting, which has been one of the most cited studies in the field of gifted education. I saw first-hand how passionate and dedicated she was about her work, which included efforts to recognize and address the needs of twice-exceptional students and highly capable females. She would probably say that her advocacy for educating bright girls is her most important contribution. Her productivity is a testament to her commitment to being a scholar and making a difference.

Sally is obviously now an international leader, having influenced the development of gifted education services and programs throughout the world. Teachers and administrators appreciate her knowledge and guidance. Bright children throughout the world benefit from her passion, dedication, and service. Sally has had a storied career, but she is not done yet. My friend continues to help educators make informed decisions about how best to meet the academic and affective needs of our precious children.

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# Sally M. Reis: Colleague, Friend, Leader, and Advocate

**E. Jean Gubbins**
Renzulli Center for Creativity, Gifted Education, and Talent Development,
Neag School of Education, University of Connecticut, Storrs, CT USA

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Colleague and friend are two words describing many decades of my professional and personal connections with Dr. Sally M. Reis. At first, we connected with other Connecticut professionals in nearby towns as we were responsible for designing and implementing programs for students with academic gifts and talents. We benefited from each other's experiences as gifted specialists and program coordinators. We willingly shared ideas about how to create the best possible programs and services for students who revelled in challenges to their thinking and designed interest-based investigations addressing problems needing attention. Our initial group of geographically-convenient colleagues reached out to professionals across the state and formed a network of educators who wanted to make a difference for young people whose talents and gifted needed to be recognized, developed, and enhanced. During these early years, friendship was an important attribute, as Sally has an incredible ability to invite people into her world that revolves around making schools the best possible learning spaces possible.

These early connections grew as Sally pursued advanced degrees at the University of Connecticut. As a graduate student, her goals for making a difference for local students expanded exponentially. I witnessed how Sally transferred her professional experiences to more and more people and initiated research studies to support what she believed would make an educational difference for students and their teachers. From state, to regional, to national, and to international venues, she connected with educators aware of her contributions to the literature on gifted and talented education and with educators beginning to ask relevant questions about effective educational talent development practices.

It has been an honor to work with Sally during graduate school and beyond graduation throughout our respective roles and responsibilities in academia at the University of Connecticut. She invites people to be collaborators in all projects, whether they focus on designing robust graduate programs; implementing the famous conference/institute, known as Confratute; creating and

implementing research proposals; writing articles; or presenting at conferences worldwide. Sally is a role model as she has applied her intelligence, talents, creativity, and energy to make a difference for others.

Sally has produced hundreds of publications, conducted innumerable presentations, and received many awards. These contributions are certainly noteworthy because of their impact on the field of gifted education and talent development. The quantity of her scholarly contributions related to identification, programming, curriculum compacting, reading, twice-exceptional students, gifted females, leadership, and advocacy illustrate the breadth and depth of Sally's expertise. As a colleague and friend, I always learn from Sally as she understands educational issues of importance as a scholar and educator. As a leader and advocate in the field of gifted education and talent development, Sally has made it possible for us to recognize potential talents and abilities among all children and adults and to find ways to make a difference in their lives. As a colleague and friend, she has influenced me as an educator. On a daily basis, she continues make pave the way for other educators to achieve their goals. Sally's remarkable professional contributions will continue to influence policies, procedures, and programming throughout the world for many decades to come. It is truly an honor to be a colleague and friend of Dr. Sally M. Reis.

**Interview (1):**

# Sally M. Reis
# Made Real and Sustainable Change in Schools and Classroom Practice

**Taisir Subhi Yamin; Sandra Linke**
ICIE, Ulm - Germany

Taisir Subhi Yamin (TSY) and Sandra Linke (SL) interviewed internationally renowned scholar Sally M. Reis (SR), Former Vice-Provost, Academic Affairs (University of Connecticut, United States).

**TSY & SL:** We are very pleased to meet with Professor Sally M. Reis, the Vice Provost of Academic Affairs, of the University of Connecticut, one of the most well-known scholars in gifted education. Our first question: who are you?

**SR:** Well, I have several identities- I'm a teacher, I'm a wife and a mother, I am a sister and aunt, I'm a professor and for the majority of my life I've been engaged and involved in work and research relating to the education of academically talented and highly creative children and students. Recently I completed a six-year term as the Vice Provost for Academic Affairs, in charge of many academic programs at the University of Connecticut. So, like many others, I hold multiple identities in terms of both my work and personal life. But currently, for work, I am The Letitia Neag Endowed Professor of Educational Psychology at the Renzulli Center at UConn.

**SL:** When did you start working in this field and why?

**SR:** Like many other individuals who became interested in the education of gifted and talented students, I wanted to know what to do with very high ability and creative students that I had in my secondary English classes. So, my initial interest, believe it or not, goes back all the way to 1973, my first year of teaching. I was teaching English in a junior high school, and I had six classes of eighth and ninth grade students -- six classes of 30 students per class. I encountered a student named Chris who was remarkably bright and extraordinarily advanced, and I had no idea what to do with her. She knew all the answers before I asked the questions, she had already read all of the books that I was going to teach during the first week of a 12-week unit, and I just wondered what do teachers do with students like her? And that led me to take some graduate classes at the University of Pittsburgh and eventually, when I returned to my hometown, this interest led me to finish my Master's Degree, teaching for a couple of years, and then focusing my work full-time with smart kids. After moving back to my hometown in Connecticut, I was committed to trying to make a difference in the lives of advanced learners there. With a really innovative superintendent, I was able to start a gifted program in Torrington, CT, which ultimately led me to the work of Joe Renzulli at the University of Connecticut.

And that really began the rest of my life, with both our work and our personal partnership. The excitement of working with somebody whose work you believe in and whose ideas inspire you motivated me then and continues to do so today. In my life, the beginning of my passion in the work I do all comes back to having a couple of really talented students and not knowing what they have to do with them. That started my journey and my life's work.

**TSY:** Can you describe some of your most significant contributions in America and also internationally?

**SR:** I had an opportunity to reflect upon my most important professional contributions for an invited keynote at the World Conference a few years ago. When I was asked to think about this, I decided that these probably fall into a few specific areas. The first is probably the research and practical work that I've done to expand the work our Schoolwide Enrichment Model (SEM), such as taking the lead on completing the third edition of the book on the SEM. That work is most likely my most important work, in collaboration with Joe in the sense of school-based contributions. Of course, I also coordinate and direct Confratute, which I've been doing for almost four decades. I've loved our work in the Schoolwide Enrichment Model because I believe in it passionately and we have been able to work with such diverse and creative teachers and their students. I believe schools should be places for creative, talented, productive children and that high creative children are often not well served in traditional school settings. Also, our broad approach to talent development has meant that many students from culturally diverse backgrounds as well as those from lower socio-economic backgrounds have been able to have a chance to participate in SEM programs. So, that would be my first area of contribution.

The second contribution, I believe, is my work on a component of the SEM, that is used in many other types of enrichment and gifted programs as well, and that is curriculum compacting and differentiation. I'm proud of the research study that I conducted with my team as it is one of the most cited publications in differentiation in our field. It showed that we can eliminate as much as 40 to 60 percent of regular curriculum content for academically talented students and when we do that, these students do just as well on achievement test scores as academically talented students whose curriculum is not compacted, and so do all of the regular work. That statistic is cited frequently in the professional literature and I'm proud of our work as I believe it has helped more teachers to implement curriculum compacting.

The third area of my work relates to social-emotional development and the challenges creative and talented students and children face with their social emotional development. I edited a book with three other colleagues that was well reviewed in this area. Over time, I have remained very

interested in the underachievement of academically talented students and the reasons for underachievement. And that area has become an area of great passion for me, as has the fourth area, which is the continuing dilemma of gifted girls and women and why we don't have the means to help more of them achieve at levels that are commensurate with their talents and abilities.

Another area has been my interest in twice (2e) exceptional children. I conducted a couple of very important studies in this area, at least to me, and continue to work in this area. I am often invited to do keynotes often about 2e students as it is both a professional interest area and also a personal area of interest. Joe and I have a daughter who was born prematurely and is both extremely bright, and also has dyslexia. My focus on 2e has been very important to me and I'm very pleased to see it getting much more attention in the professional literature over the last decade or so. So, these areas are the areas in which I've done the most work and that I feel most passion about.

**SL:** What types of competencies contributed to your success?

**SR:** My work ethic is very strong and I have worked steadily with focus on various research projects across many decades. In addition, I've also been very fortunate in that I have found passionate interests and outstanding partners for my research initiatives. I work best when I feel strongly about something and my passion usually emerges from a personal interest. For example, my passion for the Schoolwide Enrichment Model (SEM) came from actually implementing a program based on the Enrichment Triad in the 1970's and many conversations with Joe about how this program worked to provide enrichment and develop talents in young people. I implemented one of the first Enrichment Triad Model programs in Connecticut and also worked closely with two or three of my colleagues who were also implementing programs based on this model. I was the first person to pilot what became the SEM. So, for me, this was both a personal interest and also contributed to my emerging sense of self as a young researcher and scholar, and to my belief that I can, with the work that I do, solve challenges and problems.

I also don't like to give up on work that I am committed to completing. For example, I am continuing the work that I started two decades ago on twice exceptional (2e) students, because I understand that if we can't do something to acknowledge and develop the interest and talents of youngsters that are both academically talented and also have disabilities that many of these young people will fail to excel both in school and in life. As I mentioned, I have a daughter who is both extremely talented as well as has a learning disability. For me, personal interests create a personalization of problems to be solved.

In terms of my own competencies, as you asked, I'm very task committed, very determined and have had the blessings of a supportive environment, supportive spouse and family, and passionate and wonderful colleagues. If you really want to work on something you feel passionate about, it's really important to have a support group. And I like working with partners because I think having an exchange of ideas, deadlines, and working with other people that challenge your assumptions is a really powerful way to complete your very best work.

**TSY:** Why do you think that we have more women in gifted education than men?

**SR:** Because there are more teachers that are women than men. You know, the research I conduct about gifted women has convinced me that 'if all of the gifted and talented women who have become teachers and administrators leave the field of education, our field would be decimated'. It is so interesting, as so many more women enter teaching, both for all the right reasons and sometimes a few of the wrong reasons, as well. The wrong reasons are often thrust on us by others who told smart women decades ago, and sometimes currently, that teaching is a good career if you want to marry and have children. What they should have told young women is that education is an incredibly challenging, difficult, frustrating and rewarding career for those with interests in this area. I think that some very smart women who enter the field and stay in it are

often the movers and shakers of education. These leaders understand the ramifications of the loss of potential in gifted and talented students, but particularly in smart women and girls, who are unable to realize their potential. And I think that is one reason many smart women stay committed to the field of gifted education.

**TSY:** In addition to all that you mentioned about, your contributions at both locally and internationally, you also work as an advisor for some politicians, you know, sometimes they approach you to get an advice. Do you think this advice has any impact, on decision-making relating to gifted education and investment in this field?

**SR:** I was very fortunate to work as the Vice Provost of Academic Affairs at UConn for six memorable years and yes, I was able to work with members of the state house of representatives and the governor. I am incredibly disappointed that we don't have more politicians across the globe, not just locally, but also nationally, who understand how important it is to nurture and develop the talents of our students. Politicians and leaders need to understand the impact of having up to half of our identified gifted and talented students underachieve in school. One major four-year research study that I completed with my colleagues demonstrated that in an urban high school, up to 50% of our identified gifted students are underachieving in high school. And in our suburban districts and rural districts, the impact of that loss of talent on our society is shocking. And I don't just mean talent in the areas you would expect. For example, we expect gifted and talented students to grow up and become doctors, engineers, lawyers and educators, but we lose talent in so many other areas as well. For example, we lose so much creative talent as students learn that creativity is not valued in school. My wish is that the talented young people who are fascinated across so many unrecognized areas have an opportunity to develop their talents. In every area of human performance and endeavor, such as in the arts, our country and other societies lose talents each year. The loss of talent in students who drop out of high school and college, the loss of talent in young people who can't afford to pursue higher education is a national tragedy. So, while I am grateful to have had the opportunity to work with some very good politicians and leaders, I've also been disappointed during my varied leadership opportunities, including serving as President of the National Association for Gifted Children, to learn that many other leaders and politicians are not dedicated to education, and to advocating and funding opportunities for talented students, because we're losing far too many of them.

**SL:** When we talk about the social-emotional problems of the gifted, we find that you were amongst the very limited number of people who were doing research, writing or, you know, authoring materials and resources in this area. Why?

**SR:** That is a very good question and I do believe and hope that more people will conduct good and defensible research in this important area in the future. But it's difficult to do this work because constructs are challenging to define. For example, we spend a great deal of time trying to agree on a universally accepted definition of giftedness, and in our work, we have found that it is also difficult to arrive at a universally accepted definition of gifted underachievers. This is one of the dichotomies that interests me, related to gifted girls and women. Let me give you an example - there are more academically talented young women who graduate as valedictorians and salutatorians now than ever before. But, the numbers of women entering and pursuing top leadership roles are fewer now than before. For example, so few women are elected leaders of their countries. The number of women who serve as ambassadors to the United Nations is at an all-time low. A very small number of women hold individual patents. But even now, when women constitute 51 percent of our population internationally, why do so few excel in both their creative productive work and in key leadership positions? Why are so few women achieving at the highest level in so many areas?

Defining the constructs for studying social and emotional research is challenging, given the population that we study. For example, understanding that "underachievement" in a gifted and talented student could really mean we are studying a really smart student who simply chooses to

earn C's in high school. Underachievement for some students might mean that they coast along in high school, don't attend a competitive college, and don't learn to work. But if they are college grads, are they really underachieving? Defining constructs such as underachievement is challenging and that is one reason why some scholars don't pursue it. Also, doing this type of research can be difficult because much of it has to be qualitative. We can't just build knowledge based on anecdotal case studies, we can't just look at numbers and understand the nuances of what we are studying. To continue with the discussion of gifted underachievement, we have to identify barriers, understand when and why underachievement occurs, and also understand that there are different forms of underachievement that call for different types of interventions for academically talented students. In summary, this type of research is challenging.

To continue with the challenges of studying underachievement, we also need to conduct intervention studies and these need to be supported by funding. It is expensive to train teachers to implement interventions that will reverse underachievement. It is expensive to learn how we can help young people develop ways to enhance and increase their self-regulation, task commitment, and self-efficacy. Students who are beginning to underachieve often become less engaged in their academic work in upper elementary and middle school and we need more scholars and researchers to work with teachers to help develop interventions to reverse underachievement, which is challenging and demanding. I believe those are the reasons we don't have more people doing the work, but these are also the reasons why we need more people doing the work.

**TSY:** Are there differences in the priorities and profiles of gifted men and women?

**SR:** I believe so. This is a complicated question because at any given point in a talented woman's life, there are other priorities that tear at her heart and so she may be forced to make choices. The book that I wrote on this subject was called *Work Left Undone: Choices and Compromises of Talented Women* and I think these choices and challenges raise the most important questions about the differences between talented men and women. The timelines and discovery of what times you can do your best and most important work have to be considered if you hope to live a balanced, happy life. The challenge that most gifted and talented women face is the notion of putting themselves and their work and dreams last. So, when you have a child, you put your child's interests in front of your work. When you you're married, you put your husband's or partner's interests and well-being ahead of your own. The very notion of individual talent development is that you have to place the development of your talents at the forefront of what you do, and to do that well means that sometimes you have to put your talent development first. That is very difficult for women to do and in my work, I've identified a number of external barriers and internal barriers faced by very talented women.

But having lived this life and worked to seek balance, I have learned and deeply understand know that if the most important persons in my life, my husband or my children need me, they are going to come first. And so, if you are going to have a partner and children, the goal for gifted women is achieving balance. As you know, I've interviewed many talented women and their profiles are different because women's creative focus almost always is more broadly dispersed. While most talented men tend to focus most on their work and their family, not always but often in that order, women's focus is much broader. A woman's focus oftentimes is work, children, parents, other family, friends, home, you know, her creativity and perhaps her spirituality. I have a theory called the "Diversification of Talent Theory in Women" as I think that a lot of the single-minded focus that women might need to pursue their work and win a Nobel Prize or to write a Pulitzer prize-winning novel is difficult to achieve because women are constantly pulled in different directions. The diversification of their talents to multiple areas is always a factor in their lives. I have discussed a later time line for the realization of high levels of creative productivity in women - a time line where there's more blocks of time for their own work, a period that I'm in right now in my life. Some talented women in their 50's, 60's, and 70's can have a more singular focus on their own talent development because responsibilities in their lives have changed. Children grow up and leave home. Relatives who are ill get better or pass away. I actually believe that, for highly

creative women, the best time for their talent development might be during their later decades, representing a gift of more time for work they love. We may find in the future, as people live longer, that's actually a very good time for gifted and talented individuals to devote to their work, with a singular and intense focus. But these are some of the ideas that I'm exploring now.

**TSY:** This implies that women tend to sacrifice more than men?

**SR:** I think many women do sacrifice more for others more than men. And I think that the way they are raised is to put their own needs as secondary to the needs of others. These actions conflict with what you have to do as a gifted and talented individual to pursue your work. I think it's very, very difficult for women to turn their backs on parts of their life that they believe are critically important, particularly at various stages in their life, such as when their children are young. These constitute very important life decisions and life choices. Women are pulled in many directions by the needs of families, friends, parents, and society. Think about all the volunteers work that women do, without being paid. If women stopped volunteering their time and their energy and their creativity, the social fabric of life in our world would be changed, for the worse. And yet, women often do that work without pay, without any attention, without asking anyone to notice what they are doing. I do believe that many smart and creative women sacrifice their own ambitions and goals so that the ambitions and goals of others, including those they love are realized, as well as for the betterment of the world.

**TSY:** Does that mean that you recommend women to be a little bit selfish?

**SR:** I don't believe it is selfish for women to pursue their talents and interests. I like to define this as an unselfish way to gain an understanding of one key idea: if you are going to grow into a person who is happy with your life, you have to devote some of your time to work or interests that you are passionate about. In the work that I've done with gifted girls and women, the saddest thing for me to hear in an interview is that someone looks back at her life with a deep regret about the work and opportunities that they did not pursue. The regrets that I hear from older women that I've interviewed is almost always that they did not pursue a passion or their work with more time and intensity. I will also tell you that I don't think my daughters or husband had any difficulties in their life because I wrote a book, or because I spent time doing something that I love for work, because when I do that work, I am happier and more fulfilled. And when I'm happy with myself I can be better at the other things I have to do in my life, including being a better wife and mother I do think the level of sacrifice that's needed for the ultimate success in one's field are only achieved by a very small number of individuals. Having said that, there have been many more men than women who win the top awards, and there are many more men than women who win other competitions. Men win more awards and more become our presidents and leaders of universities, businesses, in every field. I do feel that's because in the past, it was more difficult for women to live a life that was both personally successful and professionally satisfied.

In summary, the steps one takes and the time that is devoted for women's talent development matters greatly, both to women and men, and to our planet. As more women continue to stay active in their fields and take time for their own talent development and work either when they are younger or later in their lives, they may actually have more time to continue working in their area of passion to pursue the work they want to do. That is a very good thing.

**SL:** But when we interviewed Nobel Prize winners, most of the time they say I was made by my mother.

**SR:** Well, that is interesting. Certainly, some Nobel winners do acknowledge their mothers as playing a critical role in their talent development. Still others acknowledge their teachers and their partners. In my conception of talent development in women, my talent realization model, I actually define one form of talents applied as maternal giftedness. My model recognizes and integrates the work of Renzulli and Sternberg, identifying certain environmental factors and

certain personal qualities that contribute to giftedness. But what I've found is that two things have to happen for women to excel when these clusters of environmental and personal traits come together: one is that talented women have to develop a belief in themselves and second, they have to possess the desire and drive to develop their talents. And those things are brought to bear in multiple areas of endeavor, one of which is maternal giftedness. Many gifted individuals would not have accomplished what they did without a woman in their lives – either their mother, their sister, their best friend, partner. So, I do believe in maternal giftedness, family giftedness. If one of my daughters goes on to produce or create or develop something that changes the lives of others, I will believe that I've had a part of that, I've contributed to their development and I think that's why you hear the Nobel Prize winners talking about their mothers and their partners. And certainly, we know that's true of two of the greatest scientists! Edison and Einstein would not have accomplished what they did without their mothers, sisters, or their spouses. So again, we need to understand that there are many women who are part of the backdrop of talent development and their contributary roles are critical. We need to recognize and celebrate those roles.

**SL:** Even when we invite, you know, parents to come for a meeting in order to discuss issues relating to their gifted children, most of the time you find mothers are coming.

**SR:** Which is why I believe in maternal giftedness, and also why I believe so much in talented women who are educators. Their gifts and talents may go unrecognized by many other educators and parents, but they're critically important and if you look at the audience today and the audience at most gifted education conferences there are many extraordinarily smart, talented women that are fascinated by this field because they realize they can be a part of helping to develop talents in others. That is a wonderful role to have. It's a role I loved myself in my own life.

**TSY:** When I meet Robert Sternberg and other scholars, they always say that you and Joe make the right, couple and you are the most influential and successful couple. This makes me asking about what is unique about your approach towards work and, like, what contributes to your international rule and reputation?

**SR:** I think what's unique about Joe and me is that we've been happily married over 35 years and many people in the field don't even realize we're a couple. I think we're fairly selfless about each other's talents and work. I've never had a moment of anything other than tremendous pride in my husband. He's wonderful and I'm happy for every success that he has and I know he is happy for my success. We know what we do well, we know the way we write together, we understand the way we work together. I think it was very hard for him when I took my six years away from the Renzulli Center to be become part of the leadership team at the University of Connecticut, but I can't really write about women leaders unless I've done that myself. I think you've got to walk the walk. And so, we've always supported each other, we've always cared deeply about each other, and he's been happy that I have my identity and I'm happy that he has his identity. We know each other so well, our strengths, the way we approached ideas, and I am constantly amazed at his ability to continue evolving and wanting to evolve and stay current. He reads constantly and is always bubbling over with ideas! I know that he's always proud of the work that I do even if it's in a slightly different direction from the work we do each other. But we come back to a core of being a family and supporting each other and believing strongly in the work we've done. Joe's broadened conception of giftedness, his tremendous contributions to gifted education at home and internationally, and then the Schoolwide Enrichment Model which we've created together makes us all proud. So, our respect, pride, caring and support for each other are the reasons we are successful as a team as well as individually. I have to say though, it was also important for me to have an individual identity so when people say something like 'well I didn't realize you were married to Joe Renzulli', I'm surprised, but I am also happy because I am known for my own contributions in the field. I think that's very important to my identity as a scholar and as a woman.

**TSY:** What are the most important paradigm shifts in gifted education?

**SR:** I believe that the most important paradigm shifts in our field are the movement towards developing some of the enrichment and gifted education pedagogy that we've been researching and piloting since the 1970's. The idea is that this gifted education pedagogy should and can be used for a broader population of students. I hope this doesn't sound self-serving, but if you really consider project-based education, problem-based learning in the United States, often called genius hour, some of this has emerged from the work of the Enrichment Triad and early work on problem-based learning and self-directed learning at UConn. I believe that the biggest paradigm shift is the provision of more opportunities for culturally diverse and low-income students to participate in gifted education pedagogy is one paradigm shift. Broadened identification procedures have also helped to find these diverse, talented young people, but we have more work to be done!

We are also seeing so many more educators adopt a broadened conception of giftedness and this is most likely Joe's greatest legacy. When Joe first published the 3-ring conception of giftedness, he was ostracized in the field. He was not invited to conferences, he wasn't asked to give keynotes, the major journals in our field rejected his article, you know, because they said they didn't agree with it and he was really ostracized in the field for a while. And I think now his success, our success, is really a paradigm shift and it took a very long time. But he rarely acknowledges how courageous he was to come out against the sole use of IQ tests, in his arguments in favor of a broadened conception of giftedness. If Joe hadn't included creativity in his original definition, I think the whole field would be different and the notion of creative productivity and students being able to work on areas of interest would not have had the broad-based impact. In this respect, we were early pioneers in this approach. So again, not to sound self-serving but I think the field has come around to what the research has shown us and that is when a broader talent pool of children and young adults can pursue their interests and follow their passions, they're happier, more engaged and less likely to underachieve.

**SL:** Yes. What research excites you at the moment?

**SR:** I mentioned that I have recently stepped away from a very demanding administrative job, and am considering rewriting my book on gifted girls and women. I'm excited about conducting a research project about extremely high levels of creativity and creative productivity in women. I first wrote about women's creativity in the 1990's and it is one of the few published studies on this topic. It surprises me how often people write to me about that article. What I'd like to do is do is conduct a study of highly creative women and explore what creativity means to them, and investigate their creative processes. I think there's such very little research in the field. So that excites me. And I continue to be excited by the work I do with Joe on the Schoolwide Enrichment Model. Renzulli Learning was an early idea that I had, relative to watching so many young people and so many teachers struggle with replacement activities for compacting. I'm interested in personalized learning and I continue to be interested in developing creative productivity from young children to adulthood. I'm interested in understanding what traits in in children might predict which students might need more services and which kinds of services we need to provide students to maximize their creative productivity. But I think my next big study is going to be the study of highly creative, talented women.

I am also really excited about a new grant that we received with two of my colleagues, Nick Gelbar and Joe Madaus, on 2e students with autism. So little is known about the academic and extra-curricular experiences of academically talented students with Autism Spectrum Disorder (ASD). This grant focuses on how these academically talented students with ASD can successfully navigate and complete high school, and specifically, investigate the academic and social experiences that enabled them to attend and graduate from competitive colleges.

**SL:** I think that, based on your models we are introducing up-to-date, personalized, individualized education and activities… or activities against the conventional out of date curricula.

**SR:** Yes, I think one of the biggest challenges facing our field now, both nationally and internationally, is the difference between the state and nationally-driven curriculum and a curriculum is based around the interests and talents of individual students. That type of curriculum, to me, makes more sense for academically talented students – one that is based on his or her interests, learning styles, and preferred modes of expression. We continue to fight upstream in that area. I believe that our Renzulli Learning is a huge step forward, but we need schools that focus on talent development as a major goal! Schools should be places for talent development. Every single special education student in the world, on every IEP - individual education plan or program, in every special education program or plan, should include at least one talent development goal and way to pursue student interests. If we had a goal, one goal for talent development for every IEP or special education plan, all 2e students would benefit. All special education students, have a right to develop their talents and interests and the gifted education pedagogy that we've developed at UConn with our colleagues could enhance general education.

We, in the field of gifted education, have the most exciting pedagogy in the world, but we're still not seeing it implemented in many schools that continue to do what their mission is - and that is to drive more advanced information into the heads of children. The challenge is that those students don't always know how to use or integrate that information and they're not always interested in using it and some of them just get burned out with the amount of content they are expected to master, much of which does not interest them. --Also, we're not teaching students how to learn, we're teaching them more stuff! By teaching them how to learn and solve problems and how to be a part of this great new society that we're all experimenting with in this information overload time, we can introduce them to the challenges we face in the future. As for those students who master content in fraction of a time that other students need to master it, what do we do with these talented students? That dual approach is where this whole notion of personalized learning and schools for talent development can really, I think make, the biggest difference.

**TSY:** You did a very impressive research study. It was, a review of research available and you came up with a very important number of implications. What are the most important implications?

**SR:** So, I think you're asking about an article that I wrote entitled 'is there still a need for gifted education in our education system?'

**TSY:** Yes.

**SR:** I wanted to do that article for a number of reasons. One is, I have people say to me all the time: 'Do we really need gifted education anymore? There here aren't as many programs as there used to be? and you know the answer is - a resounding yes, for some of the reasons I've discussed with you today. In some urban school districts, up to 50% of gifted and talented students are underachieving. In many rural areas or in schools where teachers don't understand needs of gifted students, there are no services at all to challenge and engage gifted learners. There are many, many smart kids who will fail in school, drop out of school, fail to find an interest, not be able to identify a future passion, not do well academically, and these are critical issues. We have very little knowledge of what to do with bright kids when they finish the regular curriculum in a fraction of a time it takes other students. We know that gifted and talented students, as a group, have as good social and emotional development as other students. That is, they don't have more social or emotional problems, but if they have problems, they are fairly specific and very critical, such as underachievement, perfectionism, high anxiety about the world and their role in the world. We have very few places that even know or understand the social-emotional concerns of this group.

The other research we need is more longitudinal studies, such as that carried out by our colleagues at Vanderbilt, Camilla Benbow and David Lubinski. We need increased understanding of longitudinal effects of various types of programming; Joe and I have carried out some studies, and some of our colleagues have conducted other studies of longitudinal impact of programs, but

we need more. We know some of the components that seem to make a difference, but we're not seeing enough of this kind of research being done. We need these programs, and also need to do more research on these programs work. We need to demonstrate that there is still a critical need, particularly for students who don't have support at home or at school.

Some very smart students are going to do very well, they're going to grow up and become doctors, lawyers, engineers, and professors. But, I'm not sure that, without some special kinds of programming, they're going to be as creative or curious or invested in solving the problems of the world. Joe and I have always believed that gifted, talented students and kids with high potential should be the ones that we entrust with the knowledge and the understanding of what to do to make the world a better place. And some of the studies about wisdom by Bob Sternberg, Howard Gardner's good work projects, and Joe's Houndstooth work demonstrate the good ways that people can use their talents to improve the world and the human condition. This research is important for the future of our field because we need to know what we can and should do, as well as the types of opportunities and resources we can use to convince talented young people to use their talents to make the world a better place. These are critical issues and research about how to do this is still necessary in our field.

**SL:** How could we get more potentially gifted people into the teaching profession? This is a very critical issue when it comes to gifted education.

**SR:** We can give teachers more leadership opportunities, we can give them more autonomy, we can give them more choices. We can take away some of the administrators who don't understand or believe in talent development and we can enable visionary superintendents who understand that when smart people enter the teaching field, they need to be able to make some choices of their own and have time to do that they feel passionate about.

One of the reasons Joe and I love doing Confratute in the summer, is that we get so many passionate, highly creative teachers that say, 'I was thinking of leaving teaching until I came to your Summer Institute'. This summer institute lasts just a week, but this time with other creative educators just encourages and gives people hope about going back into their profession with renewed enthusiasm and new creative ideas. I think teachers need more autonomy, more freedom and more support for their own creativity and I think in many places we're doing the exact opposite of that, unfortunately.

**TSY:** We consider you as your role model in gifted education, so what is your advice for young scholars, young researchers?

**SR:** That's a very good question. My advice for young scholars and young researchers is to find something that they feel passionate about to research and work on. You should do research on things you believe in! I felt so lucky in my life that we had the funding from our National Research Center to conduct a really high-quality study on compacting. But even before I had the money for research and we had the money from the government in the US, I did things I was passionate about. I spent years on my gifted women study, I spent a long time on the 2E study interviewing students at universities who have learning disabilities and looking at the paths that they took and the factors that they encountered that were obstacles.

I think young researchers have to, first of all, find their own interests. Second, I've been blessed with great partners - so having people to work with that will challenge your assumptions, as I said, and inspire you to do well. I've been so fortunate to have special colleagues, like Joe and my friend Susan Baum and my partners at UConn, Del Siegle, Jean Gubbins, and Catherine Little. I have had fabulous graduate students who have become colleagues and friends like Marcia Gentry and Liz Fogarty and Angela Housand and others. To find somebody you can write with always gives you the added benefit of different perspectives and somebody to challenge your work and ideas, which has been very, very helpful. I think also, finding schools to work with. We have

dozens of schools that have welcomed Joe and me, schools and districts because they know we do ethical research, we'd do it well, and we keep our promises. But we started small, doing some of our work in our daughter's school. We started in a school district in which I was working. I have a background as a teacher and a Gifted Program Coordinator, so I think developing a relationship with a school where you can do important research work for that school and keep your promises is also important.

And, last, I would say: do something that you feel is going to have practical importance and meaning. Every study that I've done is something that I believe in. My more recent work and the outgrowth of SEM has been on talented readers and there's so little out in the field on talented readers that I felt I could make a difference to parents, teachers, and students themselves. So young scholars should do something that they feel has practical significance, and will make a difference in schools. That's guided my work, as well.

**TSY:** And if they are lucky enough, they will have a very healthy, supportive atmosphere in which to work, such as the one you have here at UConn.

**SR:** We've been very blessed to work at the University of Connecticut, we've been blessed by our donors Ray and Carole Neag, we've been blessed by a University that has given us an environment where we could conduct the kind of research we have done, as well as run our summer programs for teachers and students. So yes, finding an environment for good work is also helpful. But even before I was at UConn, as a teacher in a school district, I always had a curious spirit and was interested in doing research. So, if you wait until all the conditions are perfect, you won't do the work you need to do. Starting small and then working up to conducting research studies that are more nationally based and have more impact is important but starting to do *something* is really critical. Find out where your own students are, ask your students on a regular basis 'Is what you're doing making you happy? Why are you struggling with this?', 'What going on that results in your inability to complete your work?'. Those kinds of question and your interests in students actually help underachieving students because it begins the process of having them consider their own work cycle—their metacognition. So, teachers can conduct action research studies in their own schools and districts if they have willing, supportive administrators and people around them who understand the importance of the work they are doing.

**TSY:** So, at the end of this interview, first of all we are so proud of you, of your successes and I would like to thank you so much on behalf of the International Centre for Innovation in Education (ICIE) and Lost Prizes International (LPI). We would like to give you a few minutes to conclude this interview with some suggestions or recommendations you would like to offer or to introduce.

**SR:** Thank you. First of all, thanks for your friendship, as Joe said we have many of our international opportunities and our connections have been because of the work that you've done. We've also been blessed by our partnership with our dear friends Victor Muller and Salome in Switzerland. We are also grateful to our many other colleagues and hosts in Europe and Asia. Our European and other international work has brought us tremendous joy, so we are also very grateful to you and we wish you and everyone in the audience good health and peace during these difficult times. I would conclude by saying that, when you find something that you love, and you have a passion in your field and a passion for ideas, you're never really working—you are pursuing what you love. Follow your passions and try to do what makes you happy.

I've been blessed by being married to and working with a man who loves his work just about more than anything else, maybe except for me and our children and who has been a great role model in that and I wish for everybody an opportunity to find work that they love and then to get to ask challenging questions about that work and, again, to carry on with their own research because it contributes to existing knowledge.

I would say to smart women, do not give up on your dreams, as too many talented women defer their hopes and plans. Two thirds of all people in the world who struggle with low levels of literacy are women and older women also constitute the greatest single block of those who are poor. In order to change these statistics, we need the talents of women to be recognized and developed to change these statistics. So, if a woman has a dream to pursue her doctorate and complete an advanced degree to do work that's very important to her, her school, state, district, country, she should go do it, don't wait. Because, I've interviewed far too many people who look back with regret that they did not take a safe risk (to go back to school or change employment) and pursue a creative opportunity. Taking these kinds of chances occasionally to do something that's out of the box and might make you happier personally will also enable the people that you love understand that talent development is important. And my guess is that many young people with dreams will be encouraged by those they love to pursue these challenges. I'd certainly like to encourage others now - if you get an idea and you want to do something creative, I think you have to go do it. Don't dream about it, but plan and then take the steps to put that dream into action. That is my advice.

**TSY & SL:** Thank you so much.

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## Interview (2):

# Françoys Gagné

**Michael F. Shaughnessy**
Eastern New Mexico University, Portales, New Mexico, USA

**Françoys Gagné** is one of the leading figures in educational psychology and giftedness in the past 50 years. Born October 6, 1940 in Montreal, Canada, Françoys Gagné completed his B.A. in Psychology and his master's degree in 1962 and then his Ph.D. in psychology at the Université de Montreal. Dr. Gagné devoted the first decade of his career to setting up and directed a major research/ intervention program within the bilingual Quebec system of colleges. He joined the Université du Québec à Montréal (UQAM) in 1978 and began to study talent development (gifted education) as his new teaching/ research focus. Dr. Gagné devoted over two decades to his main research interests which included his theoretical work on the development of gifts and talents, the measurement of attitudes , and on the screening of students' gifts and talents by their peers and teachers.He has gained international renown and is mostly known by his theory of talent development: the Differentiating Model of Giftedness and Talent (DMGT). Professor Gagné has received many professional prizes, including the prestigious Distinguished Scholar Award (1996) from the National Association for Gifted Children (NAGC – USA).

In this interview, Professor Gagné shares with us his current work and reflects on the field of gifted education and his contributions to the field over several decades.

**MS:** Professor Gagné, I understand that you have a book about differentiating giftedness from talent. What brought this about?

**FG:** This book summarizes my vision of talent development through the DMGT (Differentiating Model of Giftedness and Talent). The DMGT was created almost four decades ago, and then evolved progressively in breadth and depth over the ensuing decades. As a new octogenarian aware of a diminishing life expectancy, I decided last year that it was time to bring together in one product the fruit of my thinking on talent development. I was hoping that it would become the 'bible' on that theoretical model.

The DMGT has its origins in a main observation I made within a few months of entering the field of gifted education in the late 1970s. Professionals in the field were defining the concept of giftedness in two distinct ways, either as outstanding potentialities or aptitudes, for instance high IQ scores, or as outstanding achievements or competencies, for instance high academic results. Indeed, professionals and scholars would confound most of the time the two meanings in their definitions and identification protocols, considering those they called 'gifted' students as 'bright high achievers.' I point out in the book many more incongruities that led me to label gifted education a 'conceptual Tower of Babel.'

**MS:** In reviewing your table of contents, I note that you have used the word "aptitude". How would you define this word and why is it relevant?

**FG:** Everyone — really everyone!—acknowledges the existence of innate potentialities or natural abilities that children possess in different degrees and that they will progressively transform, more or less completely, into achievements or realizations. Popular slogans reflect this common dichotomy: maximize your potential, develop your aptitudes to their fullest, etc. I chose the term aptitude to represent these natural abilities that appear very soon after birth and develop without any systematic instruction; they have their roots in biological underpinnings, themselves anchored in our genetic baggage. The DMGT proposes six major aptitude domains (see figure) that are extensively described in the book. Gifts correspond to outstanding aptitudes.

In the DMGT, 'outstanding' is operationalized as belonging to the top ten percent of same age peers on a relevant aptitude measure. The book discusses in detail that generous choice for the basic prevalence threshold, as well as more selective levels based on the metric system (top 1%, top 0,1%, top 1:10 000).

**MS:** Are there any tests that help teachers and parents differentiate between talent and giftedness?

**FG:** Readers probably guessed that the term talent corresponds to outstanding achievements or realizations. It confirms the large diversity of individual differences in achievements, from total incompetence to prodigious excellence. Again, the DMGT's basic threshold for talent is top ten percent, with metric-based subgroups similar to those adopted for gifts. The DMGT proposes nine major groups of talent fields (see figure), described in detail in the book.

The book describes major examples of measurements both for aptitude domains and talent fields. In the specific case of intellectual aptitudes, IQ tests represent the most adequate approach to assessing individual differences. Note that the DMGT distinguishes cognitive and creative aptitudes. The book proposes a clear definition of intelligence, a definition that goes hand in hand with the measures obtained with IQ tests. It is a well-known fact that cognitive aptitude is considered the best predictor of academic achievement, not only at K-12 levels but also within college levels. In the case of academic talent, general school achievement and achievement in specific subjects represent relevant measures of academic talent. Parents can also compare the achievement of their children in other fields (arts, sports, technology, etc.) to determine the presence of talent (top 10%) outside the academic realm.

**MS:** Why do you think it important to clearly differentiate between gifted and talented?

**FG:** The importance of this conceptual differentiation resides in the modest correlation between aptitude and achievement measures. In other words, if we use the DMGT's criteria of giftedness and talent, many intellectually gifted (GI) students do not become academically talented (TA). Similarly, many TA students do not manifest gifted-level intellectual aptitudes. The large number of gifted underachievers testifies to this limited overlap between the two groups. Indeed, I demonstrate in the book that the overlap between GI and TA students does not exceed 30%. Said differently, a majority of students are GI or TA, but few are simultaneously GI and TA. Note that this limited overlap applies equally well, sometimes even better, in the relationship between other domains and fields, for instance between physical aptitudes and achievements in athletics and sports.

**MS:** Also, you use the word "catalysts". Why is this word important and what are some of these catalysts?

**FG:** The DMGT figure shows five major groups, called components, of variables in talent development. The basic trio exemplifies the DMGT's definition of talent development, namely the progressive transformation (component D) of outstanding aptitudes (component G) into outstanding achievements (component T). The DMGT uses the term 'talentee' to identify any person actively involved in the development of a particular talent. The book explains how high aptitudes act as the building blocks of the high competencies that will be called talents.

The other two components (I and E) are called catalysts because they influence the developmental process without playing the role of building blocks; the book explains how their role is similar,

but not identical, to the catalysts common to most chemical processes. The DMGT distinguishes two major types of catalytic influences in the talent development process, influences within talentees (I component), as well as influences outside of them (E component). The DMGT figure shows the major subgroups of catalysts within components I and E; the book describes them in much more detail.

**MS:** Your DMGT figure highlights the background role of chance; is talent development just a lottery?

**FG:** To a significant extant, it is. The book examines that question in some detail. As an appetizer, let me quote a famous psychologist who said that 'all human accomplishments can be ascribed to two crucial rolls of the dice; one roll determines an individual's heredity, the other his formative environment.' Heredity affects significantly not only a person's aptitudes (all six domains), but also the nature and level of her intrapersonal catalysts (temperament, interests, volition). With respect to the E component, we are born and raised in a specific environment (country, culture, SES, parenting style) that we do not control, but that will promote or limit a person's talent development opportunities. Thus, every active talentee should be very grateful for the opportunities he/she received from both Nature and Nurture.

**MS:** You describe a very complex network of influences; are some of them more important than others?

**FG:** The book devotes a full chapter to that very important question, called 'What makes the difference?' I initially point out the uniqueness of talent development paths, stating that talents result from complex choreographies involving a multitude of fluctuating interactions between all components, subcomponents, and facets of the DMGT. Still, at the population level, some of the DMGT's elements have shown through accumulated research a higher degree of influence than others. Look at the DMGT figure, and try to identify which of the four causal groups of factors (G, D, I, E) tend on average to influence more the emergence of talents? Outstanding aptitudes? Time and energy investment in the learning process? Personality characteristics? Ambition? Passion? Will power? Autonomy? Affluent parents? Parenting style? Learning and training program? Good teachers and/or coaches? Chance factors?

In the book, I summarize my own proposal with the equation: C(G.I.D.E). If you want to know more, you know what to do!

**MS:** In terms of parenting a child who has multiple talents (piano, voice, violin) what do parents need to be aware of?

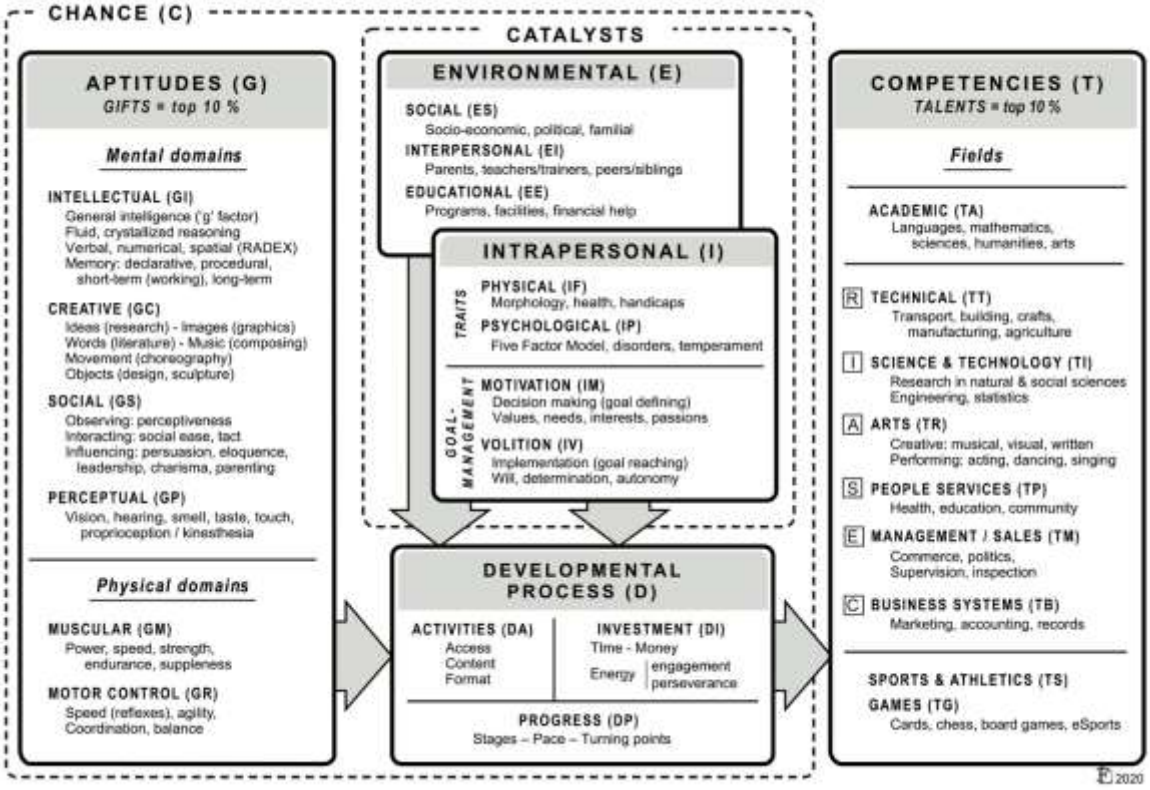
**FG:** This book focuses on the DMGT as an explanatory template. The figure should convince you that any factor that plays a significant role in talent development will find an appropriate space within that five-component model. One of its practical advantages resides as a checklist of potential sources of influence to be used by professionals and parents (and the talentees themselves) to examine the strengths and weaknesses of a particular talent development path. It also should constantly remind them that no single factor can properly synthesize the complex individual choreographies mentioned above.

The book does not discuss how to best promote adequate talent development to talentees. This is a question that puts the focus on the E component (policies, structures, significant people); it also addresses a 'what should be' question, whereas the DMGT was developed to address a 'what is' question. A second book, currently in the works, will try to answer these questions, but within the realm of academic talent development.

**MS:** Finally, what would you consider to be the unique qualities of your DMGT?

**FG:** There are many of them; in the self-extolling finale of the book—one is never better served than by oneself!—I identify twenty-six unique qualities. Here are just a few: a) a clear distinction

between aptitudes (gifts) and achievements (talents); b) clear and concrete definitions of all major concepts; c) detailed structure (see figure) for the aptitude domains and the competency fields; d) clear answer to the prevalence ('how many') question; e) a precise differentiated role given to aptitudes (as building blocks) and intrapersonal/environmental influences (as catalysts); f) an honest questioning of undue environmentalism by giving appropriate space to genetics; g) the recognition of chance (lack of control) as a major component of the talent development process.




**MS:** Thank you, professor Gagné, for this interesting overview of a fascinating and unique talent development model. [with due modesty !!!]

## About the Author

**Michael F. Shaughnessy** is currently Professor of Eastern New Mexico University in Portales, New Mexico. He received his doctorate from the University of Nebraska in Lincoln, Nebraska. He has served as Editor in Chief of Gifted Education International and on the Editorial Boards of several journals. His research interests include intelligence testing and personality factors related to giftedness, talent and creativity.

**e-Mail:** Michael.Shaughnessy@enmu.edu

**New Books (1):**

# Teaching Global Citizenship: A Canadian Perspective

**Edited by: Lloyd Kornelsen; Geraldine Blazer; Karen M. Magro**
University of Winnipeg, Winnipeg, Canada

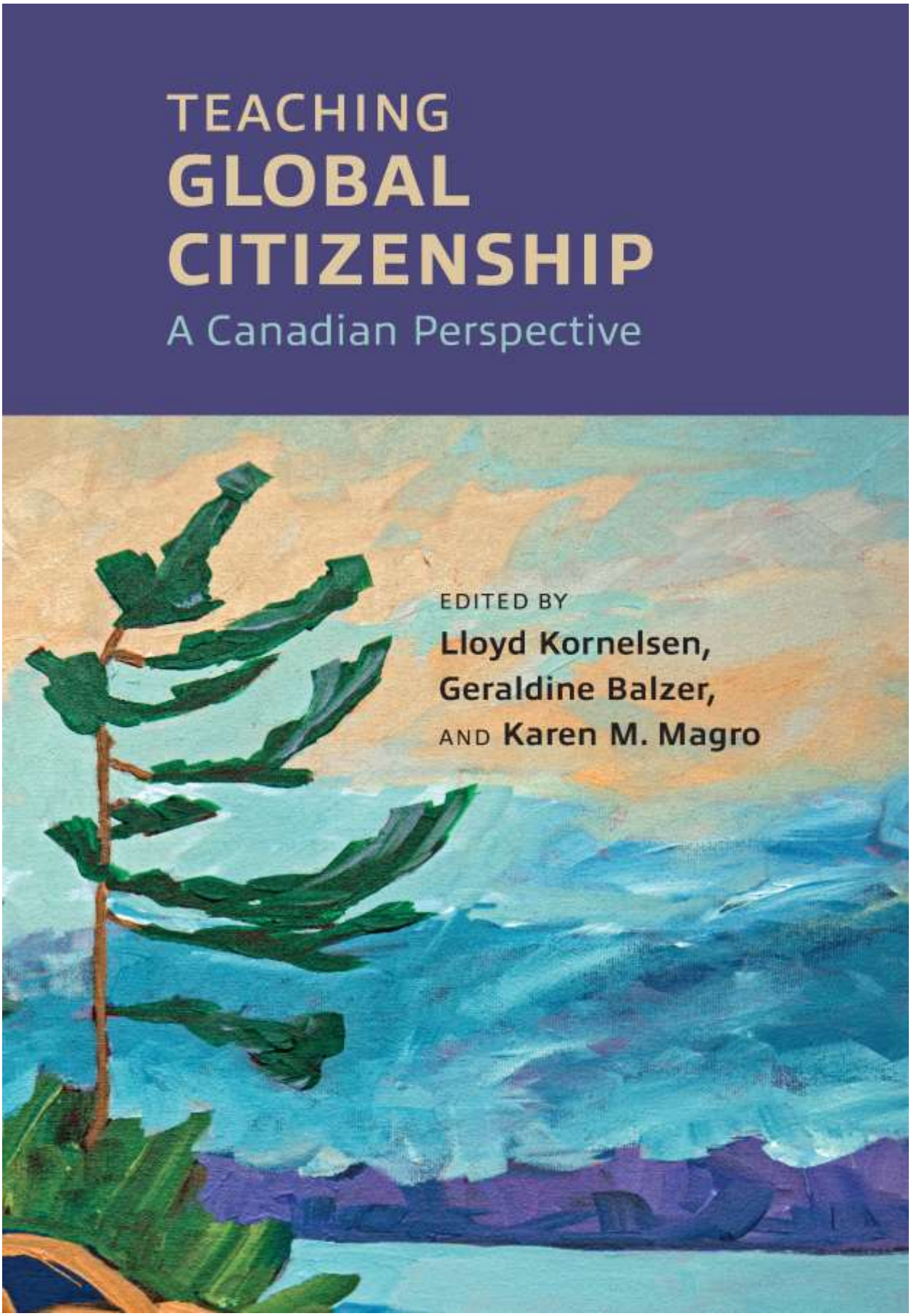
"The contributors to *Teaching Global Citizenship* have produced a treasure trove. Their abiding commitment to improving their practices, for assuming responsibility for humanity's future, and for making the world more hospitable for the colonized and underserved are inspiring. Unflinchingly confronting the complexities of global citizenship and their own complicities for current realities, they reinforce that there can be no justice without empathy. Simply a great resource for educators who care about our world!"

— **John R. Wiens**
Dean Emeritus, Faculty of Education, University of Manitoba, and Teacher, Principal, Superintendent, and Professor

Gathering perspectives from current and former teachers across Canada, *Teaching Global Citizenship* tackles the unique challenges surrounding educating for global awareness. Bridging field and academy, this edited collection demonstrates how insights from teaching experience both inform and are informed by education theory and philosophy. The contributors reflect on their classroom experiences to engage critically with the issues surrounding teaching global citizenship, such as confronting systems of privilege and power, engaging students at the local-global nexus, responding to reverberations of colonialism, and helping students understand and navigate the tension between universalism and pluralism without frightening, regressing, mythicizing, imposing, or colonizing.

Grounded in narrative inquiry, experiential learning, and teacher-based research, the volume discusses strategies for encouraging young people to cultivate a sense of agency and global responsibility and provides perspectives from diverse educational settings across the country, from rural to urban areas, and from public to private schools. This timely and accessible text covers a broad range of topics surrounding the complexity of educating for global citizenship and will benefit those in education, global citizenship, curriculum development, and social studies courses in Canada.

## Toronto: Canadian Scholars Press


TEACHING
GLOBAL
CITIZENSHIP
A Canadian Perspective
EDITED BY
Lloyd Kornelsen,
Geraldine Balzer,
AND Karen M. Magro

**New Books (2):**

# Transcultural Literacies: RE-Visioning Relationships in Teaching and Learning

**Edited by: Karen M. Magro; Michelle A. Honeyford**
University of Winnipeg, Winnipeg, Canada

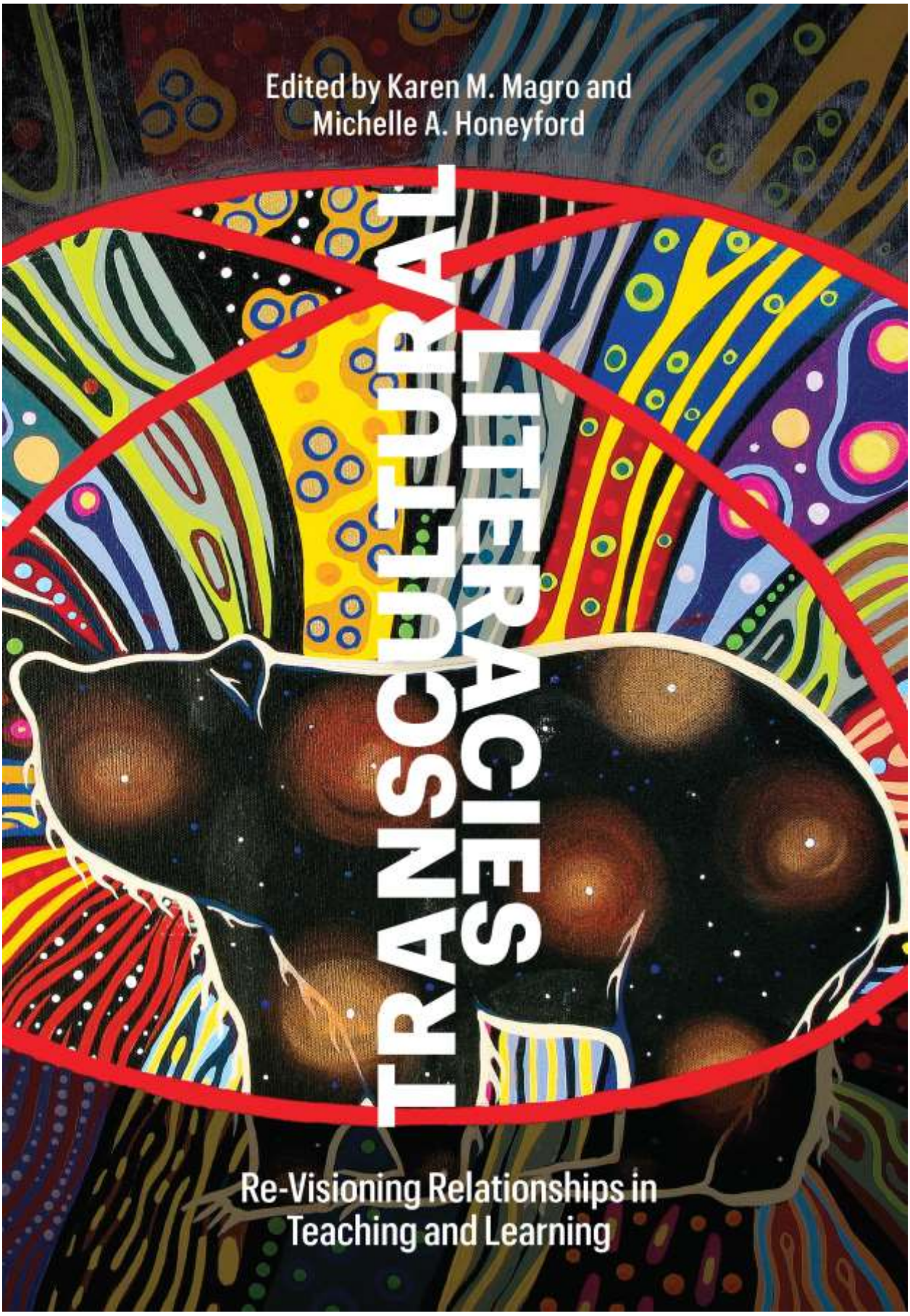
"*Transcultural Literacies* is a timely invitation to dialogue about one of the most challenging questions in contemporary schooling: how do we decolonize education to promote inclusive learning and teaching? Drawing on exciting literacy research across a range of transcultural contexts, the contributors to this volume offer valuable insights for both classrooms and communities. Provocative and compelling!"

— **Dr. Bonny Norton (FRSC)**
Professor and Distinguished University Scholar,
Department of Language and Literacy Education,
University of British Columbia

Canada is more diverse than ever before, and the application of transcultural literacies in Canadian classrooms is vital for the successful growth of students and teachers alike. In this timely edited volume, world-renowned educators consider the impact of race, culture, and identity in the classroom. Taking an interdisciplinary approach, *Transcultural Literacies* investigates not only how teachers can design learning spaces to meet the needs of diverse students, but also how they can build literacy programs to complement and further develop the varied strengths, skills, and experiences of their students.

The authors bring a range of viewpoints to the project, exploring transcultural literacies from different but complementary lenses, including race and identity, transformative learning, global citizenship, storytelling, anti-racist and decolonial literacy education, Indigenous knowledges, spatial theories, and curriculum studies. Featuring rich pedagogical tools, including chapter previews, visual organizers, questions for reflection, and recommended readings and resources, this invaluable text will benefit students in teacher education programs that focus on language and literacy, diversity, and global citizenship.

**Toronto: Canadian Scholars Press**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TRANSCULTURAL
INTERACTIONS
Re-Visioning Relationships in
Teaching and Learning

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An abstract for a review or a theoretical article should describe in no more than 150 words the topic (in one sentence), the purpose, thesis or organising structure and the scope of the article. It should outline the sources used (e.g., personal observation and/or published literature) and the conclusions.

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**Dr. Karen Magro;**
Faculty of Education, University of Winnipeg, 515 Portage Avenue;
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**e-Mail:** k.magro@uwinnipeg.ca