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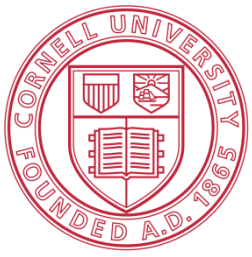

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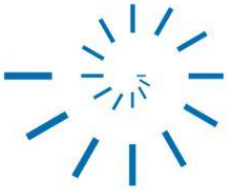

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And the PD Beat Goes On

Taisir Subhi Yamin; Ken W. McCluskey

The networking, research, and service delivery partnerships continue between the International Centre for Innovation in Education (ICIE) and Lost Prizes International at the University of Winnipeg (UW). Front and centre at the moment is Designing Our Tomorrow (DOT), a collaboration involving ICIE (through regional and international conference sessions), the Faculty of Education team at UW, and Cambridge University personnel (Ian Hosking and Melanie Smith from Engineering and Bill Nicholl in Education). Among other things, the intent of the DOT initiative is to connect a number of theoretical perspectives (including the Prism, Lost Prizes, and various special education models), to conduct world-class research, to help transform education by taking a future-focused approach, to involve young people in the development and design of new methods and materials, and to develop altruistic, empathic service learning projects to support disadvantaged populations.

In addition, our UW Faculty of Education Publishing operation has truly moved into full gear. The books published in 2018 – and distributed by ICIE – include the following: (1) *The Three Pillars of Transforming Care: Trauma and Resilience in the Other 23 Hours* (by Howard Bath, former Northern Territory Children's Commissioner in Australia and John Sieta, Michigan State University). The initial printing of this text sold out in the first month, and the large second run is moving very quickly as well. (2) *Schools that Matter* (by Steve Van Bockern, Augustana University, South Dakota). This volume has also generated considerable interest, and is being reprinted by ICIE for international distribution. (3) *Imaginations* (articles from the *Journal of Cross-Cultural Image Studies, Marshall McLuhan and the Arts*). This anthology was produced in partnership with a team from UW's Faculty of Arts and their colleagues from other universities in Canada and beyond.

Books on ADHD and mentoring are now in the ICIE hopper, along with the tentatively titled *Advancing Creativity and Innovation in Education* (edited by Donna Copsey Haydey and Ken Reimer from UW), which will offer novel, yet practical perspectives on creativity and vision in education. Drawing from outstanding presentations delivered at ICIE Conferences, the editors have chosen chapters by contributors representing several different countries.

One of our goals for the next two years is to strengthen our international network through major conferences and targeted training sessions alike. We will have a number of undertakings, including an International Creativity Olympiad, an Intensive Professional Diploma in Gifted Education (Antalya-Turkey, April 14-21, 2019), and a Capacity Building Conference (Istanbul-Turkey, January 2-5, 2020).

Last year, the 6th annual Lost Prizes/ICIE Seminars at the University of Winnipeg were held in July 2018. Attendance for both the conference itself (with well over 200 paid participants) and the 13 conference-connected/related courses (with more than 500 registrants) reached capacity as educators gathered to share and acquire knowledge about supporting Canadian efforts toward reconciliation in the classroom. Our partnership with the National Centre for Truth and Reconciliation provided an opportunity for meaningful sharing

of information and resources through keynote addresses, breakout sessions, and an interactive "story" workshop demonstrating the impact of colonization on Canada's Indigenous people.

Of course, we are now actively planning the 7th annual 2019 Lost Prizes/ICIE Seminars, which will take place July 4-6 on the UW campus. This time around, the theme of the event is *Building Resilience in Ourselves and Our Students.* More specifically, keynote addresses, workshops, and the conference-connected Post-Baccalaureate Diploma in Education (PBDE) courses will focus on understanding trauma, resilience, and wellness through a variety of ethnocultural lenses, including Indigenous, Eastern, and Western perspectives. The power of story will also be explored as an opportunity for healing, growth, and connection.

We are committed to the development of all learners as productive world citizens and leaders for the future, and we believe that each of ICIE's International Conferences is another step on the journey towards leadership, creativity, and innovation. The goal at these events is to bring people together by offering meaningful keynote and invited sessions (delivered by high-calibre speakers, including Nobel laureates), workshops, breakout sessions, symposia, and exhibits. And certainly, opportunities abound for networking among teachers, parents, students, scholars in gifted education, community representatives, and government officials. Some of the conference categories are building creative climates, educational excellence, individual differences, innovative environments, future trends, gifted and talented programs, global education for peace, teaching and learning, technology, and various branches of psychology.

Following closely after the Lost Prizes/ICIE Seminars in Winnipeg, the 17th ICIE International Conference will be held in Houston (July 16-19, 2019). Among the keynote speakers will be Don Ambrose, Susan Baum, Patrick Blessinger, Joy Lawson Davis, Donna Ford, Todd Lubart, Ken McCluskey, Sally Reis, Joseph Renzulli, and James Wilson, Jr.

Next year, the 18th ICIE International Conference will take place in Helsinki (July 20-24, 2020). Keynote speakers will include Christine Boyko-Head, Frédéric Darbellay, Vlad Glaveanu, Jacques Grégoire, Karen Magro, Alexander Minnaert, Douglas Newton, Lynn Newton, Roland Persson, Uğur Sak, Manfred Spitzer, Henry Tirri, and Steve Van Bockern.

In any case, the quest for lifelong learning and professional development obviously remains at the forefront of our mission. We hope you enjoy this volume of the *International Journal for Talent Development and Creativity*, and that we will have an opportunity to connect with as many readers as possible at one or more of our upcoming conferences or courses.

From the Editor's Desk:

Mapping the Promise and Potential of Creative Learning and Talent Development across Educational, Cultural, and Geographic Terrains

Karen Magro
The University of Winnipeg, Canada

The contributions comprising our current International Centre for Innovation in Education (ICIE) journal reflect a diverse array of research from all corners of the world. These articles reflect the promise and potential of new programs, innovative teaching and learning strategies, the importance of hearing teachers' voices, the challenges our students face, and new ways to engage, inform and inspire lifelong learning.

In this issue, Patrick Blessinger, Enakshi Sengupta, and Taisir Subhi Yamin present a critical-visionary overview of human development within a planetary context. They explore the idea of human creativity as a 'renewable resource' that can lead to the revitalization and healing of the planet. Too often, technological developments have led to a rapid escalation of planetary disruption and the destruction of fragile ecosystems. Instead, Austrian American physicist Fritjof Capra asserted that a transformative shift in thinking is needed and that learning endeavors should work toward protecting our precious ecosystems and finding solutions to our most perilous problems: climate change, deforestation, habitat destruction, species decline, pollution, and ongoing global conflicts. In *The Tao of Physics*, Capra (1975) emphasized that rather than seeing the world in a mechanized way, we must begin to see the world as a system of interconnected networks. In his reflective photographic work *Embers*, the Ojibway-Canadian writer Richard Wagamese (2016) advocates for rich learning experiences that build upon compassion, healing, and the interconnectedness of all living things. We are connected to each other in complex interlocking ways:

> I've been considering the phrase 'all my relations' for some time now. It's hugely important. It's our saving grace in the end. It points to the truth that we are related, we are all connected, and we all belong to each other. The most important word is all. Not just those who look like me, sing like me, dance like me, speak like me, pray like me, or behave like me. ALL my relations. It means every blade of grass, rock, mineral, and creature. We live because everything else does. If we were to collectively choose to live that teaching, the energy of that change of consciousness would heal all of us-and heal the planet. We do it one person, one heart at a time…we are connected, we are the answer. (p.36)

How can a curriculum be local and global at once? Edmund O'Sullivan (2002) writes that education should be rooted in "a deep-seated need for community and sense of place…This loss of connection to where we live, to the people in our communities, and to the natural world that surrounds us is tangible" (p.9). Educational institutions at all levels might begin to ground teaching and learning within a planetary perspective. Interconnections

between and across disciplines and subject areas can be made through inquiry based research projects that challenge our students to be researchers and designers. Similarly, Janet Miller (2006) asserts that "we are living in a time of rapid transformative change that characterizes global flows of people, commodities, ideas, technology, cultural and capital through and across constantly changing borders, discourses, and identities"(p.32). There are "new, volatile, dynamic, and mobiles forms…of citizenship" and as a result, we need to embark on journeys that explore new conversations that bridge cultural divides and misunderstandings. The possibilities for transformative collective exchanges can occur when we move away from academic discourses and evaluation protocol that is regulated, codified, and static (Miller, 2006, p.34). Global inequities and systemic barriers that prevent individuals from realizing their potential continue to erode our communities. We need to build learning networks and literacies of compassion, creativity, and cohesion in a world that often seems fragmented and desperate (Magro & Honeyford, 2019). Educators need to think about the skills that they need in order to create learning climates that enrich learners in multi-modal ways. How are we preparing our teachers? How are curriculum discourses influenced by global events? How can learning experiences lead to learner power, agency, and imaginative thinking? What are the implications for teachers working with culturally diverse groups of students? How can we enter conversations that expand our knowledge base of creativity and talent development? What would a worldwide curriculum look like? (Butler, 2002; Miller, 2006).

Educators today are challenged to work at "the intersection" between the autobiographical, the global, and the local. Local communities are influenced by global events and in turn, individual lives and personal narratives are more complex and multi-dimensional. These intersections are potential creative sites for new learning experiences that are dynamic, multi-modal, and imaginative. Traditional disciplinary boundaries make way for re-imagined spaces and places for learning. Miller suggests that curriculum across the disciplines must be dynamic and ever-evolving; it should take into account the way economic, technical, institutional, governmental, and immigration forces provide a space to create new choices and possibilities for learning.

Miller (2006) describes metaphors of travels, links, maps, charts, journeys, bridges, borders, and boundaries that reflect the cultural, educational, and social mobilities of the 21st century. Local spaces transact with global events and impact learning experiences. Reading autobiographies, for example, of individuals who have traversed multiple geographical, psychological, social, and a cultural locales can provide us with examples of the complex interplay of local and global events and their impact on lives. Anne Mahon's (2013) *The Lucky Ones* describes the harrowing and heart-breaking journeys of adults who escaped war and conflict to start a new life in Canada. The personal narratives of refugee experiences of loss, tragedy, resilience, and courage provide a bridge to understanding the way world events impact individual lives. It is through sharing our stories, as Wagamese (2011) writes, that "we make it possible to know, recognize and understand each other" (p.81). The contributions that comprise this double issue provide a rich foundation for reflecting upon innovative educational initiatives that cross cultural, social, and geographic divides.

In this issue, Rena Subotnik, Paula Olszewski-Kubilius, and Frank Worrell present a comprehensive and elegant analysis of skills, talents, and individual learning strengths across the discipline and in different professional areas. As educators and researchers, how can we re-imagine and re-conceptual potential, expertise, eminence, giftedness, talent development, and high performance within today's culturally diverse classrooms? How can we cultivate literacies of compassion? How can intra and interpersonal qualities such as humility,

empathy, persistence, and self-regulation be integrated into more traditional academic curricula? Personality variables, interests and talents develop when they are nurtured in a climate that validates and values an individual's existing literacies and learning experiences. How might the values, beliefs, and personality traits of teachers enhance rich learning experiences?

Talent development can be encouraged early on in one's educational journey. Lynn D. Newton, Douglas P. Newton and Prathibha Abrams examine creative processes of scientific enquiry. Effective teachers encourage not only problem solving but problem finding and young children have the potential to be investigators, interrogators, and designers. Children think in qualitatively different ways but how can teachers integrate essential questions and encourage creative thinking through particular teaching and learning approaches? These authors provide four short, exploratory studies that highlight different dimensions of children's problem finding efforts. Newton, Newton and Abrams remind readers that a complex interplay of personality factors, content knowledge expertise, teaching style, and learning style as well as the resources and context of learning can influence reflective and critical thinking among young children. Exploring multi-modal texts and opportunities provided for students to imagine, invent, create, and speculate on "big ideas" can lead to rich learning experiences.

In her research study, Donna Copsey Haydey examines the effectiveness of an additional half-day program for "at-risk" Nursery and Kindergarten children through a collaborative partnership. Her research emphasizes the importance of partnership building and connections between daycare, schools, post-secondary institutions, and community stakeholders. Literacy emerges when opportunities emerge that empower parents and children. Copsey Haydey writes that "research in family literacy reveals the socio-economic status (SES) levels of families are strongly related to children's literacy achievement" and that family poverty may be a contributing factor that can impact children's language development. Assessing children's literacy needs must be analyzed from a holistic lens; complex social, cultural, and familial variables impact literacy skill acquisition. Literacy and learning interventions *early on* (prior to Kindergarten) can have a positive impact on language and literacy development. Parents as adult learners need the skills that would enable them facilitate the positive cognitive, emotional, physical, and social development of children. What opportunities are there for adult learners to improve and further develop their own literacy skills? This article highlights the need for communities to work together to recognize and reduce the system psychological, situational, and institutional barriers that disadvantage particular groups of children. Every child has the right to a quality education and a healthy environment that would lead to personal and academic success.

A number of our articles provide practical teaching and learning strategies that can engage culturally diverse learners. Sally M. Reis, Catherine Little, Elizabeth Fogarty, Angela M. Housand, Brian C. Housand, Rebecca D. Eckert, and Lisa M. Muller present a series of eleven case studies that apply the *Schoolwide Enrichment Model-Reading (SEM-R*) within differentiated learning contexts. Reading in instruction can be enriched. Assessing learner interests, reading levels, learning styles, and individual readiness to learn are important factors to consider when developing a reading enrichment program that involves teachers, literacy coaches, administrators, and other school personnel. Encouraging a love of literacy through interactive and self-directed learning approaches can encourage motivation and self-efficacy in reading. Students can begin to connect reading with enjoyment, power, and agency when they are given opportunities to succeed and when reading interventions are

thoughtfully organized. In their article on the five dimensions of enrichment, Sally M. Reis and Joseph S. Renzulli further attest to the complexity of teaching at this time. The unique skills, talents, and interests of students today "require a remarkable range of teachers' skills, time, and resources". Challenges and barriers stand in the way; yet, the enrichment model presented by Reis and Renzulli provide a foundation that highlights the importance of holistic and authentic learning that moves beyond "grade level lessons." The five dimensions of enrichment include: course content, instructional strategies, the classroom context, and the learning products. Creative and critical thinking and investigative opportunities may arise in informal settings outside of school. Instruction can be differentiated through content, type of instruction, level, and the pace of instruction. If we are to engage more students, we need to personalize instruction, create flexible programs, and create classrooms and communities where resources and role models can guide children, youth, and young adults into realizing their talents in art, music, technologies, science, and so on. These studies highlight the importance of learning that is pragmatic, creative, and deeply embedded within social contexts (Clark and Rossiter, 2009).

Along the lines of specific talent development, Felicity Andreason explores dimensions of "musical success" and the variety of definitions and meanings that potentially include exceptional ability through deliberate practice, environment and intrapersonal characteristics, and opportunities and resources available where talent can develop. How can musical skill be objectively assessed? Aside from particular instruments that "test" for musical aptitude, it would be interesting to learn more about the way musical talent can develop informally. There are many individuals who have the keen interest to develop a musical skill but their interests and talents go underdeveloped or unnoticed if they are not in an environment that encourages musical expression.

Joseph S. Renzulli and Nicole Waicunas use an "infusion based" to balance teaching the standardized curriculum with enrichment activities that encourage creativity, divergent thinking, and talent development in different areas. Their article highlights the need for schools to engage the whole child and provide authentic and alternative learning experiences that help students navigate the world around them. Learning is both formal and informal. Teachers and students can co-create new curricula in developing their own texts. Renzulli and Waicunas write that "today's young people are digital learners and emerging masters of interactive media" and so the challenge for teachers is to use these skills and interests in creating new curricula that can complement, enrich, and broaden their understanding of a range of texts. An infusion approach to teaching involves experiential and authentic learning, choice, self-expression, personal exploration of ideas, and agency. Their ideas can be applied across the content areas.

The importance of understanding teachers' voices, values, and challenges is also highlighted in a number of articles in this issue. Tim Skuce and Lloyd Kornelsen advocate for an education system that values the experiences and insights of teachers. Teachers are interpreters, philosophers, and researchers who have tremendous wisdom to share. Indeed, research traditions such as critical theory, narrative inquiry, and philosophical hermeneutics assert that the teachers' voices are vital if we are to advance our understanding of learning and teaching dynamics that can also result in profound structural changes to our educational systems. Too often, teachers work in isolation. Students are more likely to wonder, image, and pose their own questions when teachers are encouraged to wonder, imagine, and create. The stories of pedagogical practices of high school social studies teachers are elegantly presented in the article by Skuce and Kornelsen. Their research illuminates the value of

listening to and validating teachers' personal narratives. M. Carolyn Clark and Marsha Rossiter (2008) write that "narrative is also how we craft our sense of self, our identity…Understanding identity as a narrative construction is another way of conceptualizing personal change" (p.62). Clark and Rossiter write that "It is vital for teachers to have opportunities to reflect upon and share their challenges, hope fears, and intentions for teaching. Learning journals, concept-focused autobiographies, critical incident questionnaires, and instructional case studies are techniques that can encourage self-awareness among teachers "(p. 63). Anies Al-Hroub and Mala Krayen explore teachers' knowledge and perceptions of ADHD and Overexcitabilities in gifted learners. Their study suggests that teachers' perceptions of talent, giftedness, and learner capabilities can influence central dynamics of teaching and learning. Teachers also need to be open to understanding how complex personality traits and learning style influence the ways learners receive and process new knowledge.

The articles by Yoram Harpaz and Armon Karmon focus our attention on the importance of teaching for understanding. How can essential questions be used to help our students explore "big ideas"? How do we organize and scaffold specific texts and themes that activate critical and imaginative thinking that would encourage curiosity and depth and breadth of knowledge? We want our students to develop foundational knowledge in the humanities, sciences, and applied fields but we also want to nurture a creative and playful spirit that can lead to new insights and new knowledge construction. Learning processes involve design, exploration, and activating prior knowledge. Harpaz asserts that "a teacher for understanding organizes the contents of his or her syllabus around big ideas and extracts big questions from them". He concludes that "we need a whole village to educate for understanding". Learning involves mapping new terrain, forging new discoveries; it is a lifelong pursuit that engages heart, mind, and spirit. Learning is also voluntary; a teacher can create a climate for learning, but ultimately, it is the student who decides to engage in specific learning projects. Tuqa Marhoon and Janna Wardman explore students' perceptions of academic dishonesty through the lens of motivational theory. In an era of high stakes testing and measurable outcomes, their article raises important questions that address the ethical dimensions of teaching and learning. What is the outcome of a learning event? Significant personal learning may be compromised in cultures that value competition, high marks, and rigid standards. The mission of an institution certainly can shape teaching behaviors and student engagement.

Lynn Davies, Doug Newton, and Lynn Newton address the importance of psychosocial dynamics of learning. How can more educators create classrooms that highlight inclusivity, belonging, meaning, and competence? Motivational trajectories are influenced by cognitive and emotional components but can we assume that teachers know how to encourage motivation at different stages in the learning journey? How is effective teaching conceptualized? The study by Davies, Newton, and Newton highlights the importance of understanding teachers' conceptions of learning, motivation, and engagement. Their mixed methods study explored teachers' preferred pedagogies of engagements. The authors emphasize that teachers need more "theory-guided" education and professional development opportunities to explore varied strategies that could engage all students, including those of high ability. The specific teaching and learning strategies that teachers apply are guided by their values, beliefs, and ideals; their personal philosophies of practice too often go unexpressed. Physical, cultural, spiritual, behavioral, emotional, and social dimensions of learning are complex. Davies, Newton, and Newton write that some teachers have a "limited and fragmented understanding of what engages students". Skillful teaching is rooted in

understanding complex learning processes and skillful teachers tend to be perceptive in knowing how to engage learners from diverse backgrounds (Brookfield, 2016; Wlodkowski and Ginsberg, 2012). Assessing emotional engagement an imaginative involvement challenge teachers to think more metaphorically about their role and responsibilities.

As noted from the above example, teachers play a vital role in introducing students to new ideas. Peter Leyland creatively uses poetry and art as a catalyst that encouraged his mature adult learners to the beauty of poetry and to the relevance that poetry can have in their own lives. Leyland highlights the importance of examining the many uses of language-to pursue, misinform (alternative facts), inspire, and inform. Citing Michiko Kakutami's (2018) *The Death of Truth,* Leyland notes that language can be transformed into ways that alienate and maximize power over people. Teaching for power and agency, language can be used to articulate, express, and empower. In his article, Leyland draws his inspiration for teaching poetry from Elizabeth Chapman Hoult's (2012) *Adult Learning and la Recherche Feminine.* Leyland's work with adult learners suggests that reading classic literature and non-fiction can build resilience and confidence. Learners connect to their experiences by having opportunities to reflect on these experiences. Texts can provide a foundation for adult learners to explore issues of life, death, love, and survival. Leyland's study also reinforces the importance on the way individuals make sense of life experience. Narrative types of learning "opens us as educators and as learners to greater possibilities" (Clark and Rossiter, 2009, p. 66). They write that "stories draw us into an experience at more than a cognitive level; they engage our spirit, our imagination, our heart, and this engagement is complex and holistic. Good stories transport us away from the present moment, sometimes even to another level of consciousness. They evoke other experiences we've had, and those experiences become real again" (p.65).

In the context of Leyland's study, works of literature (as well as non-fiction texts) can be a window that opens discussions about history, geography, art, music, psychology, and cultural studies. Adult learners can make valuable text to self and text-to-text connections when a climate that encourages respect, resilience, and self-expression is created. Indeed, educators play a very significant role in "setting the climate" for transformative or deeper level learning. Significant personal learning can emerge through the creative teaching approaches that Leyland describes. Creative teaching can also occur when new courses are introduced. The value of exploring biography and narrative is another important theme that emerges in many of our articles in this issue. Imaginative and metaphoric thinking can be activated through stories. As Judith Butler (2001) suggests: "We enter the conversation as one kind of person, but emerge as another kind" (p.82).

In *An Imaginative Approach to Teaching*, Kieran Eagan (2005) writes that "stories are instruments for orienting human emotions to their contents…The story is like a musical score and human emotions are the instrument it is designed to play" (p.10). In this issue, Helen Lepp-Friesen details the perspectives of students who studied a new course on Indigenous Rights at the University of Winnipeg. The course presented an opportunity (potentially) to learn new ideas and insights, but learner readiness to learn, the influence of other students, and the particular teaching and learning approaches employed by an instructor can influence the trajectory of learning Lepp-Friesen provides a rich example of a context that potentially can be a transformative learning experience where learners are challenged to question taken-for-granted cultural narratives that can be misleading and erroneous. Learners are provided with opportunities to discuss and explore their misconceptions and perhaps consider alternative perspectives regarding Indigenous Education and historical narratives. Her

qualitative study reinforces the idea that not all learning is transformative and that learning is a mysterious process that involves emotional and cognitive changes. Lepp-Friesen's article further acknowledges the importance of curricula as ever-evolving and dynamic. Under-reported narratives, and rethinking taken-for-granted narratives that make assumptions about particular cultural and historical events in history.

Collectively, the research articles in this issue reinforce Juliana Lopez Kershen's (2015) assertion that educators need to move away from binaries, boundaries, and polarities. "We use tests to determine that some children can be particularly defined by labels of schooling…The other end of the spectrum judges children on their motivation, application, and grit" (p.71-72). Rather than continuing with a "single delivery" systems that reinforces rigid conceptions about age, grade, and ability, Lopez Kershen highlights the importance of building schools "where children command the center of their learning" (p.73). An understanding of inclusion would highlight the word "celebrate" in the context of valuing learners' unique talents and skills. She asks: "How do teachers of reading and writing, of word and story, of language, art, and human expression reconcile the existence of difference? A quiet wind whispers...celebrate. Provide time and place. Yield to the power of language to shape, empower, and open. And remember you are different as well" (Lopez Kershen, p.72).

Our featured interview with Dr. Joan Freeman was facilitated by Dr. Taisir Subhi Yamin. The tributes and professional journeys detailed in the Newton, Wallace, and Freeman profiles/interviews are, in essence, narratives that highlight particular places and people that can influence the development of creative intelligence, personal resilience, self-direction, compassion, and an exceptional commitment to improving education for all. Collectively, their work has inspired generations of educators and researchers.

In our innovative educational projects section, Nana Gulić provides a richly detailed report of the Rijeka Annual International Youth Summit (RAIYS) held in Rijeka, Croatia (2016). Her report outlines an exceptional program that empowered youth who were both teachers and learners. The conference sessions tapped into musical, artistic, athletic, scientific, and literary themes. RAIYS enabled students to partake in enriching intercultural exchanges. The learning activities were held at museums, libraries, schools, and universities; a wide range of professionals served as mentors, facilitators, and role models. The rich local, cultural, and natural heritage could be shared in unique ways. Meredith McLaughlin presents an insightful overview of the RAIYS conference in Rijeka, Croatia. She includes her own significant personal learning experiences and her article further attests to the importance of engaging youth in their own learning. Students are co-learners and teachers and when challenged to take ownership for learning, personal empowerment, dynamic collaboration, creativity, and self-confidence can flourish. As McLaughlin rightly notes, "too many people today are disturbingly unprepared for a life that will be filled with setbacks, unmet wishes, and failure". Resilience can be built when all learners have multiple opportunities to participate in learning journeys that encourage meaning, mastery, competence, and creativity. Kenneth L. Reimer writes about the potential that transnational and interdisciplinary collaboration can have. It is through both formal and informal conversations that academics and practitioners from different cultural vantage points can enrich their own teaching experiences. Reimer writes about the potential that transnational and interdisciplinary collaboration can have. It is through both formal and informal conversations that academics and practitioners from different cultural vantage points can enrich their own teaching experiences.

Our book reviews in this issue are written by Sandra Linke and Kari McCluskey. Our thanks to Ken Reimer for presenting the highlights of the ICIE 2018 Paris conference. We welcome new articles for our 2019 journal. Our conference next year will be held in Helsinki, Finland (July 20-24, 2020: www.icieconference.net). I hope to see you in Finland in 2020.

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Human Creativity as a Renewable Resource

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Abstract

This article is a scholarly essay that uses secondary data sources together with historical analysis to provide and broad overview of the development of humans throughout their long history on Earth, how humans have slowly decoupled themselves from Darwinian evolutionary condition by developing language and intelligence which, in turn, has allowed them to adapt the environment to fit their needs instead of simply adapting themselves to fit the harshness of the natural environment and a survival of the fittest principle. Thus, unlike all non-human species, as human society continues to evolve, the process of natural selection seems to apply less and less to the human species. With the development of language and intelligence, humans have progressed at an amazing rate in terms of quality of life, inventions, knowledge of how the world works and humans' place in it, and their development as free moral agents. However, this new human condition has brought with it, especially within the last few hundred years, major impacts to the planet. As a result of these impacts, this article has argued that humans must view human creativity as a renewable human resources that should be nurtured at every stage of human development and every stage in the educational process and see it as a critical factor creating a more a sustainable and just environment for all (humans, animals, and the natural environment).

Keywords: Renewable resources; creativity; sustainability; sustainable development; human rights.

Introduction

A resource is defined as an asset that can be used to satisfy needs such as human needs, political-economic-social needs, and environmental-ecological needs. As such, there are many types of resources that can be used to satisfy the varied interdependent and intersecting needs of humans such as human resources, information and technological resources, monetary resources, and natural resources.

With respect to natural resources, a renewable resource is defined as a natural energy resource that can be used indefinitely because it is continually replenished by naturally recurring physical processes (for instance, solar, air, water, biomass, and geothermal). They exist within the hydrosphere, geosphere, biosphere, and atmosphere which are interdependent and interconnected in a complex web of cycles and processes. All living energy systems start with and depend on the sun for their existence. As such, the supply of renewable resources is, for all practical purposes, unlimited. Although renewable resources are plentiful, the limitation and challenge in their use has been in how to make practical and affordable use of them on a large scale (Park, 2016).

Renewable resources are contrasted with nonrenewable resources such as fossil fuels, rocks, and minerals that cannot be replenished and thus are limited in supply. Another issue to be addressed with renewable resources is that they are dependent on the natural rhythms and cycles of the environment and they are intertwined and interdependent with the ecosystems in the environment which operate in a delicate balance.

Until recent decades, most people have given little thought to the impact of human expansion across the globe. For example, mass consumerism, the exploitation of natural resources, unbridled urbanization, and rapid population growth) has created stress on the planet, human societies, and animal ecosystems. Planetary crises that include mass pollution, species extinction, ozone depletion, climate change, and natural resource depletion threaten the survival of all living things (Steg, Perlaviciute, & van der Werff, 2015).

A major turning point in human history

Although there exists major problems in the world (for example, extreme poverty, illiteracy, famine), overall, the quality of life for most people on the planet has improved dramatically since the Industrial Revolution. The Industrial Revolution may have had the greatest impact on society in human history because it changed the course of human history in very tangible ways, from new inventions and innovations in nearly every aspect of life to the rapid extension of life due to advances in medical science and healthier living. These new inventions and medical advances quickly began to raise the standard of living for most people, greatly speeded up globalization through internationalization of trade, and brought about wide-spread structural changes in nearly all aspects of society from universal basic education to widespread automation of agriculture and manufacturing to mass communication and transportation systems (Goudie, 2018).

Per capita gross domestic product remained relatively constant throughout most of human history until the Industrial Revolution arrived (Horn, Rosenband, & Smith, 2010; Wrigley, 2018). While the Industrial Revolution brought about mainly economic and technological impacts, the Democratic Revolution (for example, the American and French Revolutions) which occurred at the same time (late 18th century to mid-19th century) brought about mainly political and social impacts. Together, these revolutions created a mass change in the course of human history and how humans lived and interacted with others on the planet and how they interacted with their natural environment. (Palmer, 2014). The large scale use of non-renewable resources since the Industrial Revolution has been a primary factor in fueling economic growth around the world (Cronin, 2009).

Although the Industrial Revolution gradually brought about better living conditions for most people, it also brought about problems such as a heavy reliance on non-renewable resources which, in turn, brought about mass pollution and natural resource depletion. Over the past two hundred years, most people have probably viewed this as an acceptable trade-off but more recently, with advances in climate science and a better understanding of how these conditions have impacted the planet, governments and other organizations now have both the scientific data as well as the moral responsibility (for instance, human, animal, environmental rights and international laws) to act in order to reduce the negative impacts and to chart a new course for humanity by transitioning to renewable energy resources for a more sustainable future (Blessinger, Sengupta, & Yamin, 2018; Blessinger, 2017; Steg, Perlaviciute, & van der Werff, 2015).

The environmental impact of human existence

The study of human interaction with their natural environment is commonly known as environmental history. It is a very broad and diverse field of study that impacts many disciplines. The field of environmental history has traditionally been focused on environmental conservation but has broadened the scope of its focus to cover sustainable development issues which has a more global remit and holistic and interdisciplinary way of approaching ecological problems and environmental concerns. (Goudie, 2018; MacEachern & Turkel, 2009).

Over the long course of human evolution, especially the past several thousand years (for example, the development of written language, development of domestication of animals and farming, development of social communities and trade), two basic features have characterized human development that have made them unique from other species: 1) sociality – the personal connections that exists between people such as mutual cooperation and interdependence for survival and to fulfill basic human needs, and 2) intelligence – the basic knowledge and skills required to solve everyday problems (eating, clothing, shelter, defense and protection from predators or enemies) necessary for survival and communicating information with other humans towards this end (Chiarelli, 1998).

Forming social groups, which evolved into more complex social communities with political systems, were a consequence in helping to meet their everyday needs as the human population increased and as they learned how to better live in and interact with their natural environment.

Chiarelli (1998) contends that the two features of sociality and intelligence were the two most important selective factors in all periods of human evolution. These two features contributed in humans developing an erect posture and in developing interpersonal information communication skills. It is likely therefore that human physical development (for example, erect posture and ability to speak) was facilitated by human social development, thus serving as mutually reinforcing factors (Chiarelli, 1998).

The development of these two features (that is, social and cognitive development) allowed humans to take greater control over their environment. In other words, these features allowed human to adapt the environment to their human needs rather than humans simply adapting themselves to the environment which is a key distinction between humans and all other species on the planet. For instance, some animal species adapt to their environment (for example, hibernation, migration, tolerance, camouflage) but humans have learned to adapt the environment to fit their needs (for example, domestication of animals and plants and food preservation methods to solve food shortage problems) (Chiarelli, 1998; Goudie, 2018).

Physically altering the natural environment (for example, building mass transportation systems, creating urban living communities, creating mass fresh water supply and sanitation and waste disposal systems, creating climate controlled living conditions) to address the needs of humans has brought about great advances in economic development and quality of life for many people. However, at the same time, without proper long-term sustainable development planning, the human impacts made to the natural environment have also led to overexploitation of resources (for example, over-fishing, loss of biodiversity, habitat destruction, environmental contamination, and over-consumption of non-renewable resources) (Goudie & Viles, 2016; Goudie, 2018; Vidal, 2019).

Because of these issues, the focus is now on sustainable development as a rational means by which to safeguard the planet for future generations. Fritjof (2015) states that this new understanding of life centers on the intersection of four dimensions: biological, cognitive, social, and ecological. Fritjof (2015) contends that this new way of thinking about humans and our relationship to the world represents a major paradigm shift in our way of thinking – from "seeing the world as a machine to understanding it as a network" (p. 242). In this new way of thinking, traditional Darwinian "evolution is no longer seen as a competitive struggle for existence, but rather as a cooperative dance in which creativity and the constant emergence of novelty are the driving forces" (p. 243). This new way of thinking requires viewing, understanding, and solving problems from a holistic systems view wherein the complex web of relationships, patterns, structures, and context is essential to addressing the world's most complex and important problems.

Rethinking the human relationship to the planet

One advantage of nonrenewable resources is that they are highly concentrated forms of energy and they can be easily stored, transported, and used for a variety of purposes which is why they have been so heavily in demand by modern societies. However, this advantage comes with certain disadvantages such pollution, climate change, deforestation, and damaged ecosystems. Traditional large scale farming and mass urbanization, for instance, have dramatically increased the need to clear land for use in farming and to harvest timber for housing, respectively. These two factors, in turn, have had the unintended consequence of mass deforestation in some parts of the world, especially in areas such as the Amazon rainforest. Since 1970, about 90% of deforested land in the Amazon rainforest has been used for livestock pasture farming (Margulis, 2004).

Large forests such as the Amazon rainforest are needed to help control the amount of carbon present in the atmosphere. If deforestation occurs on a very large scale then it can contribute to global warming. Forests are important to the health of the plant because about 300 billion tons of carbon are stored in trees alone. Thus, when trees are killed on a massive scale, it has a negative impact on the global carbon cycle by releasing carbon dioxide into the air. In addition, the planet loses about 18 million acres of forest annually and about 15% of all greenhouse emissions are the result of

deforestation which is the second largest human created cause of carbon dioxide being released into the planet's atmosphere. The leading cause of increased carbon dioxide into the atmosphere is the large scale burning of fossil fuels. More specifically, in the last 150 years, carbon dioxide levels have increased from 280 parts per million to 400 parts per million, leading to warmer oceans, melting glaciers and ice sheets, and rising sea levels (Bradford, 2018; IPCC, 2014).

The increase in carbon dioxide into the atmosphere, in turn, causes the atmospheric temperature to rise because carbon dioxide is a gas and, unlike oxygen and nitrogen which makes up most of the Earth's atmosphere, it stores thermal energy from the sun in the atmosphere – this is known as the greenhouse effect because the absorbed thermal energy gets trapped in the atmosphere and the atmospheric temperature gradually increases over time. In addition to contributing to the greenhouse effect, mass deforestation also has the negative impacts of species loss, soil erosion, disruption to the water cycle (decrease in freshwater supply) and the destruction of fragile interdependent ecosystems. Although efforts have been made in many countries to counter deforestation with forest renewal and other forest management programs, forested areas on the planet continue to decline (Bradford, 2018; IPCC, 2014).

Because of human created causes of global warming (that is, burning of fossil fuels and deforestation), the world, by and large, has gradually come to the realization that human societies must start transitioning to renewable forms of energy. Currently, about 80% of human energy consumption comes from fossil fuels (International Energy Agency, 2014; (McNicoll, 2007). The transition from non-renewable resources to renewable resources has become a major challenge for several reasons.

First, it requires people and governmental leaders to think in new ways and antiquated mindsets can be difficult to change, even in the face of conclusive scientific evidence.A transformative shift in the way people live their lives would have to occur. O'Sullivan (2002) writes that "we are dealing with a profound cultural pathology that requires a deep cultural therapy. Part of this cultural therapy involves a transformative mode of cultural criticism" (p.5). Second, the negative impact to the planet has occurred relatively slowly over the past few hundred years and, despite the scientific evidence, many people are reluctant to believe in the necessity of large scale transitioning to renewable energy unless they see and feel it in tangible ways personally. Third, when people are comfortable with the status quo, they are unlikely to want to change unless there is a real benefit to them personally for doing so. Thus, not only is on-going education required to inform people with the facts about climate change but governmental leaders must also take the lead in bringing this awareness about and driving the changes needed to incentivize both producers and consumers to want to make the changes needed. O'Sullivan (2002) maintains that visionary education, at all levels, requires "all members of the planet to enter communities of greater inclusion" (p.9).

Decoupling overreliance on non-renewable resources

It is important to understand the difference between sustainability and sustainable development. According to Shaker (2015), sustainability is the human-ecosystem equilibrium (that is, the condition of homeostasis) whereas sustainable development is the process by which humans attain the goal of sustainability. As discussed by Blessinger, Sengupta, and Yamin (2018), throughout human history, prior to the Industrial Revolution, people made use of renewable resources on a relatively small scale to meet the basic living needs (for example, using air for seafaring transportation, timber for heating and shelter, and fresh water cooking and drinking).

Ancient societies, even after the invention of agriculture and domestication thousands of years ago, still had to adapt a large part of their lives to fit the natural conditions of the environment. Thus, there was little need to use non-renewable resources until the advent of industrial societies that needed fossil fuels on a massive scale to fuel economic development (for example, mass production and global commerce). This situation, as mentioned previously, created a paradigm shift in how humans lived within their environment. The discovery and application of electricity created another wave in the large scale use of fossil fuels because electricity is a secondary energy source that must be

produced by primary energy sources. Electricity allowed humans to create climate controlled living and workplace settings, artificial lighting, mass manufacturing systems, as well as modern transportation required humans to physically restructure the landscape to bring these things about.

Perhaps the most remarkable result of human progress over the past hundred thousand years is that every stage of progress has allowed humans, for the first time in their long history, to break free from the Darwinian evolutionary restraints that other species are still confined to. As a result, humans over the past few thousand years especially have become less and less dependent on the conditions and cycles of the natural environment. Over the past two hundred years, the rate of progress has accelerated greatly. However, humans, in their rush to improve the quality of life and to escape the shackles of political oppression and economic deprivation, quickly adopted mass industrialization without fully understanding the consequences it would have on the natural environment. Plus, until recent decades we lacked the scientific methods and tools needs to reliably collect the scientific data needed to collect accurate and complete climate data needed to make informed and rational decisions.

Given the preceding discussion on the evolution of humans and their interaction with and impact on the environment, important questions are raised that need to be addressed if humans are to successfully transition to the next stage of their evolution on this planet. For instance, how can economic growth, which is important to employment and quality of life, be decoupled from overreliance on natural non-renewable resources? In other words, how do we make the transition to renewable resources without creating upheaval in the lives of people and in society and without impacting their standard of living and consumption?

This is one of the most fundamental questions that opens up new lines of inquiry and new sub-disciplines in the natural and social sciences as well as the humanities, with a focus on not necessarily reducing consumption which most people are probably not likely to want to do but finding innovative production methods based on low or zero carbon economic processes. With human population growth continuing and the mass migration movements (for example, refugee crisis) and the continued urbanization of many countries, societies must find innovative ways to transition to clean, safe, and inexpensive ways to produce and consume renewable energy resources without disrupting how people live their everyday lives (Chakrabarty, 2018).

A moral responsibility to protect the environment

For better or for worse, humans now dominate the Earth and their impact on the planet is wide-ranging and immediate. Thus, in the modern age, the relationship between human history and natural history has converged because the two are now inseparable. Regardless of the discipline or profession, humans are now confronted with the stark reality of climate change and the long-term negative effects that it will likely have on future generations. Humans can no longer afford to think about human history or natural history in isolation of each other. Humans can no longer afford to think about natural science and social science and humanities as separate from each other. Now scientists, researchers, scholars, and decision-makers are required to think in more holistic and interdisciplinary ways and with a mindset of moral responsibility to the plant and future generations.

Humans have made great strides in understanding how the universe works and how life on planet Earth works: from quantum mechanics and general relativity to evolution and ecology, humans are now required to think and interact in much more morally responsible ways and more innovative and creative ways. Scientific knowledge is necessary but not sufficient to solve human problems. A sense of moral and legal obligations are also needed. Unlike many thousands of years ago when the pace of human evolution and progress was extraordinarily slow (compared to today), humans are now confronted with a sense of urgency never before imagined or required.

As noted by Chakrabarty (2018), much of human history revolved around two major stories: 1) how humans learned to decouple themselves from the limits and restraints placed on them by the harshness of their natural environments, and 2) how humans learned to free themselves from the

domination of other humans and their authoritarian regimes. Unlike other species, humans have developed at a much faster evolutionary pace than other species have been able to and this has allowed humans to escape the Darwinian evolutionary constraints still imposed on other species which, in turn, has allowed us to, among other things, develop higher levels of consciousness, higher order thinking, spoken and written languages, human rights, political, legal, and moral systems of social living, modern societies based on democratic principles, and scientific and technological discoveries and inventions. In short, human agency has now become a defining feature of the human species.

Given the long history of human evolution, it is quite remarkable that it has only taken humans a relatively short period of time to progress from hunter-gathers to agriculture-based societies to modern technology-based societies. The most rapid era of progress has been over the past two centuries. However, since humans have become a major force to change the face of the planet in a very short period of time, humans are now just learning that humans must also take on the moral responsibility that comes with that kind of power.

To that end, The United Nation has created the sustainable development goals as an ambitious initiative to help create a more sustainable planet. These goals are a concrete example of putting ideals into action and demonstrate that humans are beginning to take on the moral responsibility to manage and protect the natural environment for the benefit of all societies and for future generations. These goals not only cover human rights but also animal and environmental rights. A rights based approach to sustainability is important because scientific knowledge must be applied in a morally responsible way and in harmony with the environment. To that end, moral reasoning is just as important as scientific reasoning because while science equips us with the scientific data to understand our world, moral reasoning equips with the principles to act in ethical and humane ways.

Human creativity as a renewable resource

In modern cities the culture-led development and creative industry plays a vital role as a renewable resource and is significant in creating an identity of the city and underpinning their dynamism as a center of economic development (UNESCO 2011). Culture-led redevelopment of urban areas ought to give priority to sustainability in planning and design along with managing the existing environment, the tangible and intangible heritage that is unique to the city along with their community and cultural values. Conserving and adapting the urban environment contributes to a better quality of life. Caring for the creative resources helps in building a sense of social cohesion and provides a stable ecofriendly environment to work and thrive.

Industries thriving on culture and creativity is essential for urban renewal as it helps in developing the socio-economic environment and improve the living conditions of its inhabitants. Urban development needs to refocus their energy towards investing in cultural institutions which will help flourish a creative economy and develop a sustainable urban environment. Going back to our roots of culture driven heritage can help in mitigating ill-effects of climate change and conserve nature and delicate ecosystems that exist within the social fabric. Human creative should be fostered in humans at every stage of the educational process since creative industries represent an increasing proportion of the economy and, all else being equal, those with both creative and technical knowledge and skills will, presumably, be better able to adapt to rapidly changing societies.

Creativity leads to sustainable and well-planned urban living and ultimately results in a smart and well-balanced productive lifestyle. Yet, this is by no means an easy task. It requires a sound knowledge of the culture heritage and respect for its diversity inherent in the mesh of the city's culture. Promoting traditional ways of farming or water conservation has shown in the past that it leads us to a more sustainable means of food production with least possible impact on the environment and human growth (UNESCO 2014). Thus, more focus should be paced on the production side to produce, in sustainable and green ways, the products and services demanded by modern societies. On the consumer end, more novel solutions should be developed to create a low to

zero carbon footprint and create a more circular economy based on sustainable development goals and practices.

However, creative potential is not equal for every individual and the same measure cannot be applicable to every culture. The capacity of creative expression varies from human to human and from culture to culture. Creative voices are not always well-represented and that can pose a major barrier to human growth. This kind of barrier can be crossed with mobility of goods and unhindered mobility of artists and people in cultural pursuit. Local learning is strengthened when we strive to develop new talents and new forms of creativity among the young learners and our future leaders. For instance, strengthening of local talent and creativity has led to the empowerment of women and girls who helped nurture cultural expressions and as citizens participating in cultural life.

With regards to higher education, sustainable development and creative learning can and should be taught at all levels. Some of the ways colleges and universities can accomplish this are: equip students with the knowledge and skills to think and act like globally (global competencies), engage students in learning activities that require them to interact productively with students different from themselves (intercultural competencies), increase students' abilities to solve the world's most important political, economic, social, and environmental problems facing the planet (problem-solving competencies), and actively engage students in real-world experiences like service-learning, community engagement, internships, and the like that allow them to put theory, knowledge, and skills into real practice that benefit society (ethical competencies).

Transitioning to the creative society

International cooperation with likeminded people seeking inclusive social and economic development can help achieve a society that is transitioning into a creative society. Culture and cultural industries can be a source of creativity and innovation which will help provide sustainable development much needed for our future generation. One of the main objectives of creating a creating society is to measure the impact of culture and its significance in creating a sustainable world. However, the important challenge lies in the fact that we are unable to measure to what extent people in general give importance to individual and collective behavior on sustainability. Values are an important consideration which determines people's consumption choices and patterns and their impact on the planet. Individual values reflect life goals which help determine what is important to people and what consequences they strive for in their lives in general (Rokeach, 1973; Schwartz, 1992).

Transitioning to a creative society needs support. Tapping into the power of creativity can help transform society into a positive force and ultimately benefit future generation with its sustainable development. Cultural and creative industries are one of the most rapid spreading industries in the world. Among the most thriving culture-based industries is that of cultural tourism, art and artefacts and cultural infrastructure which has proven to be pathbreakers in poverty alleviation in the underdeveloped remote corners. These culture-based industries have helped in revenue generation through a greener economy, attracting investments and offering locally based stable and decent jobs. Thus, creative learning is a critical aspect of lifelong and lifewide learning (Watts & Blessinger, 2016).

The concept of cultural tourism has taken its precedents in many parts of the world. UNESCO's practice of marking world heritage sites has generated substantial revenue for local people through cultural tourism and therefore transforming the existing economy into a culture-based economy. Also, these tourism trails or paths are managed by indigenous or local people, preserving their heritage or cultural assets and thereby safeguarding the richness of the society, preventing it from extinction. UNESCO has focused on creating 'creative cities', where imagination, innovation with diverse sounds, images and texts are produced, exchanged or traded (UNESCO 2014).

Culture can become a driver of sustainable growth when managed through protecting urban landscape and places of national and cultural heritage. One needs to boost creativity among the local people, mainly those who are vulnerable and are struggling to find a foothold in main stream society.

Promoting cultural diversity, local art, research and innovation in this arena is the formula to transform itself into a culture-based society. Social cohesion and inclusiveness become an important criterion to promote the local culture. The local culture needs to be converted as a revenue generating system and impact assessment needs to be done to measure the effectiveness of the programs. Sustainable and responsible cultural tourism with intercity networking and knowledge sharing among each other will help society transform into that of a cultural one.

A culturally induced sustainable economy will lead us to a circular economy. A circular economy is one that will work towards reducing the waste of various resources, conserves what is available to us and work towards mitigating environmental pollution. A circular economy will cover a broad scope ranging from industrial applications to product-oriented services where re-use and waste management can become a norm of functioning. In such a system the economy shifts to a more resilient sustainable system. Renting of pre-used material is yet another way to create a circular economy. This is now becoming a wide spread practice among many service providers and product designers who are advocating re-use, refilling and recycling of products.

A circular economy advocates a cradle to grave reusable product with extended life cycle that will help minimize waste and stop creating landfills of toxic products. Circular economy is not a thought to be harbored in the distant past but is a reality that every industry will need to look into and spend its research and development resources to create a sustainable world.

Conclusion

This article has attempted to lay out how humans have progressed throughout their long history, how they have interacted with their environment throughout their history on planet Earth, and how those interactions have impacted the planet. As a consequence of these impacts, this article has discussed the urgent need for all societies to make the transition from unclean non-renewable energy sources to clean renewable energy sources in order to protect our environment and move us quickly towards creating a sustainable environment, and more specifically, towards reaching the United Nations Sustainable Development Goals (United Nations).

Finally, this article has argued that key to achieving sustainability is to see creative learning as a vital renewable human resource. Since human creativity and creative learning are key elements to developing innovative knowledge and skills to solve the world's most difficult problems and since human imagination and human knowledge generation is renewable and, for all practical purposes, inexhaustible within each person and from generation to generation through lifelong and lifewide learning, then it follows that human creativity should be nurtured as every stage of human development and at every stage in the educational system in order to create a more sustainable planet.

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Enhancing Creative Productivity: A Developmental, Domain Specific Approach

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Introduction

Identifying potential abilities of children and youth is important, but often too little effort goes into conceptualizing how to enhance and support domain specific talent once it has been recognized. This article provides a research base for exploring this problem, leading to some grounding definitions, insights from experts on dimensions of talent development unique to domains, and common threads across domains.

In 2009, the authors were awarded a grant to develop a publication in an outstanding journal (*Psychological Science in the Public Interest* [PSPI]) on the topic of rethinking giftedness and gifted education (see Subotnik, Olszewski-Kubilius, & Worrell, 2011). For the purposes of this project, we narrowed the focus of gifted education to talent development in intellectual, academic, performance, and professional domains. This allowed us to become deeply familiar with the associated psychological literature and published experts.

Following the publication in PSPI, we were joined by several psychologists with expertise in sport, child development, the arts, and the military, among others, in a Coalition for the Psychology of High Performance to produce a further review of the literature across domains. Our goals were to (a) look at how domain-specific high performance in youth is manifested, studied, measured, and discussed in academic and professional psychology; (b) study how psychology contributes to high performance; and (c) identify generalizable psychological principles of high performance that can be applied across domains.

In order to better delineate our efforts at providing a developmental, domain-specific framework to enhancing creative productivity, we began by outlining some important definitions. These are presented briefly below and described in more detail in a publication entitled, *The Psychology of High Performance: Developing Human Potential into Domain-Specific Talent* (Subotnik et al., 2019, pp. 10–13).

- *Potential*: Everyone has potential for some achievement in every domain. Realistically, however, it is more accurate to say that individuals have relative strengths in some areas above others, but to qualify as abilities, these strengths must be sufficiently evident. In other words, *potential* refers to strengths, that when combined with opportunity, psychosocial skills, opportunity, and chance, are likely to lead to high performance.
- *Expertise*: This term describes a high level of competence or performance recognized by high performers in a field, and is the manifestation of developed abilities and the application of psychosocial skills, opportunity, and chance.

- *Eminence*: Eminence is used to describe individuals who have translated expertise into a singular contribution to a field that is evident to the broader society.
- *Gifted*: Gifted is the term used to describe individuals who have demonstrated potential that can be developed into expertise and maybe even eminence.
- *Talent development*: Talent development is the process of developing domain-specific giftedness into creative productivity.
- *High performance*: High performance refers to achievement within a domain at a level acknowledged by domain experts as exceptional for a particular developmental stage.

The work described in this article is based on a set of principles derived from the Subotnik et al. (2011, 2018) review. These principles referred to as the megamodel, are summarized here, and underlie all the outcomes described in later sections.

- Both general and domain-specific abilities are essential for outstanding performance, with domain-specific abilities playing an increasingly greater role as individuals move towards expertise and beyond.
- Abilities are malleable and subject to enhancement with appropriate instruction and opportunities.
- Different domains have different trajectories. That is, mathematics abilities may be identified and developed earlier than abilities in domains requiring maturity and life experience such as psychology (see figure 1)

Figure 1: Different domains have different trajectories

- Opportunities are most impactful when they are available at each stage of talent development.
- The availability of opportunities for talent development is a necessary component, but opportunities must be accepted and taken advantage of.
- Mental skills involve the control of fears and distractions as well as self-regulation – are teachable and increasingly important to the fulfillment of talent beyond abilities and opportunities.
- Social skills, such as the successful communication of ideas and collegiality, are teachable and, like mental skills, are increasingly important to the fulfillment of talent beyond abilities and opportunities as individuals move from achievement to expertise and beyond.

We asked our collaborating psychologists from the Coalition for the Psychology of High Performance to summarize responses to some prompts regarding the development of elite talent in their respective domains. More specifically, they provided overviews of the existing research, as well as descriptions of early manifestations of talent in the domain and the psychosocial skills that appeared to be essential for success. We also asked whether there were demarcations in the literature that were interesting for the field to explore. For example, do principles of high performance in sport remain the same whether referring to a team sport or an individual one? And is talent development in a profession that requires long and arduous formal education (e.g., medicine) similar in any way to one that does not (e.g., software engineering)?

For each domain, we probed the identification of benchmarks that indicate readiness to move to the next stage of talent development and investigated the types of inhibiting factors that get in the way of movement forward. Finally, we discussed what proportion of the responses related to identification and inhibiting factors come from research and what proportion is based on professional judgment. In the rest of this article we describe some of the findings that appear in this collection of chapters.

Academic Domains: Psychology and Mathematics

The work described in this section is derived from scholars Dean Keith Simonton (University of California, Davis) and Roza Leikin (University of Haifa). Simonton described the development of high performing research psychologists, a later starting talent trajectory, and Leikin reviewed mathematical giftedness, which, in comparison, can be identified early. In his discussion of high performance in the domain of psychology, Simonton (2019) defined the population under consideration as those who conduct research at major universities as assistant, associate, or full professors. His review of the literature starts at the beginning of an academic career to recognition for excellence in the form of publications and awards.

According to Simonton's (1992, 2000, 2002) historiometric and biographical analyses, future eminent psychologists tend to be excellent university students coming from a background that includes parents in the professional classes. They attend a selective university where they encounter and fall in love with the subject of psychology. Success in undergraduate education leads to enrollment in a prestigious graduate program where they emerge with a track record of publications and a direction for research independent of their often eminent mentor. By age 30, they will have published several high impact pieces, secured a tenure track position, and been awarded honors and other forms of recognition. In terms of personal life, they marry later and have small families.

Notably, psychology has many sub-disciplines that vary from the natural/experimental to the human/clinical science dimensions and this variation may be reflected in the degree to which specific domain or psychosocial skills are relevant. The subfields closer to natural sciences reflect more similar patterns to those of biologists, where identification of interests and abilities can be seen at a younger age, although talent may not be recognized in the form of major adult accomplishments until middle age. According to Simonton's research, some psychosocial factors are associated with outstanding achievement talent in psychology, include openness to experience, persistence, tolerance for ambiguity, risk taking, and capitalizing on strengths and minimizing weaknesses. Some of the most pressing psychological issues, perhaps requiring particular psychological strengths for all psychologists, include the lack of replication and lack of consensus feedback from reviewers that impede the progress of publications.

In contrast to the development of high performing psychologists, Leikin (2019) draws our attention to the progress of creative and gifted mathematicians. For example, one can identify number sense and mathematical cast of mind (Krutetskii, 1976) as early as pre-school. That is not to say that later developing talent is not possible, but young children with evident abilities are ripe for opportunities to engage playfully with mathematical ideas. By middle school, Lubinski (2016) and colleagues (e.g., Lubinski, Benbow, & Kell, 2014) have demonstrated through a series of longitudinal

studies, that mathematical reasoning abilities are good predictors for adult creativity in the form of scholarly productivity and successful patents. Finally, a special advantage for domain trajectories in mathematics that begin during the childhood years is the possibility of many educational interventions including clubs, competition, school enrichment and acceleration.

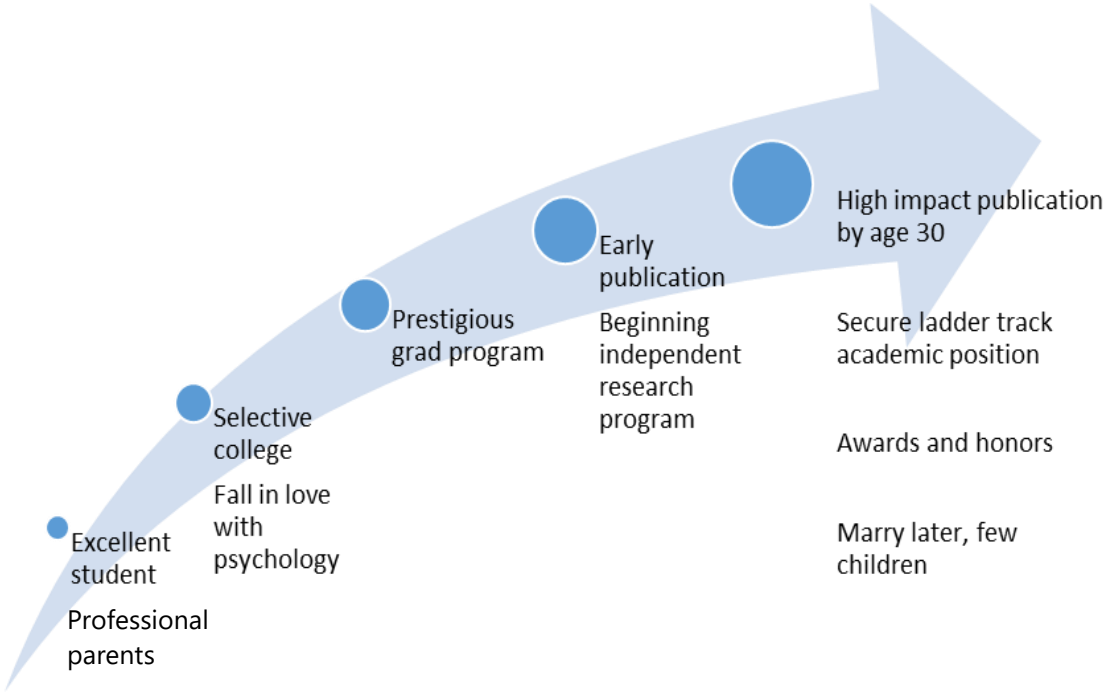

Figure 2: Trajectory for Eminent Psychologists

Psychology, a later starting domain, and mathematics, an earlier starting domain, share many similarities that are reflected both in the megamodel and by Bloom's (1985) work. One is the importance played by mentors, particularly in transitions from expertise to creative productivity. Great mentors provide guidance in developing good taste in research questions (Zuckerman, 1977) and in generating an original voice. Both Simonton (2019) and Leikin (2019) highlighted the importance of non-cognitive skills that assist in maintaining strength through adversity and in communicating one's ideas effectively.

Sport Domains: Golf and Team Sport

The work described in this section is derived from scholars, Steve Portenga (iPerformance), Job Fransen (University of Sydney), and Arne Gullich (University of Kaiserslautern). Portenga focused on the development of high performing athletes in an individual sport, exemplified by golf. Fransen and Gullich analyzed talent development through the lens of game (team) sports. According to the review conducted by Portenga (2019), the trajectory for high performers in golf begins with playful, informal interactions with golfing fathers. Modeling Bloom's (1985) research, this "falling in love period" generates an opportunity to notice exceptional skills. Although we often associate the precocious and prodigious Tiger Woods as the exemplar, most outstanding golfers do not specialize until their teenage years. At that time, more serious intentions to pursue golf develop and include seeking a coach other than a parent, taking more responsibility for following up on coach directives, and devoting a minimum of five hours per week to practice. Achieving expertise in golf involves joining a high-quality golf club, hence the importance of access, intensifying practice to 20-30 hours per week, and organizing social life around golf. At the highest levels, elite golfers spend the preponderance of their time on the sport: networking with other golfers and associated experts to glean any yet unfamiliar insider knowledge such as sponsorships, engaging in the types of practice needed to improve performance in competitions, and honing psychosocial skills associated with managing performance pressure.

Figure 3: Talent Development Trajectory in Golf

In contrast to the trajectory of development in golf, individuals talented in team sports go through several iterations of selection and deselection over time as they pass from competency to expertise and into elite levels via school or community-based playing opportunities or private clubs. What golf and team sports share runs counter to popular notions that performance as a juvenile is a predictor of senior performance. In fact, only 16% of athletes in these fields have a linear career path. More recently, experts have warned that early specialization may lead to injury and burnout and early sport diversity is preferable to build foundational athletic skills. Exceptions to this rule are in select early specialization sports, which tend to incorporate more aesthetic components, such as gymnastics, figure skating, and diving. Factors that have been shown to be essential to success in individual, team, and early specialization sports include perceptual motor skills, athleticism, deliberate practice, and psychosocial skills.

Professional Domains: Medicine and Software Engineering

This section describes a distillation of work conducted by Melissa McWilliams, Emily Holding, and Steven Knotek from the University of North Carolina (McWilliams, Holding, & Knotek, 2019). The work contrasts the long investment in education and training that is associated with medicine with the shorter and sometimes non-traditional career path taken by software engineers. Becoming a physician is a long process. If we map this process out according to developmental levels, ability is determined by way of academic prowess on a standardized test for admission to the limited number of seats available in medical schools. Additional measures considered for potential medical students are relatively new in the history of medical education, but include maintaining a work/life balance, strong organizational skills, and being able to communicate effectively with patients.

During medical school and internship, individuals must pass additional exams and compete for residency placements. During internship and residency, individuals are closely supervised, earning increasing autonomy with the demonstration of competency. The residency allows for self-selection of specialties based on interest and personality, with those wishing the least amount of patient interaction choosing, for example in pathology or radiology. Residency includes the responsibility of training others and increasing leadership responsibilities. Further specialization is acquired in the form of fellowships.

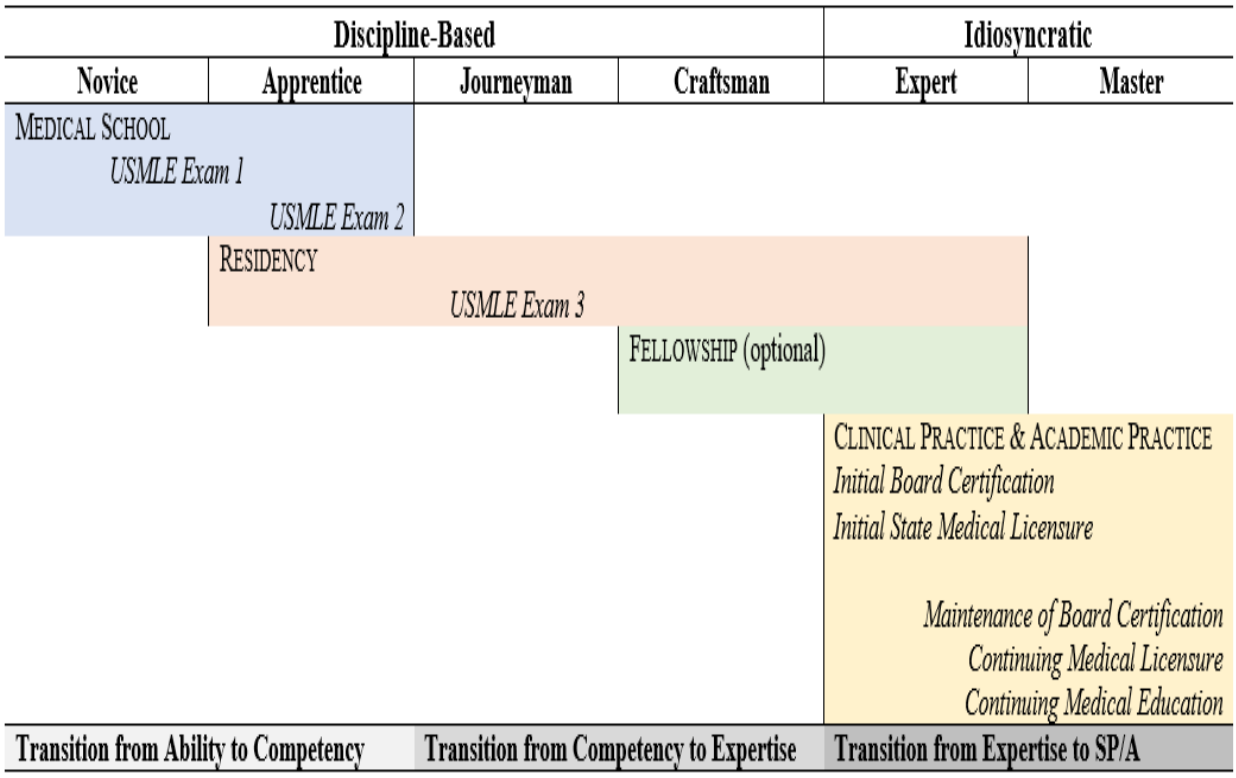

Figure 4: Trajectory of Medicine

Once expertise is achieved, a physician can choose from several paths, no matter the specialization. They may seek academic positions, which will entail research and expectations of leadership in the sub-specialty and within the institution. Alternatively, they can focus on clinical practice, which often involves training medical students and residents.

Psychosocial skills are needed but most are not explicitly trained. It is likely that those who continue to be successful through the long process of medical school, internship, residency, and beyond have mastered the following skills: time management, professionalism, reliability, capitalizing on strengths and making up for weaknesses, and growth mindset. Some of the other variables described in the literature include humility, empathy, persistence, and self-regulation.

In contrast to the path taken by physicians, software engineering does not require a formal degree, only mastery of programming beyond what is available academically, self-motivation, and creativity, often exhibited by engagement in independent, self-initiated projects. Once employed, the following skills become essential to success, being able to prioritize projects, learning from mistakes, managing time, working autonomously, and taking strategic risks. These are the same skills that would be needed by a high-level physician but might not be exercised so early in a career.

Arts Production: Drawing and the Culinary Arts

In this section, we compare the progression of skills and knowledge needed for drawing (based on work conducted by Aaron Kozbelt at Brooklyn College and Andrea Kantrowitz at SUNY New Paltz) and culinary arts (Laurent Aron at FERRANDI Paris, and Marion Botella and Todd Lubart at University Paris Descartes). Both fields have long histories and many traditions that have been challenged in recent years. Unlike many less traditional domains, drawing's developmental progression is well documented and defined, which provides a solid basis for identification of talent. Some biological markers are associated with precocity in drawing. These include non-right - handedness; linguistic deficits such as dyslexia; poor stereopsis; as well as strong visual processing, visual memory, and mental rotation. Although many young children draw for pleasure and are

encouraged at home and in school, this encouragement or availability in the school curriculum does not tend to continue into adolescence. According to Burton (1981), those who continue have what is called "ideas in search of forms" (Kozbelt & Kantrowitz, 2019, p. 317). As adults, artists continue to improve their visual cognition and processing of visual information to enhance their expertise.

In earlier eras, chefs were often servants in noble houses. Over time they achieved more independence as craftsmen. Only recently have some chefs cracked the barrier of becoming elite artists with signature dishes and approaches to food service. Aron, Botella, and Lubart (2019) laid out the path leading from entry into culinary school to master chef. Current schools that admit students to the culinary arts expect candidates to know something about the field and have had some experience working in restaurants. Once on the specialized educational path, students have the following challenges: mastering stations of increasing degrees of status in the kitchen, understanding collegiality and teamwork while also integrating "kitchen sense," or the hierarchy that exists to make for a smooth running enterprise, dealing with problems that inevitably come up, responding with correction to failure, and finally, developing an aesthetic sensibility for lovely but highly edible food.

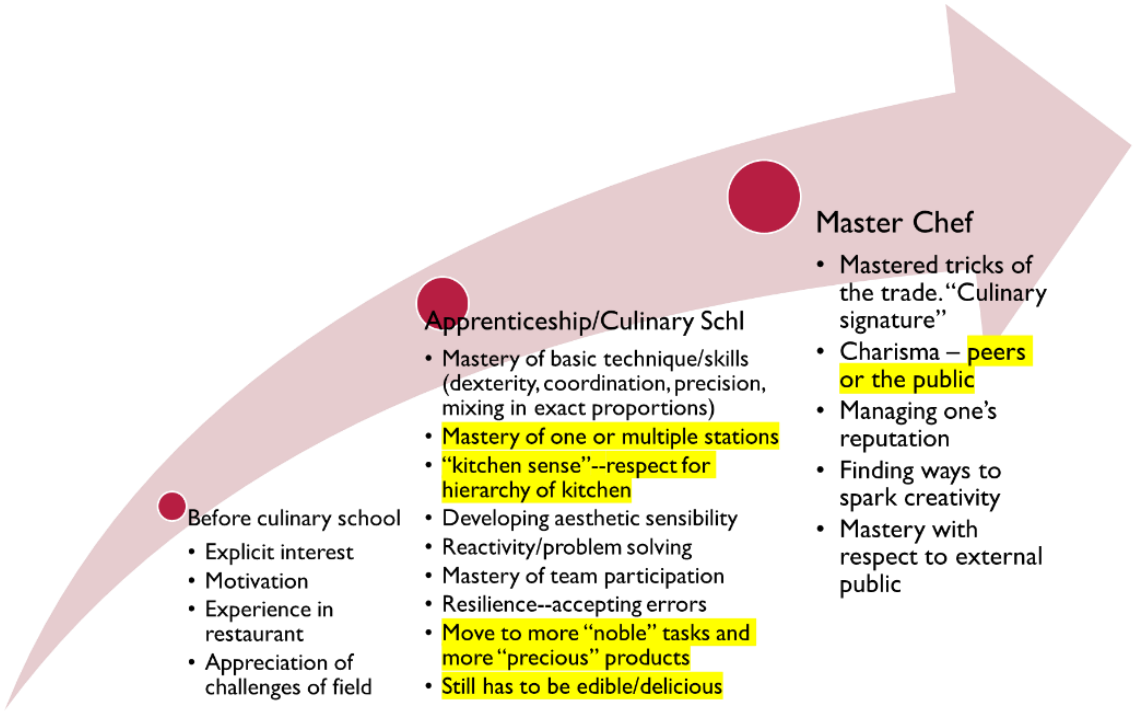

Figure 5: Trajectory of Culinary Arts

Arts Production: Dance and Acting

Both dance and acting have been integral to most cultures for centuries. We compare the two art forms in terms of the role of disciplined practice and other variables that are similar and different. Joey Chua (Helsinki, Finland) studied the path of elite dancers in several countries including Singapore and Finland regarding their development and the variables most important to transition from stage to stage in their career trajectories. Tony and Helga Noice from Elmhust College in Illinois compared acting traditions and the psychological demands that are placed on practitioners based on the philosophical orientation of their director.

Looking at similarities between the two performing art forms, we note that both have generated various training methods to develop technical skills and unique forms of artistic expression. Changes in aesthetic taste have also affected both domains. For example, in ballet, according to Chua (2019), dancers employ "little c creativity" (Kaufman & Beghetto, 2009) as they work alongside choreographers to improve the production. Contemporary dancers, however, are expected to bring original conceptions to the performance in collaboration with the choreographer. In both dance and

acting, there remain pockets of traditional practice as well as more innovative and improvisational movements.

Two interesting and notable differences between talent development in dance (Chua, 2019) and acting (Noice & Noice, 2019) are reported by our colleagues. One is the role played by deliberate practice. Noice and Noice argued persuasively that acting ability is more of an innate ability (you either have it or you do not) than is dance. According to Noice and Noice, great vocal projection, perfect diction, memorization skills, and graceful movement will rarely save the day if true spontaneity is lacking. Although dance has clearly defined domain specific indicators of potential – physical memory, body proportion, and ability to coordinate to music – the contribution of practice to dance is far more prominent than in acting. In fact, many dancers trained in gymnastics before entering the field.

Looking Across Talent Domains

When we revisit the principles of talent development presented at the beginning of this article, we can see that all of them play a role. What is not mentioned explicitly in the framework is the important role of creativity, particularly as a defining quality required to transition from expertise to eminence. Creativity is essential in every domain to distinguish between experts and creative producers or eminent individuals. These individuals come up with novel topics or problems to study or new methods for addressing given problems. For example, in psychology and most scholarly domains, researchers need to distinguish more important from less important problems. This is no easy feat. In fact, according to Simonton (2019), 10% of psychologists are responsible for 40% of the creative output in psychology. Creative productivity at this level requires courage, self-confidence, and concentration. Most challenging of all, creative work is not always rewarded or welcomed, and may in fact be greeted with resistance.

Domains change over time, although some very incrementally, and some, like dance, spin off more improvisational streams. Medicine used to be more privileged in team health care, with assumptions of physician leadership. More recently, work in medicine is viewed as inter-professional involving a team of experts (see Reyes & Salas, 2019). The culinary field has changed from a craft or vocational skill to one with potential for high art, even beyond the sense of taste to the visual and dramatic. And drawing, with the advent of conceptual art, once the central feature of training for novice artists (to say nothing of school children), is now viewed as optional. Instead, ideas are considered more important than the technique or media of expression.

Learning quickly and identifying patterns are extremely valued functions in each domain and have been associated with domain specific abilities – visual (visual arts and mathematics), verbal (general academic and acting), physical (dance and sport), spatial (mathematics and dance) and quantitative (mathematics and many professions such as software engineering). Some psychosocial factors appear to enhance talent development trajectories across all domains. These include being receptive to instruction, persisting whether things are going well or poorly, identifying with the domain, exhibiting self-regulation and self-confidence, taking strategic risks, and possessing good social skills. In the performance domains, charisma is particularly important, and to different degrees, knowing how to play the "game" and tasteful self-promotion are valuable skills in especially competitive arenas.

Across all domains, several factors can derail individuals with promise. Most important is giving up in the face of obstacles, difficulty, or failure. Failure to persist may be due to inappropriate mindsets, comparisons with others, or performance fears. Sometimes talented young people lose passion for a domain, even after investing in it for many years. Others whose passions might be enhanced do not receive appropriate education or coaching, leaving them stymied in their development. Tragically, some enormously talented young people cannot persist in a domain such as golf, for example, because of the financial resources involved in equipment and club membership. Finally, families or peers may dissuade a talented individual from pursuing their talent due to lack of emotional or verbal support. This may be especially true in situations where family and community

culture does not highly value a domain of performance or ideas, or where aspirations for parents of bright young people are limited to succeeding in a traditionally respected profession such as law, medicine, or engineering.

Domains where deliberate practice plays a central role, as expected, include dance, drawing, golf, some procedural components of medicine, and team sport. According to our research, fields like medicine and academic psychology appear to benefit more from guided *experience* than deliberate practice and acting requires the ability of spontaneity, which cannot be trained, according to our experts (see Notice & Noice, 2019).

From this project, we were able to deduce that domains with more research evidence include dance, drawing, golf, mathematics, medicine, and psychology. In contrast, areas that are on the research frontier of high performance psychology and a goldmine for new researchers include acting, the culinary arts, and software engineering.

Clearly domains change over time and some of the conclusions we have come to by way of empirical study or best practice may shift. We remain certain, however, that psychosocial skills will continue to play an important role in supporting success among equally talented individuals, particularly at the more advanced levels of talent development.

The field of intra and interdomain talent development is a burgeoning field with many outstanding questions to explore. We present a few of them here:

- What aspects of general intelligence are critical in the context of specific domains?
- Can one make eminent contributions in a domain without being an expert?
- What are the ideal proportions of specialization and interdisciplinarity in a domain? What are the implications of the answer for education?
- What are the most effective ways of teaching mental and social skills? Who is best suited to provide this instruction?

We hope you will join in this effort and look forward to the next iteration of the talent development field.

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A Study of Children's Classroom Questions in Relation to Elementary Science Teaching

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Abstract

Scientific enquiry is a creative process, commonly beginning with a question or problem, then generating a tentative answer or solution, and testing it. In the classroom, the question, perhaps in the form of a problem, is generally given, ready-made, to students by the teachers. With the aim of providing young students with a fuller experience of the scientific process, and wanting the potential of self-generated questions for interest and motivation, we explored various ways of inducing children (8-11 years, and of various sample sizes) to ask questions in science. Question-asking was found to be complex, involving the construction and articulation of descriptive and causal mental models of situations. We suggest several factors which influence and order the process, especially the situation or stimulus, the teaching and learning environment, and the attributes of the child. It takes time to produce questions which could lead to scientific enquiry, and it needs teaching skill to provide efficient and effective opportunities for children to ask questions, and help them put them into a suitable form. Question-asking seems worthy of further study.

Keywords: Question-asking; problem finding; descriptive/casual mental models.

Introduction

Problems, creativity and science

Popularly, creative behaviour is something that tends to be associated with the Arts, but, of course, people can be creative in any area of human endeavour (Newton & Newton, 2010). In science, mathematics, and technology, creative behaviour is more likely to be seen as problem solving (Newton, 2010). (Some practitioners in the Arts also see their creative activity as problem solving, see, for instance, Burnard and Younker (2004).) In science, there is:

- a problem – typically in the form of a puzzling observation or event in need of explanation;
- creative thought in the hypothesis space – applied to construct one or more plausible causal explanations;
- creative thought in the experimental space – applied in the design of tests of the potential explanations (Newton, 2010; Newton, 2012a). In applied science, there is also the potential for creative thought in the application space, where knowledge and know-how are used to solve practical problems (Newton, 2010). Some teaching programmes include the applications of science with the potential for creative thinking to solve practical problems found by the student. Other programmes leave this for technology education.

These creative activities may be undertaken by a single scientist, or different scientists (jointly or independently). While the aim is to move from the problem to the practical test of potential explanations, progress may not be smooth. In practice, there may be some iteration or backtracking with notions being revisited, clarified, redefined or reinterpreted, with consequences for later thinking. Although for decades problem-finding has been seen as a first step in creative thinking and a *sine qua non* (e.g. Getzels, 1975), it has tended to attract less attention than other mental processes. Hokanson (2018, p. 67) is of the view that, 'If we want to be more creative, we also need to become more fluid with problem-finding.' As a puzzling question, it can be a starting point for inventiveness and imagination (Costa et al., 2000). Yet noticing or finding a problem, clarifying and reframing it may be neither routine nor simple.

Students in schools are not, of course, professional scientists. Nevertheless, they may be expected to engage in creative thinking that parallels that of the scientist. For example, a young child, faced with the problem of explaining why a lamp connected to a battery by only one wire does not light may explain (the hypothesis space) that the battery should be held higher than the lamp so that the 'electricity can run down the wire' to it. The child may then suggest that this can be tested (the experimental space) by raising the battery and observing what happens. As beginners in the world of science, the thinking of children may rarely produce novel, plausible ideas, but it can be novel and plausible to them (instances of what has been called 'little-c', personal creativity as opposed to 'Big-C', new to the world creativity, see e.g. Boden, 2004). Here, the child was *presented* with or *given* the problem to solve, a common classroom practice.

If, however, children can *notice* or *find* a scientific problem to solve themselves, the benefits are at least twofold. There is the opportunity for a fuller educational experience of the scientific creative process, and there is the potential for arousing interest and engagement in satisfying the child's curiosity, a need to feel competent, and a need for autonomy (Jarman, 1996; Ryan & Deci, 2002; LaBanca, 2012). Runco and Nemiro (1994) have thus pointed out that problem finding is partly an emotional activity. But, can children raise scientific questions?

Children asking questions

Problem construction and identification is generally seen as the first step (for a concise review, see Reiter-Palmon, 2017). Here, we are particularly interested in children raising scientific questions with the potential for it to become a problem to solve in class. In the course of teaching, what conditions favour this first step? The teacher may have much to do to help the child turn a question into a clear problem open to safe, feasible investigation in the classroom, but, without this first step, there is nothing to work with.

From time to time, we can expect a child to feel curious or puzzled about the world. To satisfy curiosity or resolve the puzzlement, they may ask questions (the problem space). For instance, they may ask for facts and descriptions (e.g., 'What are volts?') or for explanations (e.g., 'Why did the lamp not light?'). While any of these might be the basis of some kind of investigation, of particular interest are requests for explanations. According to Piaget (1978), causal explanations are the most important because they make the world predictable, and are central to the scientific process, underpinning thinking in the hypothesis space, ('The lamp is not on because I believe that electricity runs downhill and it can't do so with this arrangement), providing purposeful thought for the experimental space ('If I lift the battery higher, the electricity can run downhill into the lamp') (Newton, 2010). Such questions could lead to a cascade of generative activity, and initiate productive discussion (Chin and Brown, 2000; Chin, Brown & Bruce, 2002). Chin (2004) also suggested that students' questions may be 'encouraged' by providing question stems for the children to complete. Earlier White and Gunstone (1992) had the similar idea of providing 'question starters', like 'What if ..?', 'Why does ..?' and 'How would ..?' They concluded that such starters can produce questions that may be used in the classroom, and a small scale replication by us supported their conclusion. This approach, however, *requires* children to respond to the stem. While the stems can be directed at desired kinds of question (e.g., asking Why questions), the questions these generate are forced responses to the task, and not necessarily spontaneous, motivating questions generated by a child's curiosity or interest. Factual questions can be suppressed and explanatory questions increased, and the task made into a game using giant dice with question stems written on the faces (as we tried). Nevertheless, we have doubts about suppressing or limiting factual questions as these may serve an important function on the way to understandings. Furthermore, non-spontaneous questions may not be those of interest to the child, simply those which meet the requirements of the task. For these reasons, we gave our attention to the production of less constrained questions.

In a study in Northern Ireland, Jarman (1991, 1996) asked primary and secondary school science teachers to keep a diary of the questions students asked during a four week period. She concluded that, although there were some science-related questions, they were few in number. Broadly speaking, their questions most often sought directions, reassurance, information, and

clarification. Only a few lent themselves to classroom investigation. She noted that young children asked more questions than older children, mostly of the teacher. Older children were more likely to direct their questions at other students. She felt that confident children were more likely to voice their questions, while less assured children tended to wait for a private word with the teacher. Moods can also influence the process of problem finding, and noticing something in need of an answer. Positive moods in particular seem to produce a state of mind which fosters the process while fear inhibits it (Chen, Hu & Plucker, 2014; Newton, 2014, 2016). Amongst older children, boys voiced more questions than girls, although girls lost some of this reserve when they were in girls-only groups. Although questions were asked whatever the teacher's approach, they were more likely during less-formal practices, as in discussions. However, the nature of the question may be moderated by students' familiarity with the topic: unfamiliar topics may generate requests for factual information, while familiar topics, for which facts are known, may prompt more speculative questions of the 'I wonder . . .' kind (Seradamalia & Bereiter, 1992). In other words, the children's domain specific knowledge is important. A later study of 13-year-old students by Chin, Brown and Bruce (2002) also found that when the emphasis was on acquiring information, questions tended to be requests for 'basic information'. When questioning was directed at making mental connections and understanding, there were more 'thoughtful' ideas. These differences in response seem to reflect the effect of different teaching methods on problem finding. In this respect, an inquiry approach is better than the transmission of information, while a combination of both is most favourable (Erdogan, 2017; Jia, Hu, Cai, Wang, Li, Runco & Chen, 2017).

Factors determining problem finding in the form of children's questions

Bringing the findings of the literature together, problem-finding is more likely if there are:

- favourable expectations (e.g. learning goals favouring deep or higher level thinking, such as the construction of understandings);
- opportunities (e.g. teaching strategies and attitudes encouraging question-asking); and,
- favourable personal attributes and states of mind (e.g. confidence, a favourable mood and, we might reasonably add, student interest).

These elements are, however, unlikely to be everything. Presented with a situation, we recall or construct a mental model of that situation (Barrett, 2017). If the situation is novel, it seems likely to begin with the building of a descriptive, situational model (e.g. some attributes and the spatial disposition of the components (van Dijk & Kintsch, 1983; Johnson-Laird, 2005). At this stage, it is likely that questions about the situation will support this process (i.e. asking for matters of fact). If the questioning goes beyond this stage, it could then enable or prompt thought about causal relationships and generate *Why?* questions. With the answers, a descriptive mental model may develop into a casual, explanatory model (Newton, 1995, 2012b). The (unanswered) questions are of particular interest, as they could be starting points for problems to investigate. If there is movement from descriptive to explanatory models, the movement may show itself in the sequence of children's questions, and, if so, it has implications for practice.

This process may be more likely when the topic generates interest and curiosity, and leads to spontaneous questions. Novelty alone may be insufficient; some novel topics may be dull, and some may not present causal puzzles that are noticed by or evident to children. For such topics, questions may be fewer, and barely go beyond matters of fact. In addition, we might expect older children to have more experience of the world, so that what interests and engages younger children may fail to do so with older children. Together, this suggests three overarching variables are interacting:

- the *situation* or *stimulus* with subjective attributes, such as, perceived novelty/familiarity, interest/dullness, and complexity/simplicity;
- the *teaching and learning environment* which determine expectations and opportunities; and,
- the *child* with attributes like age, experience, confidence, and mood.

These variables make for potentially complex and multifarious interactions. Such interactions would determine the nature of an attempt, if any, to construct or adjust a mental model of a situation.

This attempt is informed by information, some of which may come from the senses, but, crucially, it may be supplemented by asking questions. Spontaneous questions are more likely to reflect interest and engagement, but these may not be entirely absent when children are prompted to ask questions.

One aim of this study was to explore the effect of some relatively simple strategies intended to stimulate children to raise questions related to science. The findings could also inform reflection on the determinants of children's question-asking in science-related contexts.

The studies

Four short, exploratory studies are reported, reflecting on different aspects of children's problem finding. Each will be described in turn.

1. Vicarious experience as a stimulus to question generation

Method

A novel and interesting stimulus is known to arouse curiosity and a desire for knowledge (Graham & Helen, 2011). Accordingly, in this exploratory study, photographs (i.e., vicarious experience) of an elephant in the wild, one in captivity, and one of an elephant embryo in the womb were shown to 116 children aged 8 to 11 years from two, similar primary (elementary) schools in the UK. The children were in mixed ability classes, and comprised equal numbers of boys and girls.

The photographs offered something novel to the children and did attract interest and curiosity. The children were asked to write some questions about the elephants that they would like to know the answers to. From the children's interest it was clear that that the photographs, particularly the embryo picture, presented information that was new to the children.

Results

Figure 1 shows the numbers of questions that asked for facts, and those that asked for explanations in the children's first, second, third, etc. questions. Description questions predominated, while explanation questions grew in number, peaked then fell away. The distributions are significantly different ($p < 0.001$, Kolmogorov-Smirnoff test)

The findings are consistent with the view that a descriptive mental model is first constructed, and this then facilitates further thought of a more causal nature, prompting explanation questions. This pattern of questioning was similar for boys and for girls.

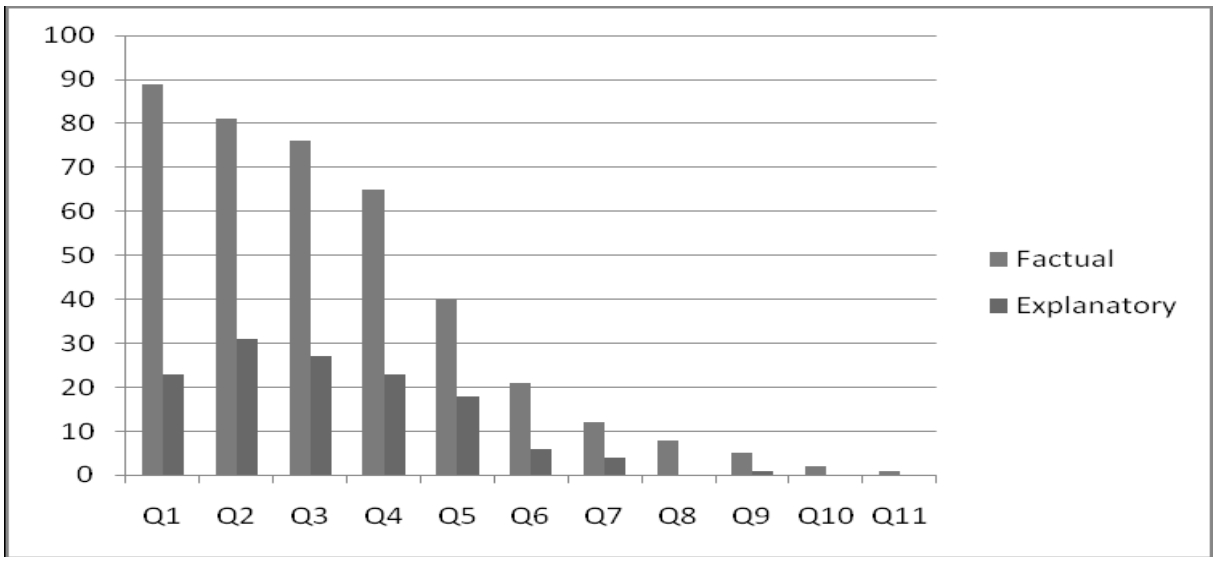


Figure 1: Children's questions generated by the elephant photographs (in each pair, the left blocks indicate the number of requests for facts, and the right blocks the number of requests for explanations).

2. Direct experience as a stimulus to question generation

Method

Clearly, direct experience with elephants in classrooms is not usually feasible in the UK. Piaget highlighted the benefits of providing concrete objects to support the thinking of younger children (Inhelder & Piaget, 2007), so two, more practical displays were constructed, one about eggs and one about bags. In the UK, most children are familiar with the hen's egg; other kinds of egg are less common in shops. The collection of eggs included an ostrich egg and others that are not frequently seen by children. In other words, the experience presented something likely to be new, particularly for younger children. The bags, although varied, were more mundane and offered little that would be novel to a UK child of 8 years and more.

The displays were presented to 76 children aged 8 to 9 years (39 boys, 37 girls), and to 84 aged 10 to 11 years (38 boys and 46 girls). These children, from four schools, varied in ability like those in Study 1. The children were invited to write scientific questions (*What would you like to know?*) about the objects on display.

Given that Eggs were more likely to be new to the younger children, it might be predicted that they would tend to ask for facts, and then explanations. On the other hand, these children are more likely to know about bags at the outset, and bring descriptive mental models to the task, resulting in a different pattern of questioning. Older children are likely to have more informal experience of both eggs and bags so the patterns of their responses could also reflect that.

Results

Figure 2 shows the patterns of description and explanation questions for the younger children. Figure 3 does likewise for the older children.

Figure 2a: **Figure 2b:**

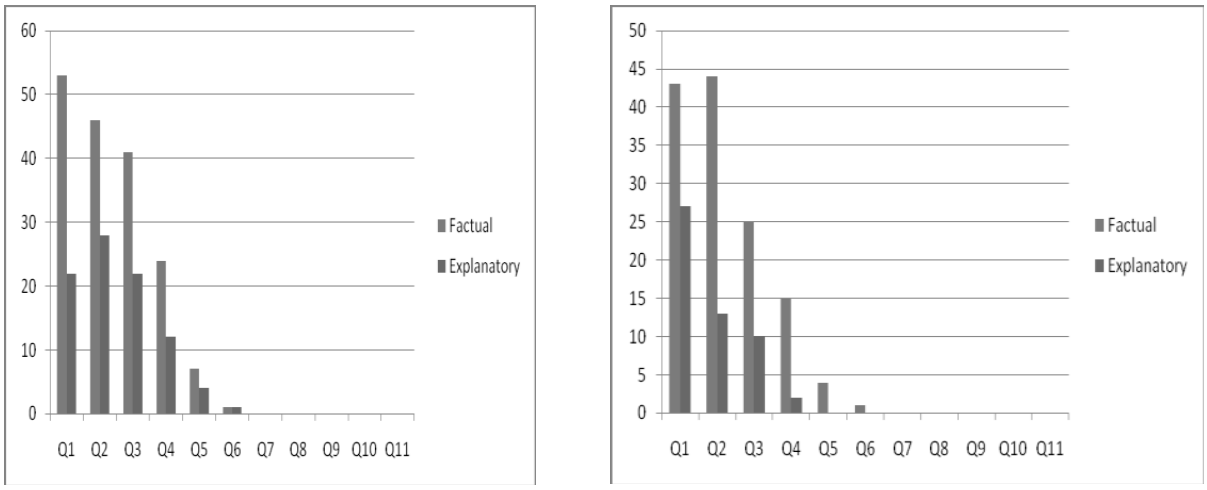
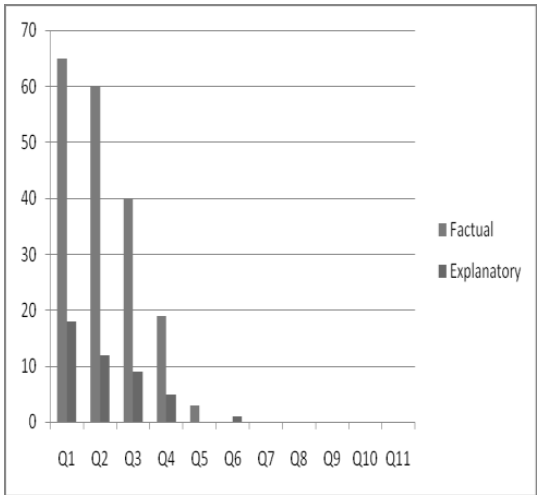


Figure 2: The younger children's questions generated by the Eggs (left, figure 2a), and by the Bags (right, figure 2b. In these and the following graphs, Factual questions appear to the left, and Explanatory questions appear to the right of each pair of bars).

Figure 2a shows a similar pattern of responses to that of Figure 1. This is consistent with the earlier notion that these children would give some attention to supplementing or building their descriptive mental models, and then turn to questions needing explanations. Bags, on the other hand, followed the patterns expected for more familiar topics, with both kinds of question declining together. In the case of the older children (figure 3b), Bags generated fewer questions, perhaps for the same reason. The distributions of 3a and 3b are significantly different ($p < 0.025$, Kolmogorov-Smirnoff test).

Figure 3a: Figure 3b:



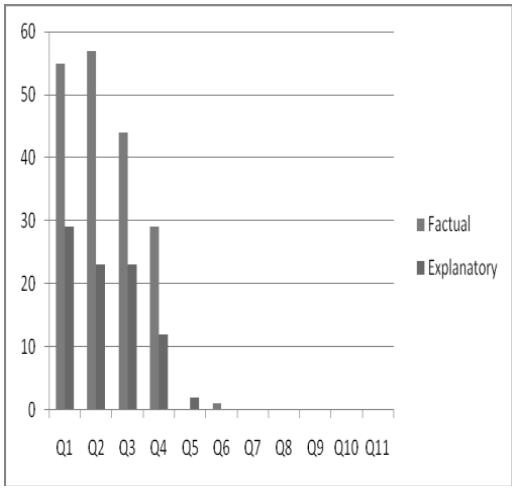


Figure 3: The older children's questions generated by the Eggs (left, figure 3a), and by the Bags (right, figure 3b).

Although the patterns of explanatory questions for the Eggs and Bags were different for the younger children, the overall numbers of explanatory questions were similar (i.e., not significantly different, $\chi 2$ test). A contingency table of the numbers of factual and explanatory questions for Eggs and Bags for the older children indicated that the number of explanatory questions for Bags was significantly smaller than for Eggs ($p < 0.001$, $\chi 2$ test). In short, this supports the view that the novelty of the topic matters.

3. Providing factual contexts to support question generation

Method

Piaget (1978) considered causal explanations to be amongst the most powerful we can construct in science because they enable prediction, application and adaptive behaviour in new situations. A way of helping children ask causal questions early could be of practical use in the classroom. Doing so might be achieved by helping children construct a descriptive mental model to think with before they construct their questions. Telling children a story is a common activity which requires them to construct a descriptive mental model of events and update it as events change.

Accordingly, a photograph of a double yolk egg, accompanied by some brief facts about the parts of an eggs, and a very short 'story' about Rahul's joy at finding he had a 'twin egg', were presented to the children on one half of a sheet of paper. Presented similarly, was a photograph of a cow foraging in domestic refuse in India accompanied by some brief facts about the source of plastic refuse, and a very short 'story' about Gowri, the cow who ate so many plastic bags that she died. Of the two 'stories', the second seemed to attract more interest. The accounts were read with the children, and they were invited to write up to four questions about what they would like to know about the situations in the remaining space.

The children comprised 85 who were younger (8 – 9 years: 42 boys and 43 girls), and 86 who were older (10 – 11 years: 44 boys and 42 girls), of mixed ability from four different primary/ elementary schools in the United Kingdom. As before, their questions were divided into description and explanation.

Results

The pattern of responses of the younger and older children to the Double Yolk Egg scenario was similar so they were combined. This also applied to the Foraging Cow scenario. Figure 4 presents these.

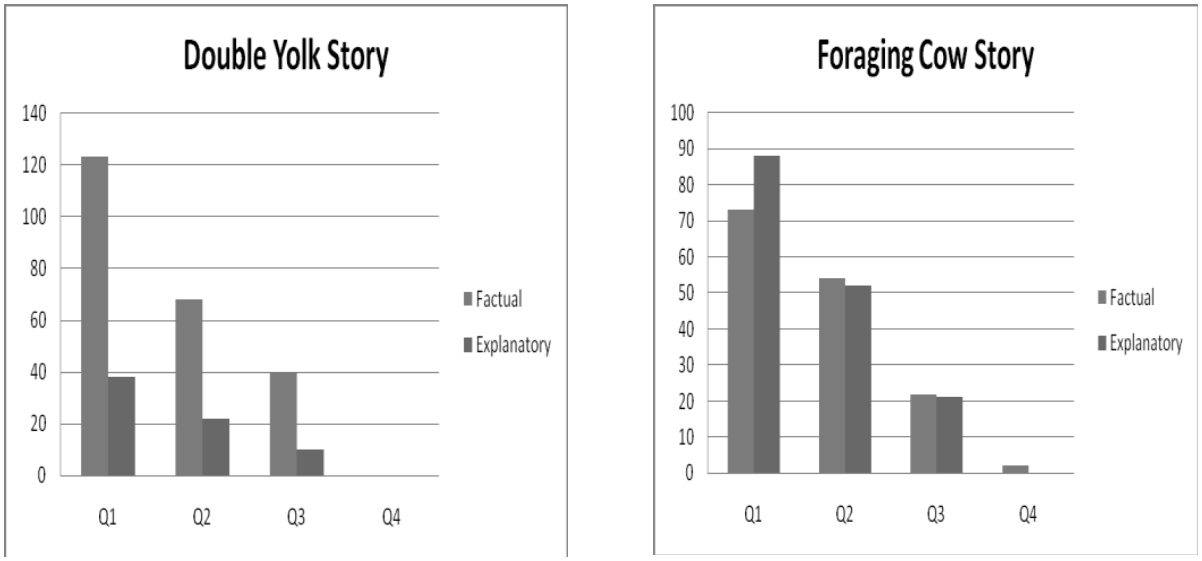


Figure 4: The children's responses to story-supplemented pictures.

For the cow eating plastic scenario, the proportion of explanatory questions was strong from the outset. The proportion was much more muted in the Double Yolk Egg scenario. A contingency table of the numbers of factual and explanatory questions in each of the story scenarios shows that the Foraging Cow produced significantly more explanatory questions (p <0.0001, $\chi 2$ test).

Once again, this response is consistent with the view that the novelty of the topic is important, and also how it is introduced.

4. The 'I Wonder' board to support question generation

While the above strategy increased the number of explanation questions asked early, teachers are unlikely to have a story for every occasion. At the same time, waiting for each child to ask sufficient questions to reach those Piaget (and scientists) would value highly, may take a long time. (For example, if each child asks only two questions, each taking 20 seconds of teacher/child interaction, a class of 30 children could take some 20 minutes of a lesson asking questions – and this may not be enough to reach the explanatory questions.) Is there another strategy which could save lesson time? The 'I Wonder' board, used after a teacher introduces a topic, may be one answer. The children write their questions on individual notes and attach them to the board for the teacher to sort, and bring back to the next lesson.

Method

Four teachers (in three schools) agreed to participate. Each introduced a science topic (Younger children: Food Chains, Plants; Older children: Electricity, Earth and Space) then the 'I wonder' board was explained. The children (45 younger and 38 older, mixed ability and gender, as described above) posted their questions (each child's questions numbered in order) on the board. The questions were collected and sorted. The topics were not in the control of the researchers, being what would have been taught at that time. This clearly limits what might be said about the outcomes, but there were some practically relevant observations.

Results

The strategy was able to generate questions, and was not time-consuming to apply (although the teachers would have to sort and consider the questions after the lesson). Figures 5 shows the relative frequencies of description and explanation questions collected from the 'I Wonder' board, both Natural Science topics combined for the younger children and both Physical Science topics combined for the older children. The strategy elicited similar numbers of factual questions from the younger and the older children, but fewer explanatory questions from the older children. A contingency

table (factual and explanatory questions for the younger and older children) indicated that the younger children produced significantly more explanatory questions (p <0.001, χ_2 test), but it should be noted that the topics which produced these questions were not the same. It is not clear whether the variation was due to differences in teacher, in topic, in the children's prior experience, or to some other variable. With the older children, there is again the hint of a delayed peak in explanatory questions, but what weight could be put on this is uncertain.

The questions children asked

Children may ask for explanations, reasons, causes, and why phenomena occur, but it may be that their questions cannot become problems which lend themselves to useful classroom activity in elementary science. The questions, therefore, were sorted into those that might provide a basis for answering through:

- Research (the finding of answers by the children using sources of information, such as books and digital media; e.g. 'Why are some eggs bigger than others?');

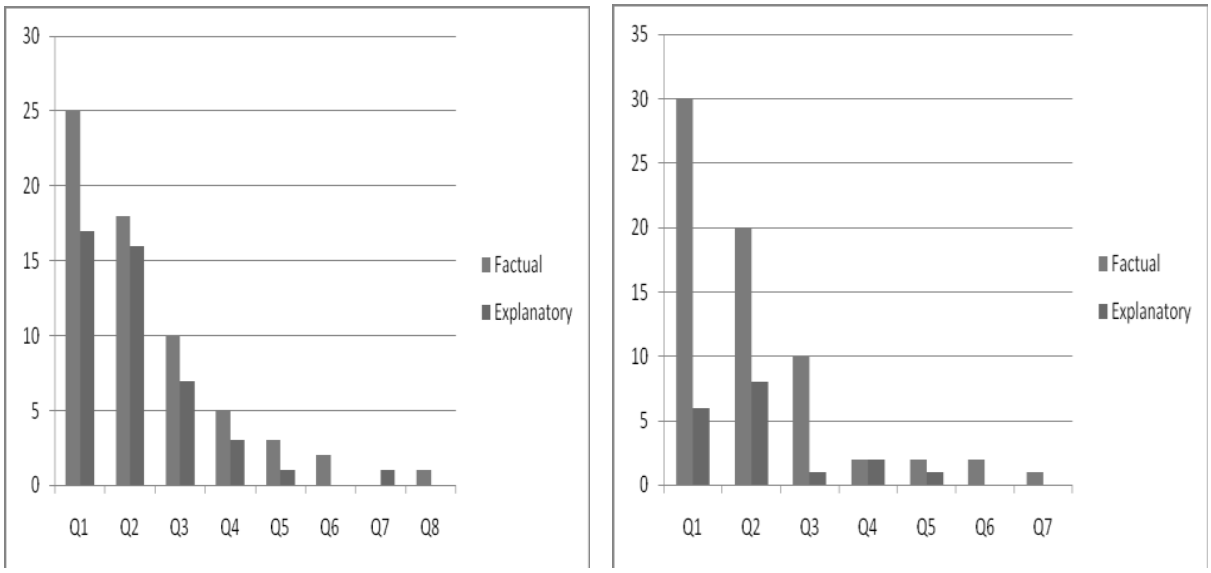


Figure 5: The younger children's questions (left), and the older children's questions (right) using the 'I Wonder' board.

- Observation (the direct observation of phenomena, objects and events by the children; e.g., 'Which [egg] is the biggest?');
- Demonstration (the managed, direct presentation of phenomena, objects and events by the teacher so that the children may see them, but are not involved directly in their manipulation, although they may ask the teacher to do so on their behalf; e.g. 'How big is the yolk inside the egg?');
- Investigation (hands-on practical activity by the children intended to answer their question, either about a matter of fact, or to test a tentative explanation; e.g. 'Why do paper bags rip in the rain?');
- None of these (ambiguous or unclear questions, or those not relating to the purpose of the activity; e.g. 'Where did you find [the eggs]?').

Clearly, allocation to these categories depends on context. For instance, questions answerable by direct Observation in one part of the world, may be answered only by Research in another. Similarly, what may be an appropriate, hands-on Investigation for older children may become a Demonstration with younger children. At the same time, one teacher may be better than another at reframing a question to make an opportunity for an Investigation. And, of course, cultural forces, expectations, opportunities, time, resources and classroom routines can determine how, or if, a question becomes a found problem (Runco & Nemiro, 1994). For these reasons, sorting questions in

this way is somewhat subjective and context bound. Here, it reflects common expectations and practices in science teaching in England, although differences between teachers are still to be expected. Nevertheless, when a sample sort of almost 1000 questions was undertaken by two researchers familiar with teaching science in this context, the inter-rater agreement was over 95%. We would expect it to be lower if raters were from different contexts. Bearing this in mind, we offer some comments on the kinds of questions asked in each of the above studies.

Reflecting the geographical context, the overwhelming number of questions about elephants (516) lent themselves only to Research. Eggs and Bags, however, are more available in this context, and, while the majority were Research questions, 40 and 84 questions respectively could be, or could readily be reframed to become, Investigations. (The smaller number arising from Eggs was largely because some of the eggs (e.g. ostrich) are not readily available in the UK.) While the provision of factual content, partly via stories, greatly increased the number of explanation questions (particularly for the Foraging Cow), all questions were seen as better answered by Research. (This finding is probably an artefact of the scenarios as they did not lend themselves to generating questions for acceptable Investigation in elementary, UK classrooms.) The time-saving, 'I wonder' board concluded four teacher-led topics. The question patterns were similar for all topics, again with the majority open to Research. This pattern was not surprising, given that two of the topics (Food Chains and Earth and Space) were not of a kind which led readily to feasible, short term, classroom Investigations. In the Investigation groups for Plants and Electricity, however, there were some questions which could provide useful starting points for practical enquiry. For example, one child asked, 'What would happen if plants didn't get any water?', and another asked, 'What other circuits can be made?' which are or could become practical investigations.

Even given the essentially context-bound nature of this classification of children's questions, there are some useful messages for teaching practices in these data which will enter into the discussion.

Discussion

This study sought to gain some insights into young children's questioning, and to see if their questions might underpin their further learning in the science classroom. Explanation questions, particularly those asking for reasons, are of especial interest as reasons enable the construction of powerful understandings, which can lead to prediction. The process of question-asking, however, is clearly complex and likely to depend on many variables and their interaction. Because of this complexity, we cannot be sure that our findings would be the same for all possible contexts. Nevertheless, we feel there are some useful observations to be made, which educators may be able to apply directly or, at least, relate to their work with children and teachers. The notion of 'relatability' is a useful one in contexts such as these, where variables are manifold and are rarely fully controlled or even controllable, as is the case in most realistic educational contexts (for the notion of relatability, see Bassey (2001), and for the inherent complexity of human behaviour outside the laboratory, see, e.g. Deaton and Cartwright (2018)). With these cautions in mind, we offer some observations.

First, the primary/elementary children here showed they could ask questions when given the opportunity, or when expected to do so. These questions were most often about matters of fact; requests for reasons or causes were fewer in number. Where the stimulus material was novel and interesting, the pattern of questioning was consistent with the view that the children constructed a descriptive mental model of the situation, and this may then prompt questions to make it an explanatory model. The construction processes are not entirely separate, and, at least here, can overlap to some extent, or stop with the descriptive model.

It was suggested that younger children, being less experienced, would find more that was novel in the world than older children. This notion is consistent with the responses to Eggs in Study 2 above. It also seems likely that Bags would be of less interest to the older children, which may be why

they elicited fewer explanatory questions from them. (It could also be, of course, that they were able to make causal connections without asking for explanations.)

Providing factual information in the form of brief contexts and short 'stories' could be expected to help children construct a descriptive mental model and so ask *Why?* questions sooner. There was evidence of this with the Foraging Cow scenario, but, of course, the effect is only as good as the information or story provided, and it depends on the interest that the topic generates. It may be that either (or both) of these was deficient in the case of the Double Yolk egg scenario. If there is value in such questions, this strategy may have practical use in the classroom, but attention probably needs to be given to several variables simultaneously to ensure a useful effect (e.g., stimulus (e.g., interest/novelty); environment (e.g., expectations); child (e.g., age/experience/mood). It might be expected that the effect of introducing a lesson first and asking for questions for the 'I Wonder' board at the end would also be useful as it has the potential to provide a descriptive mental model to think with. This strategy appeared to be effective for the younger children learning about Natural Science topics (Study 4), but was not evident with the older children learning about Physical Science topics. Of course, it could be that the older children were already familiar with Electricity and Earth and Space, so these topics failed to attract their interest. If this was the case, a general suppression of both kinds of questions might be expected, but many factual questions were asked. And, of course, if the topics were known to the children, why would the teacher choose to teach them? It was suggested that topics will be neither equally interesting, nor will they be equally easy to process (or presented in equally interesting ways). In other words, such differences may be due to attributes of the topic. Nevertheless, it does show that the 'I Wonder' strategy could have practical application as it did produce questions with economy of effort and classroom time.

Even given its limitations, the sorting of the children's questions into the activities best suited to answer them, suggests that those which could lead clearly to feasible practical investigations are not always prolific. Many topics do not lend themselves to such questions. In topics which do, such investigations were often of a factual (e.g., 'What happens if you leave a bag outside?'), rather than of a causal nature (although they do occur, as in, 'Why do paper bags rip in the rain?'). These findings point to the need for a teacher to have some skill in helping children reformulate their questions, and make them more clearly causal. Where there is a paucity of causal questions, such a skill is probably a valuable attribute of a teacher. While strategies, like the use of question stems and question dice (Chin, 2004) may remove some of the motivating spontaneity of children's questioning, teachers may still find them useful on occasions, both to remind children of the variety of questions possible, and as activities to hold in reserve.

In a useful review from 1994, Runco and Nemiro noted that certain broad approaches, like a blend of inquiry-led and more didactic teaching, can prompt deeper thinking. Many teachers of younger children do not have a strong scientific background, and so tend to lean towards didactic teaching (Newton & Newton, 2000). Given appropriate topics, some of the question-generating strategies are easy to apply, but a teacher may need to reformulate children's questions if they are to become feasible activities in a blend of teaching which includes practical inquiry. Runco and Nemiro (1994) suggest it might be useful if teachers modelled their thinking, and in this context, that would mean modelling the asking of Investigation questions, and recasting them into a practical form.

Conclusion

Hattie (2009, p. 183) is of the view 'that insufficient attention is given to children's questions', and that analysing their questions could be very useful for supporting their thinking and learning. This view, of course, assumes that children have the opportunity and are encouraged to ask questions. As might be expected, the studies described here show that children of primary/elementary school age can ask questions about science, but question-asking which reflects interest and curiosity (rather than an obligation to respond) is not a simple matter. It is likely to involve multifarious variables, which probably interact in a variety of ways. When teaching something new to children (something which is, after all, a central aim of education), the children need to construct a descriptive

mental model, and their questions reflect this constructive process and dominate questioning. In the quick-fire, teacher-learner interaction of the classroom, this expectation of level of questions be as far as it goes. Such questions do, of course, provide a basis for children to engage in research using, for example, direct observation, digital media and text. But, to develop a causal mental model, questions need to lead to explanations. Such questions may have the potential to underpin hypothesis construction and testing in the classroom. Some topics facilitate this process better than others. Depending on the topic, we found that, although not numerous, some questions are generated that could lead to feasible, practical investigations, but the teacher may need some skill in question reformulation to make them suitable for the classroom. If the children's own problem-finding is to be encouraged, teachers will have to recognise that children's question-asking should not always be the short interaction it often is, and that more useful questions can take time to emerge.

These findings also highlight the need to ensure that teachers, both in training and in service, are equipped with these skills. To that end, we suggest that teachers' reflect on the overarching variables: the situation or stimulus, the teaching and learning environment, and the child's attributes, the mental model construction process, and how these may affect children's responses in particular contexts. Teachers may also need to be aware of various strategies for eliciting children's questions, and the strengths and weaknesses of these strategies in a given context. Facilitating children's question-asking is a process which needs forethought about the stimulus, the environment, and the child. We also suggest that these are worth further, systematic investigation, both in science-related contexts, but also in other areas of the curriculum.

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The Effectiveness of an Additional Half-Day Program for At-Risk Nursery and Kindergarten Children Through a Collaborative Partnership

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Abstract

A collaborative partnership was developed within a school division, inner-city school and nearby daycare to provide an intervention program for children in nursery school and kindergarten known to be at-risk for school success. The plan was to offer an additional half-day of programming focused on a whole-child vision including language, literacy, social skills and physical activity to increase the children's readiness for school. A program was developed using the results from early screening testing, the provincial curriculum for the early years, and consultations with experienced administrative and school-based personnel, clinical consultants and the director of the child care center. Contrary to expectation, the results indicate greater gains were achieved by the nursery-aged children over those for the kindergarten children. This finding suggests interventions with the nursery school age group may be particularly impactful in making a difference in their language and literacy development.

Introduction

Substantial evidence exists within the research literature to suggest socioeconomic status is positively related to literacy development from the early years through to high school (Molfese, Modglin, & Molfese, 2003; Smart, Sanson, Baxter, Edwards, & Hayes, 2008). Gaps in literacy achievement for children from disadvantaged families are evident at school entry (Buckingham, Beaman, & Wheldall, 2014). MacGillivray and Rueda (2001) found children who come from lower socioeconomic status and children from homes where the language spoken is not the dominant language are "grossly over-represented" when studying the numbers of unsuccessful literacy learners. These children often begin school unprepared for the academic and behavioural expectations of classroom life (Leseman, 2002). Canadian statistics reveal over one-quarter of the children beginning kindergarten will not graduate from high school (Council for Early Child Development, 2007). The ground-breaking revelations of McCain and Mustard's 1999 study revealed the impact of neurological and brain development in the early years as determinants in the trajectory for the rest of the life cycle. In response to this research, provincial governments across Canada have responded by initiating policy focused on early years education.

This study describes one province's early years strategy, encouraging the engagement of cross-sectoral partnerships, which resulted in a collaboration between a school division, a public inner-city school and a neighbourhood day-care. This partnership represents how three stakeholders worked together to create an intervention for inner-city nursery and kindergarten children who had been identified as being at-risk for school success.

Theoretical Framework

Theory and research indicate learning to read is the most important outcome of the elementary years (Strickland, 2002) and lack of success in reading in the early years leads to the struggling elementary and middle years reader and eventually school failure (Slavin, Karweit & Wasik, 1992). It is believed the reading problems of many adolescents and adults can be linked back to their early years of development (NRC, 1998).

The field of neuroscience provides evidence showing the early years of development serve as a foundation for learning. The early interactions children have with adults and more knowledgeable peers are important factors in brain development (McCain & Mustard, 1999). More striking is the evidence that the early years of brain development have implications extending beyond the time of childhood and influencing life-long learning (McCain & Mustard, 1999). This knowledge has led to recent efforts among policy makers to reduce the disparities resulting from socioeconomic and second language effects on schooling.

Research in family literacy reveals the socio-economic status (SES) levels of families are strongly related to children's literacy achievement (Feagans, Hammer, Miccio, & Manlove, 2001). Family poverty has been shown to contribute to factors affecting children's language development. Parents with limited education and low incomes are less likely to know how to facilitate their child's cognitive and social development. It is a challenge for parents who have struggled with their own literacy to provide a foundation for their children's language and literacy development. Many factors come into play for these parents, with life stresses such as employment and taking care of their families, lack of parental role models in their own lives, and understanding the importance of their role in their children's lives (McLoyd &Wilson, 1990).

Studies have shown the extent to which poverty impacts children's language development. A study on the use of home language (Hart and Risley, 1995) revealed a dramatic difference in language interactions and spoken vocabularies among families of different SES levels. They reported that per hour a child from a poor family heard 615 words, a child from a working-class family heard 1,251 words, and a child from a professional family heard 2,153 words. This accounted for a measurable difference in spoken language by age three for children raised in professional homes and children from lower-income homes.

Literacy practices among different SES families also differ according to number of books in the home and frequency and quality of reading time with their children (Adams, 1990; Feitelson & Goldstein, 1986; McCormick & Mason, 1986). Studies focusing on the frequency of home reading indicate parents with higher SES levels read to their young children more frequently than parents of lower SES levels (Britto et al., 2002 in Fletcher & Reese, 2005 p.88). Children from low income homes have fewer experiences with books prior to beginning school (Federal Interagency Forum on Child and Family Statistics, 2009).

In examining the literacy practices in low-income families, Purcell-Gates (1966) found families tended to be more limited in how they used language whereas families with more education applied practices reflecting those used in early childhood classes. Other factors include parents' responsiveness to their children's needs (Landry, Smith, Swank, Assel, & Vellet, 2001) and more reliance on power-assertive techniques. Hertzman (2010) states that by the time children enter kindergarten, it is possible to identify those children who have not had secure, nurturing and stimulating early childhood experiences. Children from low-SES backgrounds experiencing these conditions will be less likely to have developed the learning outcomes needed to prepare them for their early years of schooling.

It is now evident, however, that risk factors related to literacy development among low-income and linguistically different populations are not inherent, but part of the social contexts of learning, and therefore are amenable to change through education (Zakaluk, Straw, & Smith, 2003). School readiness programs, particularly for children from disadvantaged backgrounds, are recognized as a means to positively affect their success in school as well as their future. Ample evidence exists to demonstrate well-designed prekindergarten programming supports the development of school readiness skills and serves as a foundation for continued achievement (Neuman, Rosko's, Vukelich & Clements, 2003).

Context of this Study

In 2002, a study entitled "Understanding the Early Years" (UEY) was conducted by the Winnipeg School Division to assess the readiness of kindergarten children throughout their

jurisdiction. Analysis of the data from the Early Development Instrument (EDI) identified children in a catchment area who were in the bottom 10% of readiness to begin grade one, and which would hinder their success in Grade one without some form of intervention.

The Early Development Instrument was developed by Dan Offord and Magdalena Janus at the Offord Centre for Child Studies at McMaster University. It has been used in Canada since 1998. It is a population-based tool measuring young children's developmental levels in five domains: Physical Health and Well Being; Social Competence; Emotional Maturity; Language and Cognitive Development; and Communication and General Knowledge. As such, it is considered to be a form of holistic assessment of children between the ages of 3.5 and 6.5 years. It uses a questionnaire format to be completed for each child by the early year's teacher.

Data collection is done in the second half of the kindergarten year, since by this time the teacher is familiar with each child and children will generally have settled into the school environment. The EDI data are sent to the Offord Centre for processing. The results are aggregated to provide a snap shot of children's developmental functioning across schools, neighbourhoods, and cities and provinces across the country.

In Canada, education is under provincial jurisdiction. One policy to support early years learning in the province where this research was conducted is to encourage school-divisions to collaborate with other groups offering programs and services to preschool children and their families. This is referred to as an inter-sectoral initiative. Based on the results of the EDI, a school division, an elementary school, and a neighbourhood daycare worked collaboratively to address the results of the EDI. This joint effort led to the establishment of a half-day intervention program to be offered at the child daycare centre and referred to as The Literacy Intervention for Tomorrow (LIFT) Program.

This school division, which is the largest in the city and includes the inner-city, offered half-day no-fee nursery and kindergarten programming to its residents from September to June. The goal of this intervention was to provide an additional half-day of school experience to build children's readiness experiences for school.

It was decided a proactive approach was needed to intervene for children who were entering nursery school and kindergarten in the following year. The program provided an additional half-day of engagement in language and literacy skills and aimed to develop the socialization skills needed for the school setting. The initial pilot project was funded through the Manitoba Child Care Program (MCCP).

The researcher was approached by the school-community liaison person to assist the LIFT team in assessing the effectiveness of the intervention program. At this time the program had been running but had not been assessed. My objectives for this study were to determine: 1) whether the nursery and kindergarten students made gains in their literacy skills through their participation in the intervention, and 2) to provide feedback on the programming for this intervention.

Method

Participants and program.

Eight children participated in this study over a ten-month period. Four of the children were in nursery school (mean age 4.5 years), and four were in kindergarten (mean age 5.4 years), with two boys and two girls in each group. The four kindergarten children were selected to participate based on their nursery school scores the previous fall in the school division's Comprehensive Assessment Program (CAP) testing. Selection of the four nursery school children was based on the school readiness of their older siblings and the observations of school personnel in the first weeks of the nursery school year. In addition, students who were thought to most benefit from the additional support and resources were considered.

Parents were contacted and offered a placement for their child at no cost to ensure there were no barriers for children to attend and no financial burden placed on the families. Parents were then

invited to an information session to be introduced to the benefits of the program. If parents agreed to have their children attend, they and their children participated in a follow-up orientation meeting to familiarize them with the centre and the program. In return, parents brought their children to the program at the daycare every morning Monday to Friday for 8:00 a.m., starting in September and ending in June. The daycare staff walked the children over to the elementary school for the nursery and kindergarten class for the afternoon.

Implementation of the LIFT program was overseen by the director of the daycare and carried out by three early childhood educators. Employment of childcare staff is regulated by the province requiring all staff working with children in child care centres, nursery schools and school-age child care centres to meet certain classification designations: Child Care Assistant (CCA), Early Childhood Educator II (ECE II) and Early Childhood Educator III (ECE III). The most experienced daycare staff member for the LIFT program had the highest attainable designation as ECE III which consists of the Early Childhood Educator diploma, some specialization, and a Bachelor of Education in Developmental Studies. The two additional daycare staff for the LIFT program both had the CCA designation described as no-post-secondary credentials, and 40 hours of Early Childhood Educator coursework to be taken within the first year of employment. Two of the childcare educators worked directly with the students, while one was free to assist as required or prepare materials.

The daycare was formerly a remodelled two-story house. The main floor was rich with early years learning materials including a dramatic play area, a reading loft, construction toys, books, puzzles, a fish tank, a bird cage, and arts and crafts materials. There was a carpeted area for children to gather around and work with the teacher, an area with small tables to sit at, and an area for children to sit together and have snacks and their lunch. A gym was located on the second floor with a variety of equipment for physical exercise.

The curriculum for the LIFT program was developed by drawing from several existing sources being used within the school division for early years programming. This included the provincial English Language Arts curriculum for kindergarten and the five areas assessed through the EDI assessment: physical health and well-being, emotional development, social competence, language and cognitive development, and communication and general knowledge. A team representing school personnel and administrators, a speech-language consultant and the director of the daycare planned the intervention program utilizing these documents, assessments, and drawing on the collective experience of the team members.

Six target areas for skill development were identified based on the analysis of the CAP scores, EDI results, and early year observations of the children. A whole child philosophy was foundational to the goals of the program. It included the following: language and literacy development, social development, self-help and life skills, preparation for the school setting, building of self-confidence in life and learning skills and an excitement for learning. Programming was developed for the entire ten-month period, with the three early childhood educators working through weekly curricular plans.

A typical day in the LIFT program began at 8:00 a.m. when parents brought their child to the daycare with activities beginning at 8:30. The morning was divided into different learning opportunities of age-appropriate duration and utilizing different spaces within the daycare centre. Learning experiences included circle time, large muscle activities, adult-led activity in art, small group activities with an adult, mini group options, creative play, red play box activities offering varied and free play. The children were provided with a nutritious snack mid-morning and ate their lunches together, allowing for an opportunity to work on self-help and socialization life skills.

Data sources

This was a mixed methods study employing both quantitative and qualitative data collection. Access to the school division's scores for their CAP testing was provided for the two consecutive fall periods bookending the study. Scores were compared to assess the children's knowledge and skills prior to and after the LIFT program. The children's learning was assessed through a descriptive

analysis of seven subtests of the CAP testing. The subtests inclusive for both groups, the nursery to kindergarten and kindergarten to grade one, were selected as they would allow for cross comparisons. These subtests included: story or personal information, reading of environmental print, word identification or tracking, retelling, conventions of print, letter names, and speech and language development. Scores were compared for the fall nursery school year (Time 1) to the fall of the kindergarten year (Time 2) for one group, and for the fall of the kindergarten year (Time 1) to the fall of the grade one year (Time 2) for the second group.

Qualitative data included three different sources. Interviews were conducted with each of the early childhood educators at four points during the year: October, January, March and June. These were audio recorded with the teacher's permission and later transcribed for analysis. Three field observations of the LIFT program were conducted in each of January, March, and June. A final focus group was conducted with the daycare teachers at the end of the school year. Analysis of the data was through the grounded theory approach, involving searches for emergent themes present within the data (Glaser & Strauss, 1967), and the constant comparative method in which the investigator simultaneously codes, categorizes, and makes notes of new and recurrent themes. Weekly lesson plans and monthly records of student progress lent depth to the analysis and description (Glaser & Strauss, 1967).

Results and Findings

The CAP analysis places learning performance in one of three levels (see Table 1). "Independent" refers to the child working at or beyond the indicated grade level and able to proceed into the next grade level with ease. The "developing level" refers to the child approaching the indicated grade level and able to benefit from instruction. The level described as "needing support" indicated a child required additional instruction and support to reach the beginning stages of this grade level and to continue to make progress toward grade level outcomes.

Table 1: Performance Levels on CAP (Comprehensive Assessment Program) Scale

Level of progress	CAP scale
Grade 1	
Independent Grade 1	10
Developing Grade 1	9
Needs Support Grade 1	8
Kindergarten	
Independent Kindergarten	7
Developing Kindergarten	6
Needs Support Kindergarten	5
Nursery	
Independent Nursery	4
Developing Nursery	3
Needs Support Nursery	2

In total there were seven subtests for each of the four children in the nursery school to kindergarten group and the kindergarten to grade one group, with a total of 28 subtests per group (see Table 2). Analysis of the findings of the subtest performance indicate that in 20 out of 28 subtests, the nursery to kindergarten children achieved at a level indicating readiness for beginning kindergarten instruction. In 13 out of 28 subtests, the kindergarten to grade one children achieved at a level indicating readiness for beginning grade one instruction. Overall, in 71% of the subtests, the nursery to kindergarten children were able to enter their new grade ready or requiring some support to achieve the next grade level expectations; whereas, 46% of the kindergarten to Grade one children were ready for the next grade level.

Post-test scores in three of the subtests were similar for both groups. In the telling of personal information through drawing and writing and reading environmental print or simple books, one child in each group was at an independent level for their grade. For retelling a story that had been repeated over a few weeks, two children in each group were at an independent level for their grade. For the

remaining four subtests on conventions of print, letter recognition, and speech and language development more of the children in their kindergarten year were at a level of readiness than were the grade one children. These subtest scores indicated that, comparatively, only half as many of the grade one children were ready for their new grade as were the kindergarten children.

Table 2: Number of Children in each Level Based on Time 2 Scores for Group 1 and 2

	Nursery to Kindergarten (Group 1)			Kindergarten to Grade 1 (Group 2)		
	Not ready	Developing	Independent	Not ready	Developing	Independent
Personal story sharing	3	0	1	2	1	1
Reading	0	3	1	3	0	1
Retell	1	1	2	2	0	2
Conventions of print	1	0	3	2	0	2
Letter	1	0	3	2	0	2
Speech	1	0	3	2	0	2
Language	1	0	3	2	0	2

Each child's learning is represented on bar graphs for each of the CAP subtests (see Figure 1 through 7). For each of the subtests of the CAP testing, three to four children in the nursery to kindergarten group (N – K) showed gains of three or more levels of progress on all seven of the sub-tests from time one to time two. For the kindergarten to grade one group (K - Gr.1), one to two levels of progress were reached by one to two children from time one to time two.

Note: N-K 1 = Nursery to kindergarten group child 1

K-Gr. 1 1= Kindergarten to grade 1 group child 1

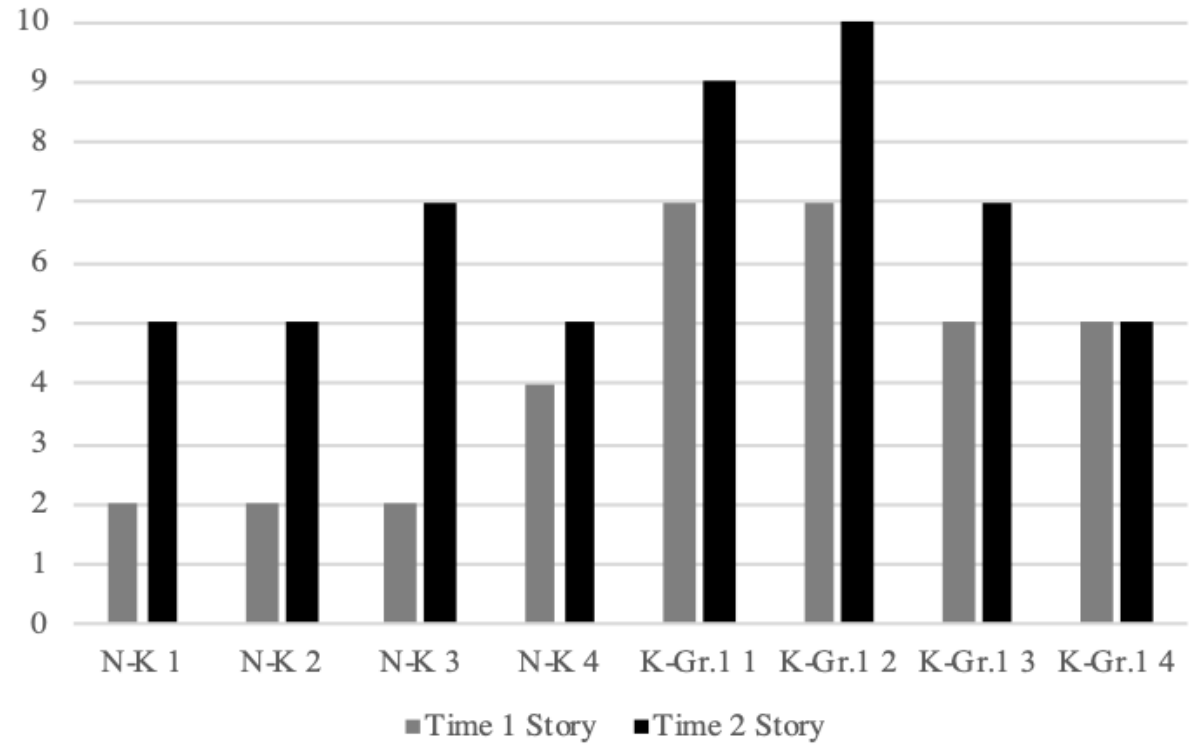

Figure 1: Story

Note: N-K 1 = Nursery to kindergarten group child 1
K-Gr. 1 1= Kindergarten to grade 1 group child 1

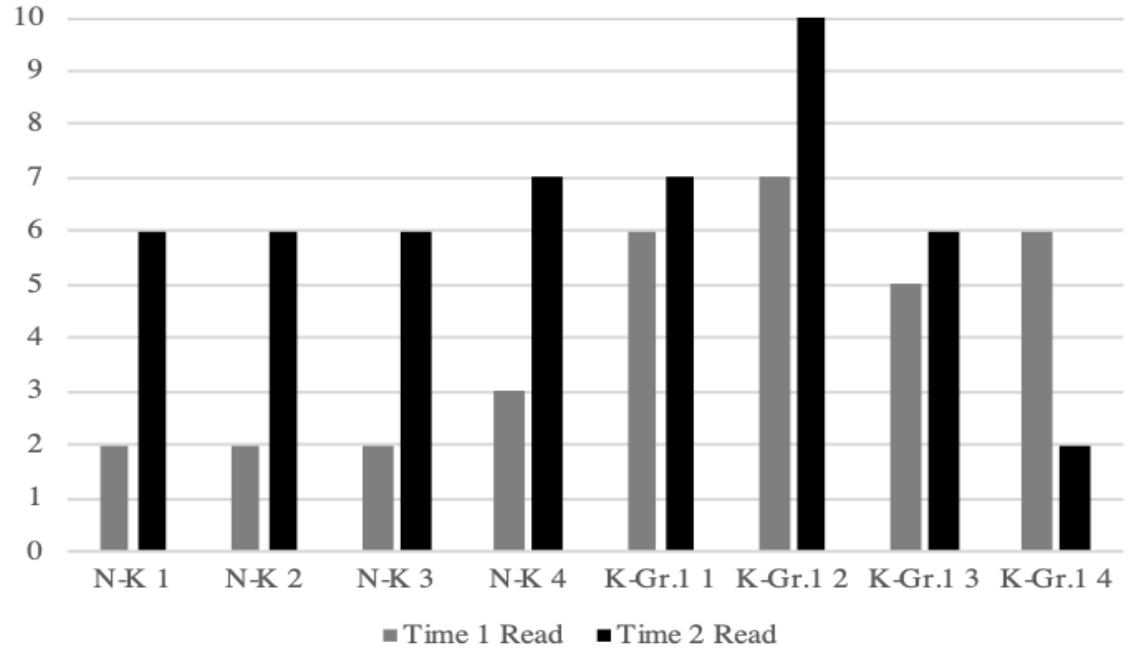

Figure 2: Read

Note: N-K 1 = Nursery to kindergarten group child 1
K-Gr. 1 1= Kindergarten to grade 1 group child 1

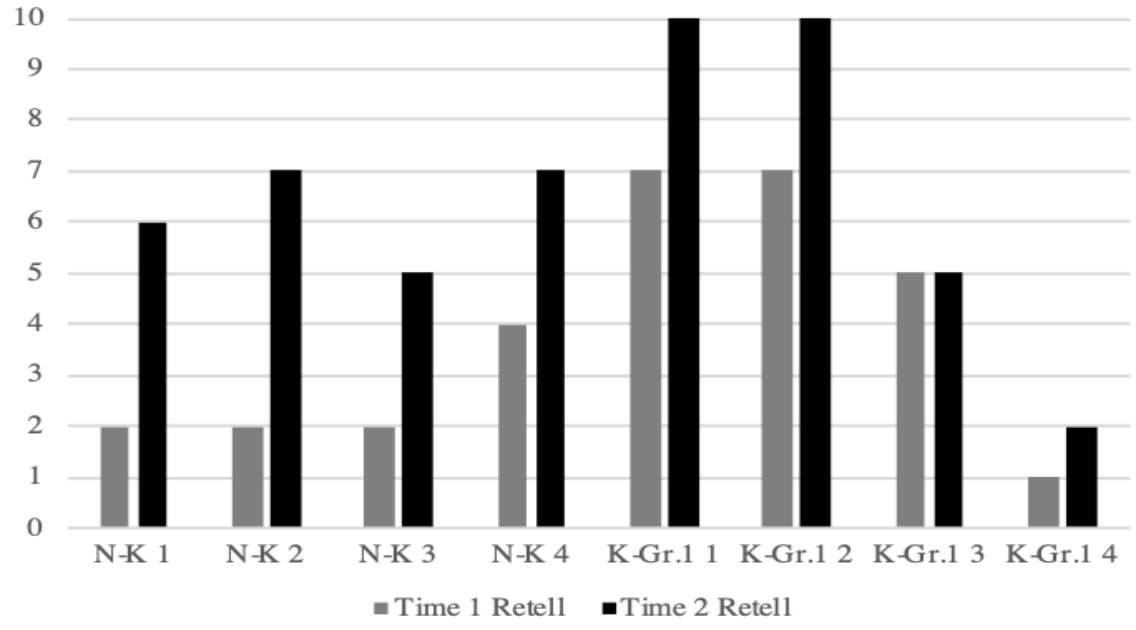

Figure 3: Retell

Note: N-K 1 = Nursery to kindergarten group child 1
K-Gr. 1 1= Kindergarten to grade 1 group child 1

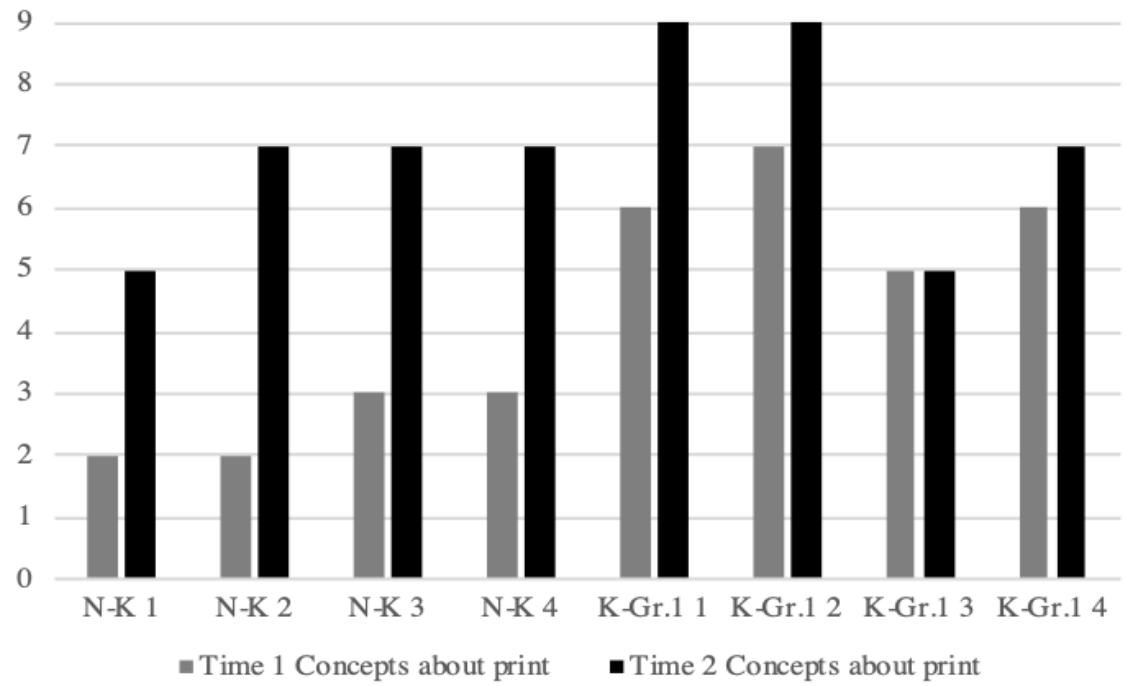

Figure 4: Concepts about print

Note: N-K 1 = Nursery to kindergarten group child 1
K-Gr. 1 1= Kindergarten to grade 1 group child 1

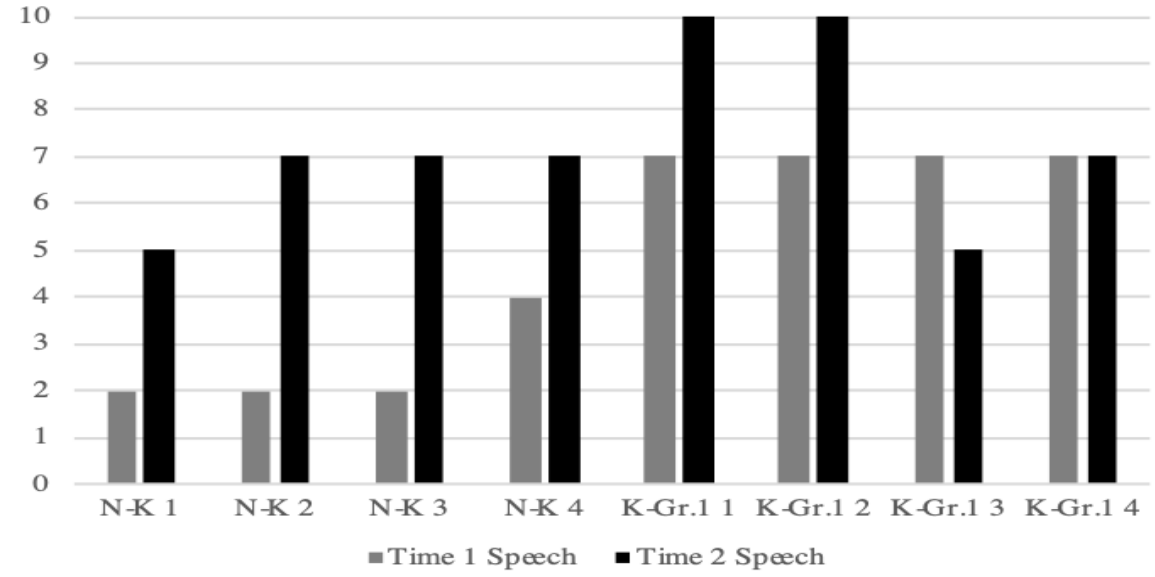

Figure 5: Speech

Note: N-K 1 = Nursery to kindergarten group child 1
K-Gr. 1 1= Kindergarten to grade 1 group child 1

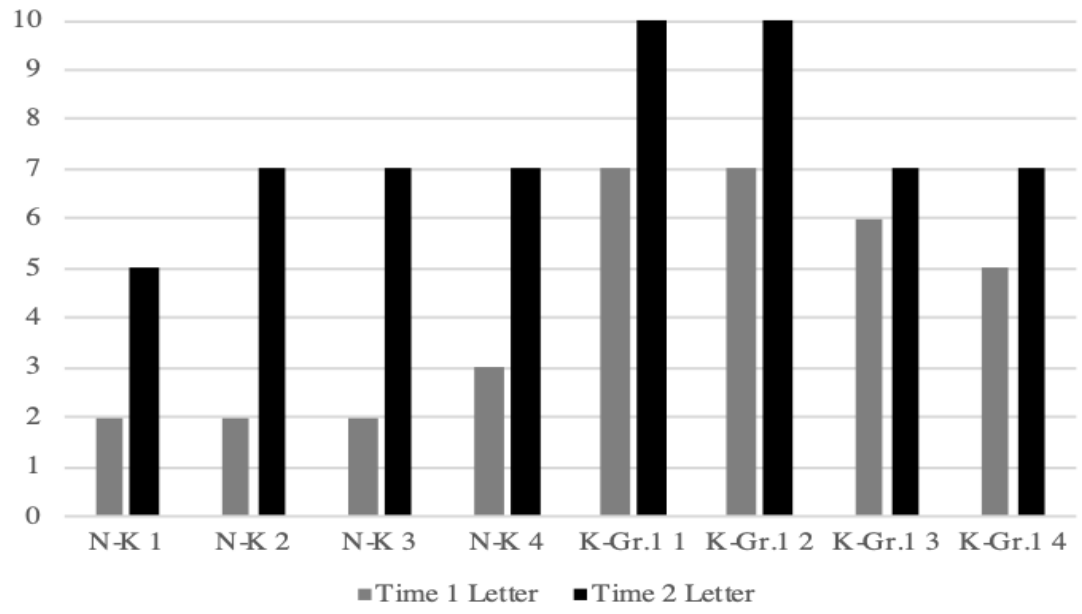

Figure 6: Letter

Note: N-K 1 = Nursery to kindergarten group child 1
K-Gr. 1 1= Kindergarten to grade 1 group child 1

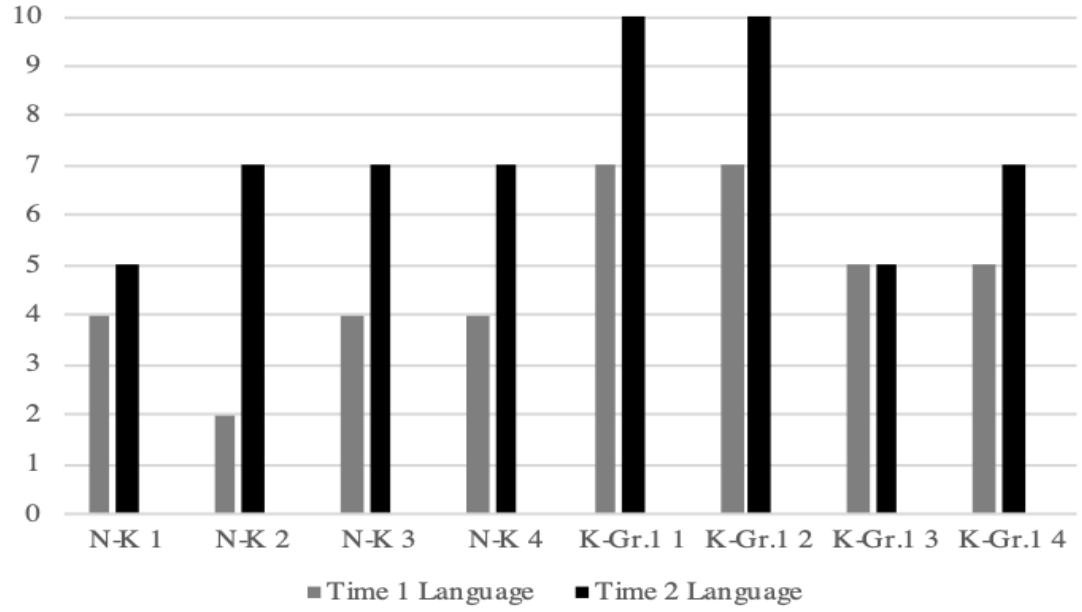

Figure 7: Language

It was found the nursery to kindergarten group showed the greatest gains in the CAP testing from time one to time two. This was contrary to expectations as it was thought both groups would benefit from the extra half-day of instruction, particularly as full-day kindergarten programs have shown to support learning for children lacking readiness for beginning school.

Teacher Interviews, Observations and Teacher Records

A recurring theme in the qualitative analysis was the early childhood educators' astute observational skills. Each early years educator was able to provide a detailed description of each child's learning, both in terms of their difficulties and the gains they had achieved. While they kept anecdotal records of their observations, these were not acted upon to inform instruction. The instructional plan for the LIFT program was prescribed, determined in advance and followed the original format. The teachers' keen kid-watching skills were not accessed to inform the previously determined programming and instruction. Another theme emerged showing even with a small student population of only eight children, teachers spoke of the challenge in meeting the needs of these diverse learners.

Limitations and Other Considerations

The small-scale nature of this study does not allow for generalization of the testing results to a larger population. Fidelity of implementation of the program is uncertain as school-based personnel developed the program which was carried out by early childcare teachers. It is not clear how the implementation of the program was monitored. A process of on-going assessment of student learning, instruction, and programming among the early years educators and program developers would enable instruction to be more intentional in meeting the learner's needs.

While the intervention program was designed to develop the typical early readiness skills, the question arises, was it more suitable to the developmental level of the nursery-aged children or was there a larger learning curve for the kindergarten children to reach for readiness for grade one? In addition, would regular revisions of the program, with observational and anecdotal input provided by the early year's teachers, have allowed for instructional shifts of greater benefit to the kindergarten children?

Conclusion

Although the children in both groups made gains in their learning, the effects were not as dramatic as hoped for given the amount of additional time, small child-to-teacher ratio, and rich learning environment. Given the achievement gap for disadvantaged children reportedly widens during kindergarten when the learning gains of their mainstream peers are considered, the gains made through this intervention may not be enough to sustain learning levels.

The greater gains made by the nursery to kindergarten group were of special interest. This suggests the preschool years are highly amenable to stimulating the domains of learning. While recognized as a critical period for development and influence for future learning, this period of life requires more focused consideration.

The early childhood educators had keen observational skills which allowed them to describe each child according to the abilities they displayed. However, it maybe they lacked the professional training to know how to adjust their instruction to better meet the needs of individual children. The limited professional preparation and knowledge (Burns, Donovan, & Bowman, 2000) for early years teachers is documented.

This collaborative initiative reflects ways in which local communities strive to meet the needs of their early learners. By bringing the research sector into site-based interventions, both the research community and those working in schools and early childhood centers will inform the understandings of one another. Clearly, the early childhood educators had well-developed "kid-watching" (Goodman, 1985) skills and a strong belief in the potential of each child. Professional development focusing on response to observations of student learning would serve to guide and differentiate instruction.

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Case Studies of Schoolwide Enrichment Model-Reading (SEM-R) Classroom Implementations of Differentiated and Enriched Reading Instruction

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Abstract

This qualitative study examined the scaling up of the Schoolwide Enrichment Model in Reading (SEM-R) in 11 elementary and middle schools in geographically diverse sites across the country. Comparative case study analysis was used, with 11 in-depth case studies summarizing findings from both SEM-R and comparison classrooms. Teachers in the 11 schools were assigned to implement the SEM-R for 3 hours each week as part of their reading program or to serve as a comparison classroom, where they continued teaching their regular reading curriculum during their reading block. Three core student categories emerged across all schools, beginning with increased student enjoyment in reading for students using SEM-R, the ways that the SEM-R challenged talented readers, and increased student self-regulation. Teacher findings focused on the successful use of differentiated reading instructional practices, and the professional benefits and challenges experienced by teachers during their successful implementation of the SEM-R.

Keywords: Differentiated Instruction; Talented Readers; Enrichment Pedagogy; Engagement and Enjoyment of Reading; Increased Student Self-regulation

The Schoolwide Enrichment Model Reading Framework (SEM-R) is an enrichment-based reading program designed to stimulate interest in and enjoyment of reading and promote higher reading achievement by enabling students to select high-interest books that are slightly to moderately above their current reading levels. In this study, researchers examined the implementation of the SEM-R in 11 schools across the country as previous research was conducted under the supervision of a university research team. In this research, the SEM-R has been found to be effective at increasing reading fluency and comprehension (Reis & Boeve, 2009; Reis, Eckert, McCoach, Jacob, & Coyne, 2008; Reis & Housand, 2009; Reis et al., 2007; Reis, McCoach, Little, Muller, & Kaniskan, 2010). When teachers implement the SEM-R, they analyze students' strengths and interests and provide reading instruction through the use of enrichment pedagogy, including curricular differentiation (both acceleration and enrichment) and instructional differentiation. The goal of the SEM-R is increased student reading fluency, comprehension, and enjoyment of and self-regulation in reading for students who are at greatest risk for developing reading problems or becoming alliterate.

The purpose of this study was to examine the scaling up of the SEM-R in 11 elementary and middle schools across the country in which local teachers or reading coaches provided support for colleagues implementing this differentiated reading enrichment approach. Professional development about the SEM-R was organized and implemented the summer before the program began. In each school, a team of administrators and teachers attended a SEM-R workshop and received special guidance for coaching. These individuals subsequently conducted introductory professional development for other participating teachers in their own schools. Accordingly, this study examined the implementation of this enriched approach to reading supported by local school-level coaches as opposed to a SEM- R research team, as has occurred in previous research (Reis & Boeve, 2009; Reis et al., 2008; Reis & Housand, 2009; Reis et al., 2007; Reis et al., 2010). This current qualitative study

also scaled up previous research by (a) increasing the number and the geographic and demographic diversity of schools, (b) decreasing direct involvement from the research team in supporting classroom teachers' implementation of the intervention, and (c) using local coaches to provide professional development and coaching for implementation.

Qualitative case study analysis was used in this study, with data collection that included finding, gathering, or generating materials that were subsequently analyzed (Strauss, 1987; Yin, 2002). Data were compiled into in-depth case studies for each school and in each individual case study, findings were summarized from researcher observations of the SEM-R and comparison classrooms; interviews with SEM-R teachers, administrators, and school staff; and review of teacher and student logs, questionnaires, and other forms of communication.

Review of Research

The research reviewed in this study focused on differentiation in reading, research conducted on the SEM-R, and research on student engagement and self-regulation in reading. A major theoretical influence is differentiated instruction using assessment data to support modification of curriculum and instruction to respond to differences in students' readiness, interests, and learning profiles (Renzulli, 1988; Tomlinson, 2001).

Differentiated Instruction

Differentiated instruction is based on the premise that learning is most effective when teachers are able to assess students' current levels of academic progress and learning styles and preferences and subsequently use this information to help students progress to more advanced levels of learning. Differentiation attempts to address the variations among learners in the classroom through multiple approaches that enrich, modify, and adapt instruction and curriculum to respond to students' individual needs (Renzulli, 1977, 1988; Tomlinson, 2001). Tomlinson (1999) emphasized that in differentiating the curriculum, teachers are not dispensers of knowledge, but organizers of learning opportunities. Differentiation of instruction suggests that students can be provided with materials and work at varied levels of difficulty through scaffolding, enrichment, acceleration, diverse kinds of grouping, and different time schedules (Tomlinson, 2001).

The most common strategy suggested in the literature to meet the needs of advanced readers is to accelerate their reading by providing them with material that is above their current grade level (Reis et al., 2004). Differentiated instruction in the SEM-R includes the ability of teachers to make adjustments to reading tasks and enabling individual students to read at levels that are targeted to their specific interests and levels of readiness. Tomlinson and Allan (2000) summarized some of the challenges teachers face when they try to differentiate, including concerns about planning and management, as well as issues of finding the time to prepare for state assessments, limited preparation time overall, professional development needs, and materials to challenge all students (Hertberg-Davis & Brighton, 2006; Reis et al., 1993; VanTassel-Baska & Stambaugh, 2005).

Recent research suggests that many teachers do not differentiate instruction on a regular basis. For example, in one recent study, little purposeful or meaningful differentiated reading instruction was found in reading instruction for elementary or middle school talented readers who read several grade levels ahead of their chronological peers (Reis et al., 2004). Researchers also found that above-grade level books were seldom available for these students in their elementary or middle school classrooms, and students were not encouraged to select more challenging books. Accordingly, these talented students made little continuous progress over the course of the year. Other research with middle school educators found that little differentiation occurs and that teachers and administrators believe advanced students are under-challenged in many middle school classrooms in the United States (Moon, Tomlinson, & Callahan, 1995). The current study is a qualitative investigation about the nature and type of differentiated reading strategies included in the SEM-R and whether and how they were implemented by a wide variety of teachers with a broad range of readers.

Previous Research on the SEM-R

The SEM-R is an enrichment-based reading program that is based on a widely used enrichment approach to learning called the Schoolwide Enrichment Model (Renzulli & Reis, 1997). In the context of the SEM-R, students read from self-selected, high-interest books that are slightly to moderately above their current reading levels, and teachers provide individualized, differentiated instruction. The SEM-R has been implemented in several previous research studies (Reis & Boeve, 2009; Reis et al., 2008; Reis & Housand, 2009; Reis et al., 2007; Reis et al., 2010). In one study, a randomized design was used to investigate the use of the SEM-R for 12 weeks with third- through sixth-grade students from two low-socioeconomic, urban elementary schools. Teachers and students were randomly assigned to treatment or comparison classes. During the study, treatment and comparison group students participated in a direct instruction reading program in the morning, but in the afternoon, the comparison group received one hour of remedial reading instruction and test preparation while the treatment group participated in one hour of the SEM-R. Significant differences were found, favoring the SEM-R treatment group, in students' attitudes toward reading, reading comprehension, and reading fluency (Reis et al., 2007).

Another randomized design study investigated the use of the SEM-R for 16 weeks with third through sixth-grade students in one suburban school and one urban elementary school (Reis et al., 2008). Again, teachers and students were randomly assigned to teach and participate in either treatment or comparison groups. The treatment and comparison group students participated in the regular basal reading program for one hour each morning. The comparison group received a second hour of the basal reading program instruction while the treatment group participated in SEM-R during the second hour of the reading program. Significant differences favoring the SEM-R treatment group were found in reading fluency, but most of the variance was explained by the results in the urban school (Reis et al., 2008).

The SEM-R has also been implemented in urban schools with high populations of bilingual students (Reis & Housand, 2009) with significant differences found favoring the SEM-R group in oral reading fluency. These results suggest that an enriched reading program that challenges and engages students produced higher oral reading fluency in both English and bilingual students when used in conjunction with a standard basal program as compared to the use of the standard basal reading program alone. In other research, an after-school SEM-R program was implemented to investigate whether increases in fluency and self-regulation in reading could be accomplished in less time (Reis & Boeve, 2009). Resulting benefits included significantly higher reading fluency for SEM-R participants in a program implemented for 20-25 hours after school for 6 weeks.

In summary, previous research (Reis & Boeve, 2009; Reis et al, 2008; Reis & Housand, 2009; Reis et al., 2007; Reis et al., 2010) suggests that students of various achievement levels have benefitted from the SEM-R approach. Across a wide range of schools and classrooms, evidence has demonstrated that students who participate in the SEM-R consistently achieve at least at the same levels and in some cases higher levels when compared to those who participate in regular reading instruction (Reis & Boeve, 2009; Reis et al, 2008; Reis & Housand, 2009; Reis et al., 2007; Reis et al., in press).

Engagement and Enjoyment of Reading

Increased levels of student engagement results in higher achievement in reading (Guthrie & Wigfield, 2000; Teale & Gambrell, 2007), and research about reading engagement has focused on the importance of increasing student motivation for reading (Gambrell, Palmer, Codling, & Mazzoni, 1996) and the role of student interest in higher reading achievement (Guthrie, 2004; Guthrie, Hoa, Wigfield, Tonks, & Perencevich, 2006; Meece & Miller, 1999).

Teale and Gambrell (2007) have found that engaged readers and writers use literacy skills to read for pleasure, engage in social interaction, and satisfy their own intellectual curiosity. Goodman (1986) also underscored the importance of engagement, finding that students read because it is

enjoyable, interesting, or useful. Compton-Lilly (2007) discussed a connection between avid reading and engagement in reading, as did Guthrie and Wigfield, whose research has documented the relationship between engagement and motivation, as students who read more generally have higher motivation (Guthrie, 2004; Guthrie et al., 2006; Guthrie et al., 2007). Recommended instructional practices to increase reading motivation and comprehension from Guthrie and Wigfield's research are embedded in the SEM-R, including specific attention to supporting student autonomy, exposure to and having students read interesting texts, facilitating social interactions related to reading, and forging strong relations between teachers and students (Guthrie et al., 2006; Wigfield & Guthrie, 2007).

Self-Regulated Learning

Self-regulation, a multi-faceted construct that numerous theorists have conceptualized and operationally defined (Boekaerts, 1997; Schunk & Zimmerman, 2007; Zimmerman, 1989, 1990), is a key focus in the SEM-R. Most theorists have argued that students who successfully self-regulate their learning engage in knowledge acquisition and learn strategies to adapt their behavior, personal processes, and environment to support their learning and goal attainment. Researchers have found students' effectiveness in the process of self-regulated learning varies based on academic context, personal effort, and performance outcomes, and that academic achievement is increased by the use of self-regulation strategies such as organizing, goal-setting, planning, self-evaluating, information seeking, record keeping, self-reflecting, self-monitoring, and reviewing (Boekaerts & Corno, 2005; Winne & Perry, 2000; Zimmerman & Martinez-Pons, 1990).

Schunk and Rice (1987, 1991) analyzed the effects of explicit instruction and modeling of self-regulation strategies on reading comprehension, finding that orienting students toward a specific goal and using verbal feedback resulted in greater increases in reading comprehension and self-efficacy. They also found that combining specific strategy instruction with modeling of the strategy to answer questions increased comprehension more than simply modeling the strategy or providing instruction on the strategy alone (Schunk & Rice, 1987). The modeling of and explicit instruction on effective strategy use are incorporated into all phases of the SEM-R.

Multiple studies have addressed how classroom environments can support students' development and use of self-regulated learning strategies (Perry, 1998; Perry, Hutchinson, & Thauberger, 2007; Perry, Phillips, & Dowler, 2004; Turner, 1995). The use of differentiation also supports self-regulated learning by providing the opportunity for students to seek help from teachers (Perry, 1998; Perry et al., 2004) and participate in evaluating their own work (Perry, 1998; Perry et al., 2007; Perry et al., 2004).

Methods

Qualitative comparative case study analysis was used in this study with varied data collection methods including finding, gathering, or generating materials that were subsequently analyzed (Strauss & Corbin, 1999; Yin, 2002). Qualitative case study research design (Creswell, 2008; Miles & Huberman, 1994) involves in-depth, field-based studies of particular phenomena, such as the SEM-R (Gall, Borg, & Gall, 2002). Creswell described three types of case studies—intrinsic case, instrumental case, and collective case study, and collective or comparative case study research includes multiple cases to describe and provide insight into an intervention, such as the SEM-R. This study used collective, comparative school case studies (Creswell, 2008; Miles & Huberman, 1994) that involved in-depth, extensive data collection in field-based studies of the SEM-R.

Institutional Review Board permission was sought and granted and the SEM-R team communicated with school-based coaches during the school year to answer questions and encourage coaches' completion of classroom observations. Members of the research team spent 2-3 days at each school, conducting observations in SEM-R and comparison classrooms as well as in-depth interviews with principals, teachers, and literacy coaches to address the research questions that follow. In this study, researchers extended previous research on the SEM-R to focus on how implementation works with coaching and professional development for teachers handled locally by school personnel.

Research Questions

The following research questions guided this study:

1. What elements characterize SEM-R implementation and treatment fidelity in classrooms for which support is provided through local professional development and coaching?
2. What are teachers' attitudes toward the implementation of SEM-R? What has worked best and what has been most challenging?
3. How have teachers and students changed their reading practices while using SEM-R?

SEM-R Intervention

The SEM-R intervention includes three phases. Phase lengths were fluid and varied over time during the course of the total intervention. During Phase 1, the "exposure" phase, teachers presented short read-alouds from high-quality, engaging literature to introduce students to a wide variety of titles, genres, authors, and topics. Along with these read-alouds, teachers provided instruction through modeling and discussion, demonstrated reading strategies and self-regulation skills, and posed higher-order questions to guide discussion. Early in the study period, these Phase 1 activities lasted about 20 minutes per day; Phase 1 decreased in length relative to the increase in time spent in Phase 2 over the course of the intervention.

Phase 2 of the SEM-R model emphasizes the development of students' ability to engage in supported independent reading (SIR) of self-selected, appropriately challenging books, with differentiated instructional support provided through conferences with the teacher or another adult. During Phase 2, students selected books that were at a challenging instructional level of at least 1 to 1.5 grade levels above their current reading levels. Teachers monitored each book and assisted students in the selection of books that were of interest and at appropriately challenging instructional levels. At the beginning of the intervention, students read for 5-15 minutes a day during Phase 2; over time they extended their reading to 25 minutes and finally to 35-45 minutes each day. During this in-class reading time, students participated in individualized reading conferences with adults. On average, each student participated in five-minute conferences 1 or 2 times per week. In student conferences and student logs, teachers consistently monitored and documented the instructional challenge match of each book read in Phase 2. During conferences, classroom teachers and instructional aides assessed reading fluency and comprehension and provided individualized instruction in strategy use, including predicting, using inferences, and making connections. For more advanced readers, conferences focused less on specific reading strategies and more on higher-order questions and critical concepts.

During Phase 3, teachers provided options for varied extension and exploration activities for students, through which students could continue to pursue topics of interest through individual or group projects, work on creative thinking tasks, extend their reading through author studies or literature circles, explore technology resources, or engage in a variety of other learning opportunities. The intent of these experiences was to provide time for students to pursue areas of personal interest through the use of interest development centers and the Internet, and to give them opportunities to learn to read critically and to locate other reading materials, especially high-quality, challenging literature related to their current reading and related interests. Over the course of implementation, students transitioned from teacher-organized learning activities related to reading to more student-directed activities, including pursuit of independent study options. The length of Phase 3 varied throughout the intervention, with more or less time devoted to Phase 3 on particular days based on progress in independent reading and need for time to be devoted to independent projects and activities.

Recruitment

Schools recruited for the study in one of two ways. First, educators who had contacted the SEM-R web site asking for information were sent a notice about the study, as were administrators of schools from the network of schools connected with The National Research Center on the Gifted and Talented collaborative districts. Email requests were distributed to both of these lists. A summary of

expectations was noted in the recruitment letter, and interested respondents were asked to contact project staff. Requirements for the study included the willingness to have some teachers serve as treatment group teachers and others as comparison group teachers, as well as a series of responsibilities for administrators, a school coordinator for the SEM-R, SEM-R teachers, and comparison teachers. Administrators' responsibilities included selecting and supporting one individual for the position of SEM-R Coordinator and then enabling that coordinator to spend at least 2 hours of time each month to meet with SEM-R treatment teachers. Administrators also had to agree (a) to provide the SEM-R Coordinator with time (up to 4 hours each week) to devote toward the administration and implementation of the SEM-R project; (b) to allow treatment teachers to attend up to 2 full days of professional development sessions over the course of the academic year; and (c) to support teachers in the implementation of the study overall, including overseeing teacher roles as treatment or comparison and facilitating the implementation of the SEM-R daily during reading classes in the treatment group.

The SEM-R school coordinators were responsible for organizing and facilitating meetings for the treatment teachers, implementing the SEM-R project, providing coaching support to treatment teachers, and functioning as liaison between the school and our SEM-R research team. This liaison role included responding to research team communications in a timely manner and assisting teachers and the SEM-R research team in the administration of pre- and post-assessments as needed. The SEM-R treatment teachers were expected to implement all three phases of the SEM-R in half of their language arts/reading block each day, for a minimum of 3 hours per week, and they were also expected to attend regularly scheduled meetings regarding the implementation of the SEM-R project with the SEM-R coordinator. They were provided with a log to track their SEM-R implementation activities, and they understood that they would be observed periodically by the coordinator and members of the SEM-R research team. Comparison group teachers agreed to support and assist with administration of pre- and post-assessments and to be observed periodically.

Sample

The 11 participating schools were located in varied regions across the country and included 6 elementary and 5 middle schools (see Table 1). The SEM-R was implemented in the treatment group during daily reading classes in 10 of the schools; in 1 school, the SEM-R was implemented for 3 hours each week as an after school literacy enrichment block, supervised by a reading teacher. Each participating school sent a team to a summer professional development workshop on the SEM-R; this workshop included both a detailed overview of the SEM-R framework, including modeling and practice opportunities, and also smaller group meetings about coaching and facilitating during SEM-R implementation. After the summer workshop, each team returned to the school to provide introductory workshops on the SEM-R to the other teachers who would participate in the treatment group. The teams were provided with the same professional development materials that had been used during the summer workshop to use in their school-based sessions.

Ten of the 11 schools implementing this study during the school had a two-hour daily block devoted to reading and language arts instruction. Those teachers in the SEM-R treatment group taught one hour of regular language arts instruction focusing on writing, vocabulary, and other spelling and language activities, and taught SEM-R in the other hour of the block. Treatment teachers received SEM-R classroom libraries consisting of high interest fiction and non-fiction books across several reading levels to support SEM-R implementation. Teachers also received sets of bookmarks that listed higher-order questions; each bookmark listed 3-5 questions addressing a particular literary element, theme, genre, or other area of study.

Teachers used the bookmarks in both Phase 1 discussions and Phase 2 conferences to promote higher-order thinking. SEM-R activities were documented in teacher and student logs, as teachers noted the activities conducted within each phase and students recorded the books they were reading and how long they spent reading each day. Teachers assigned to the comparison group continued providing locally determined language arts and reading instruction, which varied somewhat within and across schools.

Table 1: Demographic Data.

School Name	Location	Total Students	Amer. Ind./ Alaskan	Asian	Black	Hispanic	White	Free Lunch Eligible	Reduced-Price Lunch Eligible	SEM-R Treatment Teachers	Comparison Teachers
Highland Peaks Middle	Suburban	664	4	6	3	21	630	36	23	5	5
Jane Addams Middle	Urban	1069	8	23	157	828	53	891	84	5	5
Kendrick	Rural	455	7	11	17	13	407	121	44	6	5
Main Street	Urban	635	6	52	44	326	207	164	66	7	7
Martin Luther King Magnet	Urban	535	2	28	232	35	200	160	44	5	4
McMann Middle	Suburban	750	36	24	7	148	535	74	37	6	5
Monument Magnet Middle	Urban	187	1	75	7	46	58	68	33	1	1
North Pacific	Suburban	583	7	47	20	264	245	185	63	8	7
Poe Classical	Urban	177	1	0	167	2	3	51	28	5	5
Rainy Valley	Suburban	708	4	64	33	224	383	118	45	6	6
Rosa Middle	Suburban	1413	9	107	56	778	463	501	193	6	6

During the study, school or district-based literacy coaches worked cooperatively with research team members to collect data such as weekly lesson plans and to coach teachers about implementation of the SEM-R. Research team members were available by email and phone during the intervention to provide support and to monitor both intervention and comparison classrooms. Research team members traveled to the schools to conduct interviews and observations of treatment and comparison classes for treatment fidelity practices and to investigate comparison group practices.

Data Collection

Research team site visits included classroom observations with review of teacher and student logs, as well as interviews with administrators, site coordinators, and teachers. Field notes from the interviews, observation notes, and treatment fidelity checklists from classroom observations were used to triangulate sources. Across the 11 schools, researchers interviewed all principals and all SEM-R site coordinators/coaches, as well as 54 of the 60 SEM-R teachers. Additionally, observations were conducted in all 60 SEM-R classrooms and in 24 comparison classrooms across all schools. During treatment classroom observations, researchers took detailed field notes on the specific features of each phase of the SEM-R observed, including notes of specific books, quotes from teachers and students, and descriptions of the classroom setup. Observations were also guided by the SEM-R Observation Scale (Little, Fogarty, & Reis, 2005), which includes a 9-item fidelity form on which observers indicate whether or not particular SEM-R elements were present during the observation. Comparison classroom observations involved careful field notes of the instructional activities observed, again with notes of specific texts used, teacher and student comments and behaviors, and classroom features. Furthermore, site coordinators' observation notes and fidelity checklists, collected throughout the year, were used as data sources in developing the case studies for each site.

The data collection procedures enabled researchers to compile thick descriptive case studies for each school that presented detail, context, and patterns of reading instruction across the SEM-R treatment and comparison classrooms for each site. Observations included a systematic description of events and student behaviors during SEM-R sessions accounting for at least 10-15 hours of observation at each school by the treatment team and extensive additional hours throughout the year by the SEM-R coaches. Site visits also included in-depth interviews with key school personnel. This thoroughness in data collection was necessary to compare outcomes across cases, and develop rich descriptions and powerful explanations (Creswell, 2008; Miles & Huberman, 1994).

Comparison Classrooms Observations

Reading instruction across comparison classrooms followed a general pattern, consisting of whole group and smaller group instruction most often using basal reading programs in the elementary school and class sets of novels in the middle school classrooms. From the observations, a representative summary of reading instruction was compiled across the control classrooms, documenting a similar pattern of instruction across most classrooms. At the beginning of the reading period in most classrooms, time was usually spent (varying from 15-25 minutes) on whole group instruction, followed by practice or test-preparation activities. Frequently observed activities included repeated reading passages, short read-alouds followed by lengthy whole-group lessons on comprehension strategies, specific test preparation skill lessons, and discussions featuring primarily comprehension questions related to texts read by the group. In some classes, a short period of silent reading was also given, with some student choice of text without observed monitoring of challenge level. Teachers in comparison classrooms also tended to spend more minutes managing transitions between activities, as compared to time spent in SEM-R classrooms.

The majority (80%) of comparison classroom teachers were not observed providing opportunities for reading of student-selected books during reading instructional time and rarely or never encouraged students to read challenging, high-interest literature. In one comparison classroom, for example, the opposite occurred, as students were observed being admonished for selecting a book above their Accelerated Reader (AR) levels. Many classroom libraries in comparison classrooms were small, lacked organization, and did not display books in an inviting way. Self-regulation tools and strategies, including those used in SEM-R such as documenting time read, identifying reading strategies used, and monitoring requests to teachers for help with reading, were not observed being introduced to or used by the students.

Field notes and observations documented that teachers in comparison classrooms spent twice as much time on classroom behavior and management issues when compared to teachers in SEM-R classrooms. The use of extrinsic motivation was more frequently noted in field notes of comparison classrooms, with teachers offering rewards such as parties, candy, and free time without assigned work to promote on-task student behavior. Student engagement in reading or work assignments was reported more inconsistently in the comparison classrooms, where teachers were able to engage some students during small group instruction, but other students were largely off-task during that time. The use of differentiation of instruction or content was not noted in field notes in the comparison classrooms. Individual differences in reading were not observed being addressed in comparison classrooms for either talented or low achieving readers, with the exception of occasional groups of students being grouped together to use similar materials or basal readers.

Data Analysis

Data were coded manually using Strauss and Corbin's (1999) data coding paradigm and verified using meta-matrices and master charts that organized data from each of the schools into a standard format to enable patterns and themes to emerge (Miles & Huberman, 1994). As suggested by Strauss and Corbin (1999), data were organized into open, axial, and selective coding. Researchers independently coded, and then conferred with each other to confirm the decisions made about initial coding and emerging categories and theory. Open coding is the first stage in the coding process, and in this study, researchers examined, compared, conceptualized, and categorized all data from multiple

sources including observations and field notes, interviews, and other document reviews. In open coding, codes in the data were identified and patterns and regularities were transformed into categories. Open coding occurred after initial data were collected and continued during data collection, resulting in the identification of multiple codes. Examples of open coding included teachers' observations of their students' enjoyment of and engagement in reading, with comments such as "my students love reading now" and "my students do not want to stop reading."

During the next phase of axial coding, open codes were combined into broader categories. As relationships were identified among codes, a determination was made about the relationship of an open code to an axial code. For example, over 70 comments about students' enjoyment of reading from interview transcripts and field notes resulted in an axial code of the same name. The coding paradigm examined the elements of each category in terms of conditions, context, action/interaction strategies, and consequences (Strauss & Corbin, 1999). Axial coding enabled the researchers to specify relationships among the many categories that emerge in open coding. In the last stage, selective coding was used to identify a core category across the case studies (Gall et al., 2002).

Results

The research questions in this study addressed (a) whether classroom teachers across sites implemented SEM-R with strong treatment fidelity, (b) classroom teachers' attitudes about and experiences with the implementation of the SEM-R, and (c) the ways that teachers and students changed their reading practices while using the SEM-R. Overall, based on a review of all the data sources from across all the sites, 90% of the teachers implemented the SEM-R with strong fidelity. Findings also indicated that teachers had positive attitudes about the implementation of SEM-R while acknowledging challenges and concerns related to this new way of teaching reading. Findings also demonstrated that teachers changed the way they taught reading, and that students changed the way they read while using SEM-R.

Major Findings

Across all 11 schools implementing the SEM-R in this study, including elementary and middle schools, three key student-related findings and three key teacher-related findings emerged. The first theme across all sites focused on the perceived benefits of SEM-R for both students and teachers, including perceptions of how the SEM-R affected students' reading habits and practices, the ways in which teachers' reading instructional practices changed after the SEM-R was implemented, and the professional benefits and challenges experienced by teachers during their successful implementation of the SEM-R. These themes and the additional themes for students and for teachers are discussed below.

Student Themes

The core student theme that emerged in all schools was increased student enjoyment of reading. This theme was consistently observed and discussed in interviews and site visit observations. The second most dominant theme that emerged related to the ways in which the SEM-R challenged talented readers. Across each site, teachers consistently discussed their belief that, in some cases for the first time in years, they were successfully challenging their talented, advanced readers, even though many of them struggled to maintain these students' focus on reading appropriately challenging books. The third most frequently mentioned theme related to increased self-regulation in students as observed by teachers, coaches, and principals.

Increased Enjoyment and Engagement in Reading

During observations and interviews of the SEM-R in all elementary and middle schools, the primary theme that emerged focused on increased student engagement and enjoyment in reading. Over 95% of the teachers reported positive changes in student attitudes toward reading and attributed these differences to their implementation of the SEM-R. One of the first changes that teachers reported was the creation of a classroom reading climate of increased enjoyment and engagement in

reading. Each teacher and principal interviewed commented on students' enjoyment of reading, and observations across schools demonstrated high levels of student engagement in reading. Teachers consistently discussed their perceptions that the use of the SEM-R contributed to a more enjoyable reading climate and cited, during interviews, multiple success stories about student enjoyment in reading. A representative student statement from Highland Peaks Middle School summarized what the majority of teachers reported about student perceptions across schools: "For the first time, I actually read for fun instead of for an assignment because I get to choose my own book."

During observations across schools, many teachers asked students to explain their perceptions of this new reading program, and most comments focused on their enjoyment of reading. For example, one of Mrs. Mallory's students at North Pacific explained, "My favorite part of school is SEM-R. My least favorite part is when we have to stop. It is not fun to stop." Another representative comment from multiple students was "I love reading in SEM-R because I can choose my book." Teachers also had positive feelings about their use of SEM-R; for example, the same teacher, Mrs. Mallory commented, "I enjoy meeting with my students and discussing their books. It's a great opportunity to dig deeper."

During interviews and in teacher logs, teachers continuously reported increasing levels of student enjoyment of reading during SEM-R time. At each school, teachers could and did provide multiple examples of how SEM-R had improved reading comprehension and fluency of individual students, indicating that the greatest improvement had been that their students found reading enjoyable. At Mandela School, the same sentiment was echoed by the principal, who explained, "…to see kids excited about reading is what makes this special to me." During observations, reviews of student logs, and informal conversations, students demonstrated pride in the number of books they were reading.

At Jane Addams School, a representative student comment was made about the selection offered by the expanded classroom SEM-R library: "I can't remember when I've been so excited about getting new books!" A teacher described a struggling reader who had become much more engaged in reading, explaining, "He'll buy a book and bring it in to show me. He gets really proud when he has read a book. He's really reading a lot more." Teachers consistently discussed their perceptions of how enjoyment influenced students' reading habits and interests in reading in their SEM-R classes: "My third graders have just blossomed. They read without watching the clock" (Teacher log, North Pacific). Mrs. Conlon from Main Street discussed how her students demonstrated a greater interest in books in general, as she explained, "They love it—that's all they want to do is read. In between words on a spelling test all they want to do is read."

Mrs. Everett at Main Street shared how "The kids groan when I tell them to put their books away," and further explained that her students' fluency levels had increased, and that she appreciated the opportunity to conduct one-on-one in conferences with her students as it had enabled her to learn so much about her students' progress.

Increased levels of enjoyment were also attributed to the Phase 1 Book Hooks that teachers conducted. Observations from all schools summarized the ways in which enjoyment of reading was enhanced through the regular use of Book Hooks. For example, Mrs. Jacobs conducted a Book Hook on *How to Eat Fried Worms* during an observation of SEM-R in her classroom. She told the students that she really enjoyed the humor of the book, including the title. She asked if any of the students had seen the movie based on the book, and then began a short conversation about the differences between the movie and book versions of a story, based on a previous discussion about *The Tale of Desperaux.* She engaged students in a short discussion about genre, asking them whether the book was a fantasy, then asking them to compare realistic fiction and biography (Main Street School).

Teachers reported the usefulness of Book Hooks as an instructional strategy to engage students in reading, but explained that they also served other purposes. For example, teachers reported using Book Hooks to increase students' interests in reading, as well as to increase students' overall motivation to read, and to introduce reading strategies embedded in the content of their hooks. Mr. Isobe, a third grade

teacher at Rainy Valley, explained that he "thinks the Book Hooks have motivated kids to choose books to read for enjoyment."

This finding about excitement due to Book Hooks emerged across all elementary schools and was mentioned as a positive part of the program by 80% of the SEM-R teachers. Most middle school teachers had similar perceptions of the Book Hooks, but three middle school teachers reported some challenges and concerns about using Book Hooks. For example, Dr. Lowery, a teacher at McMann Middle School, conveyed her decision not to use Book Hooks by explaining, "I tried that a couple of times. These kids are beyond that." Despite the absence of Book Hooks in Dr. Lowery's class, Book Hooks were still conducted by the librarian and by some students themselves in this classroom. The librarian at McMann Middle School enjoyed doing Book Hooks with students, and reported positive results: "I do a book talk and there is a stampede to get those books."

Overall, 95% of the teachers perceived the use of SEM-R as having a positive impact on reading in their classroom and student logs verified this finding, with comments such as "I LOVE to read now!" (student in Mrs. Laverty's sixth grade SEM-R class, McMann MS). A student at Rosa School explained to researchers, "I used to like to read. Now I love to read." "And all of them will be readers, and will enjoy reading; last year I couldn't say that about my students" (Mrs. Randall, Resource teacher, Main Street).

At the Highland Peaks Middle School, the principal explained his belief that students in SEM-R classes enjoyed reading because they believed that they were in control of their learning. He explained that it was the first time that students had a sense of autonomy. He had read the SEM-R logs of many students and pointed to the words of a student writing in a log in this school: "For the first time I actually read for fun, instead of for an assignment, because I choose my own books."

Another teacher explained, "The firm establishment of a culture of reading is the biggest impact of SEM-R. Not only are the kids reading during Phase 2 time, they are sharing and talking about books and forming their own informal book groups" (Mr. Stephens, Rosa School).

In summary, the most prevalent finding in this study related to students' engagement and enjoyment of reading. Most treatment teachers perceived a notable difference in their students' reading involvement using the SEM-R, as compared to previous reading programs. When asked to what they attributed this increased enjoyment, most teachers responded that this engagement and enjoyment emerged from students' opportunity to choose what they read, as well as the opportunities to discuss books that they were reading with their teachers and one another.

Benefits for Talented Readers

When asked an open-ended question about the benefits regarding the use of SEM-R, a second pervasive category that emerged across the 11 schools related to the perceived benefits of the SEM-R for talented readers. Over 90% of the teachers and administrators discussed the positive outcomes of the SEM-R for talented readers. At Discovery Magnet, for example, all of the teachers interviewed commented that the SEM-R had positive effects on their talented readers in particular. One teacher indicated that her highest readers seemed more engaged than they had in previous years. Another reported, "many students, especially my highest readers, are benefitting from reading books at their level instead of the basal reader." In fact, some of the teachers even commented on the challenge of finding enough books to meet these advanced needs. As Ms. Leachman at Rosa School explained, "the challenge has been to find enough books to support struggling readers and allow talented readers to continue to grow."

At North Pacific, teachers discussed how talented readers made measurable progress on reading assessments given during the year. Teachers at MacQueen also explained that talented readers were benefitting from SEM-R, and that their greatest difficulty was transitioning students from books that were too easy for them. At Rosa School, talented readers became a priority for teachers, as many read books at a faster rate than the teachers could initially manage.

The principal at Mandela Magnet explained that he was grateful for the SEM-R because he had not had to answer phone calls or emails from parents of gifted students, as he had in previous years, about the lack of challenge for talented students. He explained that the majority of negative parental feedback he had previously received related to the lack of challenge in both math and reading, but that he had not had a complaint from any parent of a talented reader in a SEM-R classroom this year, explaining that he considered this a good endorsement of SEM-R for talented readers. At Rainy Valley, the teachers reported the delight they felt at the continuous growth and improvement for their most talented readers. The principal also reiterated that talented students' growth in reading had exceeded teachers' expectations. A teacher at Main Street, Ms. Bartlett, summarized what many teachers indicated about reading instruction for this population: "Our gifted kids are not getting what they need with the basal, and I think we're losing a lot of bright kids that way."

Several teachers explained that the SEM-R provided opportunities for talented readers that previous programs had not, such as opportunities to read at a higher and more appropriate level of challenge. All of the teachers who mentioned the benefits of the SEM-R for advanced readers were able to respond to questions about the ways in which they engaged and challenged higher-level readers, such as using more advanced Book Hooks and incorporating advanced, differentiated reading strategies as well as a focus on higher level questioning skills during Phase 2 conferences.

Approximately 90% of teachers also explained that while simultaneously challenging talented readers, their use of the SEM-R also helped students at the lower levels of ability in reading, commenting on how the SEM-R enabled these students to have access to and success in reading that they had not previously experienced. Several teachers also discussed how some students "slipped under the radar" in a whole class instructional setting, while their needs and successes were more noticeable in the individualized SEM-R structure.

Increased Self-Regulation and Decreased Behavioral Problems

When asked an open-ended question about the benefits of SEM-R, over 90% of teachers discussed their perceptions that students increased their use of self-regulation strategies and displayed fewer behavioral issues during their use of the SEM-R, as compared to previous reading programs. Thus, this represented another pervasive category across sites. Teachers attributed the decrease in behavioral problems to students' increased interest, engagement, and self-regulation in reading. Patterns of student behavior that emerged across schools contributed to more focused reading during the SEM-R instructional block. These teacher-reported and observed behaviors included routines that helped students gain and use self-regulation strategies and decrease off-task behaviors. For example, at the beginning of each SEM-R time block, many teachers provided students with a specific number of minutes to retrieve their books and reading logs from a specified location if students did not keep them in their desks, and the materials were returned to the box or the file cabinet at the end of every class. The structure and expectations for the SEM-R were clearly established in most of the classrooms observed for this study. After students gathered their SEM-R materials, they usually listened to a Book Hook and then began reading with little initial direction for Phase Two. In classes in which some behavioral issues emerged, audio books were made available to support readers who struggled or had poor self-regulatory behaviors. These students were regularly observed reading individually and occasionally, as suggested in the SEM-R, using the aid of audio books and headphones. Observations also suggested that students interacted with each other to increase self-regulation, asking students near them to be quiet, or to focus more on reading. These comments enabled the class to continue reading, and most teachers concluded Phase 2 at the time when several students in the class lost their focus in reading.

Teachers regularly discussed students' increased development and use of self-regulation strategies both in interviews and in their logs. Teachers across sites also explained how the SEM-R emphasis on self-regulation helped students: "I have one kid this year who's more of a challenge than some, but I am able to get him to buckle down—he might just slide right through under the radar with

the anthology" (Mrs. Jacobs, third grade SEM-R teacher, Main Street). The majority, over 90%, of teachers also described a positive change in the behaviors of their students before, during, and after SEM-R: "Some of them didn't know how to sit and read. At first they couldn't sit and read for 15 minutes but now they all read for prolonged periods of time" (Ms. Bartlett, Main Street).

Special education teachers who were using the SEM-R or working with special needs students in SEM-R classrooms also commented about the behavioral benefits for their students. Mrs. Randall at Main Street discussed her experience with students who struggled with self-regulation, noting the skills that her students had acquired during the SEM-R, explaining, "A lot of them have attention problems—but you'll see them monitor themselves, maybe moving to a different place or turning a different way to avoid distractions—they are really into their books."

Teacher Themes

The most dominant teacher theme, emerging with 98% of teachers when asked about instructional changes they made using SEM-R, was about their use of differentiated instruction. Teachers highlighted the specific ways they used differentiation in SEM-R to challenge talented and struggling readers, the ways in which they had increased their awareness of the unique needs of their students as readers, and how differentiated instruction helped them to help their students acquire different levels of reading skills and strategies. One principal's comment about the SEM-R summarizes what many of the teachers said about the use of differentiation: "I think the program is terrific because not only does it encourage students to read by providing Book Hooks and time, it also sets up a one-on-one coaching situation between student and teacher. This, in my opinion, is where the real learning takes place" (Mr. Taylor-principal, Highland Peaks).

The second most frequently noted theme related to professional autonomy, as 80% of teachers who responded to an open-ended question related to their perceptions about professional benefits or challenges of their use of SEM-R discussed their perception of choice and professionalism. Teachers discussed their enjoyment of the differentiated choices within Book Hooks and conferences and the ability to decide on the types of questions they could ask and instruction on which they could focus with their students. For example, Ms. Binney explained she had choices about timing and types of instruction when using the SEM-R: "Since the kids are more focused in the morning, I do our SIR during the morning block and I do the Book Hooks at the end of the day" (North Pacific). Teachers also mentioned that in the years since No Child Left Behind, they perceived that they had limited choices about how and what to teach, and they found SEM-R refreshing in that it gave them opportunities to use their professional judgment.

The last teacher theme related to concerns and questions generated about using the SEM-R, and the ways in which teachers' concerns related to their professional growth and development. The majority of teachers, 55%, explained that they wanted to improve their implementation of the SEM-R. For example, 25% of teachers said that they wanted to read more of the student SEM-R books before their next implementation, and 15% planned additional ways to integrate more of their state reading standards into the Phase 2 conferences and the Book Hooks they conduct. Each of these teacher-related themes is discussed in depth below.

Use of Differentiated Instruction

Across all schools, the most pervasive teacher theme related to how teachers used the SEM-R to differentiate reading instruction to challenge all readers. Teachers are asked to differentiate instruction during all three phases of SEM-R; however, observations found the most consistent evidence of differentiation occurred during Phase Two conferences. The majority, over 90%, of teachers across schools discussed their increased use of differentiated reading instruction and strategy use as a part of their Phase 2 implementation of the SEM-R.

Researchers' observations of and interviews about differentiation in Phase 2 conferences were documented across all schools as teachers were able to integrate differentiated instruction across all

phases of the SEM-R. They used differentiation in their conferences by initiating different types of conversations and asking questions that varied in focus, but generally included vocabulary development, fluency strategies, comprehension, reading strategy use, and/or literary devices such as plot, theme, and setting. Researchers noted teachers' efficacy and ability to conduct these conferences, often without bookmarks or other prompts, suggesting that they had increased their levels of skill and comfort with differentiated instruction as the year progressed.

One component of differentiated instruction discussed by most teachers involved their perceptions about how well they knew their students' skills and reading patterns after using the SEM-R, due to the frequency of their Phase 2 conferences. Over 80% of teachers interviewed explained how this knowledge increased their ability to differentiate instruction. Principals noted this as well; for example, Principal Burke at Kendrick explained, "As the teachers became comfortable with what they were doing, the comments came in that they were getting to know their students as readers much more completely." The following representative teacher interviews and log entry excerpts characterize this increased knowledge of student's skills and potential:

> "I know my students better than ever before and what they are reading far better than I did prior to my use of SEM-R." (Teacher log, Rainy Valley)
> "The conferences allow me to gain a wealth of knowledge about the students and their reading abilities." (Interview, Mrs. Mallory, North Pacific)
> "I have also really enjoyed getting to know the level they are capable of—you can tell some things from how they do with the anthology, but not everything." (Interview, Mrs. Jacobs, Main Street)

Over 80% of the teachers also explained that their assessments of students' individual reading skills and needs were more accurate because of the regular conferences they conducted with students in Phase 2. Most teachers discussed the increased awareness they were able to maintain with each student's progress. Teachers reported that these individual meetings with students and the book discussions were enjoyable parts of their daily routine and that they "…really enjoyed conferencing with students about what they are reading. It really helps me understand their level and interests" (Ms. Binney, North Pacific).

As teachers discussed their new process of understanding their students' reading skills, over 60% reported that using SEM-R had contributed to their awareness that some of their students really did not understand various types of reading strategies, as their teachers had previously assumed. A representative comment echoed by most teachers concerned the fact that teachers usually assume that students already know how to use reading strategies to discuss connections, predictions, or other reading strategies, but through their conferences, they learned that many students do not. The SEM-R highlighted this phenomenon for many of the teachers.

Having an appropriately challenging book to differentiate content was also frequently mentioned, as 80% of the teachers explained that they had not really considered the level of reading challenge necessary for students at such diverse ends of reading ability. Ms. Smith explained she had not previously considered her students' level of challenge in reading, explaining that reading consultants had always told her that students should read "just right" books whenever they read. Most teachers explained that they usually asked students to pick books that were in their fluency range and never really thought about challenge.

Representative observations of Phase 2 reading conferences also demonstrated how teachers asked differentiated questions of multiple students. In one observation at Mandela Magnet, a teacher conducted nine Phase 2 SIR conferences of approximately 3-5 minutes each during a 50-minute reading block. Each was quiet, focused, and employed differentiated questioning about various reading strategies (making inferences, using connections, synthesizing, determining importance, questioning, and using metacognition) using bookmarks based on students' reading levels, instructional needs, prior use of reading strategies, and interests. Mr. Faulkner at North

Pacific enabled students to volunteer for conferences, using his SEM-R Teacher's Log to track the number of conferences that had been conducted with each student. He asked each student to read a short passage and then followed up with varied, differentiated, open-ended questions.

At another school, during the 45 minutes of Phase 2 reading time, Mrs. Slatov conducted conferences with 8 of her 33 students, while her teaching assistant met with seven students. Using this schedule, students had a conference with an adult every other day. During each conference, Mrs. Slatov established a purpose for the conference by reviewing the student's reading log, and in most instances, asking the student to read from the book to check for correct match for challenge as well as for fluency. A variety of discussions were held during these individual conferences, including topics such as the use of context clues, advanced vocabulary, book selection, characterization, and exposition (McMann School).

Over 90% of the teachers discussed the benefits of Phase 2 conferences for meeting the needs of all students and commented on how students at both the high and low end were challenged using the SEM-R, again, focusing on the benefits of differentiated instruction. "During this process I've become more aware of what they need as readers. Just because they're a Z doesn't mean that they're done with learning how to read S-level books" (Teacher log, Jane Addams Middle).

More than half of teachers interviewed expressed their concerns about the use of the status quo reading instruction in their schools prior to their use of the SEM-R. The most common concern was that academically talented students were not getting what they needed with the basal programs, and most teachers believed they had previously been 'losing a lot of bright kids'. Teachers also described the ways in which their use of differentiated instruction enabled them to work individually on skills that some students had not yet mastered but eliminate skills that other students had already mastered. "Even though that seems strange because it's one on one, you can be more efficient with your time with each student while the others are reading. You can work with decoding if that's an issue for a student, or whatever is the particular need" (Mrs. Nicholson, Main Street). Across schools, researchers observed the many ways in which teachers' Phase 2 conferences included differentiated questions to address students' use of strategies in their reading. Students were often asked to reflect on how they had used a strategy, such as synthesizing or determining importance, in their reading, or to evaluate their choice of reading materials, including whether the book was too easy, too challenging, or at an appropriately challenging level for the student. Teachers frequently compared the SEM-R to approaches that involve an anthology or basal series, explaining that the anthologies do not meet the needs of students at the higher and lower ends and that the SEM-R really helped to differentiate more effectively and challenge this population.

At each school, teachers who implemented the SEM-R reported ways in which they adapted or used innovative practices to support their students in the differentiated context. In one middle school, teachers developed a weekly "consider-it" question based on a question from one of the bookmarks that they used to integrate reading strategies into conferences. They asked students to reflect on and write about the question throughout the week in their logs so that by the end of the week the teachers were confident that each student understood the reading strategy and could demonstrate its application to his or her own reading.

The "consider-it questions" are just one example of how the teachers used their own knowledge base and creativity to adapt and differentiate aspects of the SEM-R for their own purposes while retaining the essential aspects of each phase. In all elementary and middle schools, the teachers reported changing instructional practices by incorporating instructional and content differentiation, and they attributed these different practices to their implementation of the SEM-R.

Professional Benefits of SEM-R

One of the purposes of the SEM-R is to enable teachers to make professional decisions about how to introduce strategies, differentiate instruction, select books to challenge and engage, and

choose a focus that meets each student's needs during conferences. This opportunity for teacher choice and decision-making emerged as another theme in this study in response to an open-ended question about benefits of the use of the SEM-R. Some teachers admitted they had experienced some struggle with this level of freedom, but approximately 80% explained their pleasure in having the freedom to decide how to pursue opportunities and choices for instruction. Teachers believed that their students had positive growth in reading as well as more positive attitudes about their reading. Teachers explained, both in interviews and in their logs, the ways in which their perceptions of their own growth were intertwined with the progress of their students. "SEM-R is exciting because we, myself and the teachers, have fun teaching and we are allowed to use our professional knowledge" (Reading Specialist, North Pacific).

Mrs. Conlon, from Main Street School, commented that she hopes that her students will be able to be in SEM-R classes next year, because "…it would be harder to go back and not have that kind of freedom." The majority, over 85% of teachers interviewed for this study, displayed professionalism in their use of the SEM-R books that were provided to them, explaining that they had spent time outside of the school reading the books and would continue to do so. A frequent comment was that the teachers would have liked more time to read the books before the SEM-R started in the fall.

Over 90% of the teachers across schools commented on how the implementation of the SEM-R had required both time and effort over a period of months, demonstrating their professional efforts and the time they had devoted to differentiate instruction. The majority of teachers reflected carefully about their implementation of the SEM-R, citing both challenges and successes in their professional growth. Teachers mentioned benefits to students that made their work with the SEM-R much more personally and professionally meaningful to them. In particular, they discussed increases in self-regulation, knowledge and application of reading strategies, self-efficacy in reading, and higher scores in both reading fluency and comprehension.

Using the SEM-R to Meet Needs of Diverse Learners

Over 80% of teachers interviewed also described their professional growth and successes in using the SEM-R to benefit all students, including those at the high and low ends of the reading achievement spectrum. A representative teacher comment was that "Especially for the higher-level kids, it's boring to read at a pace below their level, and for the kids reading below grade level, they struggle with some of the stories in the anthology. So the fact that they can choose their own books is the best part" (Mrs. Jacobs, Main Street). Previous research has suggested that the needs of academically advanced students are not met in many classes (Reis et al., 2004), but with the professional development and books given as part of the SEM-R study, these teachers could discuss how important it is to meet the needs of all students and give examples of how they accomplished this goal. Several teachers shed insight into how their prior use of other reading programs resulted in boredom for their higher-level students, who had been forced to read at a pace below their level, as well as the ways that students who read below grade level had struggled with anthologies and novels that were too challenging.

Teachers at all schools were able to give specific examples of how they used the SEM-R to meet the needs of students at both ends of the instructional spectrum, such as doing Book Hooks at levels that were both above and below the chronological grade level that they teach, and making sure that they used a variety of these Hooks to challenge both high and low level readers. Mrs. Jacobs explained that because she had felt that she was not reaching all levels of her students, she now balances her Book Hooks with "about three higher, two lower books per week. That way the lower readers are also excited and are sharing among themselves, laughing out loud" (Main Street).

Teachers also reported how students with unique combinations of strengths and weaknesses benefitted greatly from the SEM-R, and several explained that high readers made progress in SEM-R. One teacher commented about one talented reader's experiences: "One student is very busy with

sports, activities and his church and he recently read *Les Miserables* by Hugo. When we met, he was thrilled about the book and was going on about the relationship between the main characters. He said, 'you know, I've *never* really read a book like this (huge, complex) because I don't have time at home. Here it's quiet and I can really get into the story. It's great!'" (Mrs. Slatov, McMann Middle School).

Most of the teachers interviewed indicated that they had enjoyed numerous professional benefits in challenging both high and low readers using the SEM-R. Their use of differentiation for high and low readers required focused teacher effort to address the differing needs of these students. With regard to students at the lower levels of ability in reading, Mrs. Randall in particular commented on how the SEM-R allowed her students access to and success in reading that they may not have experienced before. Teachers interviewed also commented on how some students might "slip under the radar" in a whole class instructional setting, while their needs and successes are more noticeable in the individualized SEM-R structure. At the same time, four teachers interviewed expressed concern that some students might need more structure than SEM-R provides; Ms. Bartlett, for example, perceived that some of her struggling students might require a different level of structure. Most of the teachers, however, believed that the individualized structure of the SEM-R was beneficial for their struggling students as well as their advanced readers.

The last pattern that emerged with regard to students at either end of the reading achievement continuum related to challenge level of self-selected Phase 2 books. Most teachers observed that their struggling readers tended to gravitate toward books that were too difficult for them. Some of the teachers across all schools believed that their struggling students were aware that their reading level was below that of their classmates, and they wanted to select harder books to mirror what their peers were doing. Consequently, the teachers were faced with the challenge of finding books that were of an appropriate reading level without being too immature in content or appearance. Meanwhile, over 85% of teachers also commented on the tendency of academically gifted students and talented readers to select books that were too easy for them. "My challenges occur when allowing the kids to choose their own books. Many times in third grade, their interests are in picture books, not challenging material" (Ms. Binney, North Pacific). In a few cases, parents even applied negative pressure on teachers saying the reading was too challenging when teachers encouraged students to select appropriately challenging books. "The biggest challenge has been to get my students out of easy books. I have gotten phone calls from parents asking for them to be able to read easier books in class. I tell them to let them read the easy books at home" (Mrs. Slatov, McMann Middle School).

The combination of these two trends, more advanced readers choosing books that were too easy while struggling readers select books that are too hard, should be a focus in future research and may also suggest an important topic for discussion in professional development on the SEM-R. A related point is the issue of how teachers find and provide books that are not too challenging but not too juvenile for struggling readers, while also providing books that are challenging enough but not too mature for advanced readers. Over 70% of the teachers also expressed concerns about their lower-level readers' feelings of embarrassment about reading books they perceived to be too easy. In part in response to this issue, many teachers used the recommended SEM-R strategy of enabling students with reading problems or disabilities to listen to books on CD or tape while they simultaneously followed along with the text. This practice was also found to be effective for students who were not motivated to read for extended periods of time.

Implementation Concerns

When asked specifically about concerns related to implementing the SEM-R, teachers in the study cited four areas. The most frequent teacher concern, expressed by 20% of the teachers across schools, related to conducting conferences with students who were reading books that teachers had not themselves previously read. A representative comment across schools was related to the uneasiness some teachers experienced about how well they knew or did not know all of the books students were reading. A common comment that teachers made was that they felt nervous when they hadn't read all the books in the SEM-R library.

This comment was echoed across schools at the beginning of the intervention, but over time appeared to have less effect on teachers. Mrs. Knight at Kendrick School explained what other teachers also discussed: "My colleague and I kind of mastered having [the students] talk or read while we would scan the book or at least the back of the book—It became kind of an art…It was still stressful, though, when a child came up with a brand new book."

Another finding from 15% of the teachers' observations and interviews related to planning and integrating specific objectives and skills into SEM-R instruction. The teachers in this study demonstrated a continuum of concerns about the degree to which they could use the SEM-R to introduce and integrate required skills and strategies for their language arts standards and state assessments into their language arts program that included a block of time for SEM-R. Approximately 10% of the teachers specifically mentioned having alternated SEM-R instruction with more direct instruction, and a few others made reference to administering alternate assessments or integrating objectives from their state standards into their SEM-R instruction when some students appeared to need more structure. Some students may "need more structure to keep them involved. They might sometimes just be turning pages" (Mrs. Bartlett, Main Street). Teachers seemed to have different levels of comfort with the use of the SEM-R to provide and document instruction and mastery of specific skills. Some teachers seemed to have a strong sense of the specific skills they should integrate into SEM-R differentiated instruction, while other teachers seemed to use the other part of their language arts instructional block to teach these skills. For example, this representative comment from one teacher explained what this smaller group of teachers experienced: "I am having challenges doing SEM-R 'in addition to' rather than 'in place of' some of our district-mandated pacing guide and assessment driven instruction" (Mr. Isobe, Rainy Valley).

At some school-based professional development sessions, among approximately 15% of the teachers, some concerns emerged about how to integrate specific local reading objectives within the SEM-R. However, the majority of teachers felt confident in their ability to use the resources and materials provided as part of the SEM-R training to integrate local requirements into the SEM-R framework. The use of the SEM-R appeared to affect some teachers' perceptions of how well students were able to see connections through reading. Mrs. Bandura, a teacher at McMann Middle School, reported that "Students are excited about reading and telling you about their books. They are making connections and sharing insights I have not seen in years past with other reading programs."

Concerns about time management also emerged from the treatment teachers, but the reasons for the need for more time or better time management varied across teachers. For example, about half of the teachers interviewed discussed the difficulty of conducting enough interviews during Phase 2, finding time for Phase 3, and finding time for completing their reflections in their logs. This concern diminished as the year continued. The most frequent time concern involved enough time for differentiated student conferences during the beginning of the school year.

Some teachers initially had difficulty conducting Phase 2 conferences that were 3 to 5 minutes long, enabling them to meet with all of their students at least once a week. Teachers explained that they had to be very organized to conduct conferences with all of students in their classes during the week. "It's difficult to see [conference with] all students within the week. I can usually see 4 to 5 students per day" (Ms. Finey, North Pacific). The majority of the teachers also discussed their challenges and difficulties in maintaining their reflections in their teacher log. Approximately 60% of the teachers seemed to rely primarily on student logs for tracking purposes, and used their teacher logs less frequently.

The teachers implementing the SEM-R in this study represented a wide range of teaching styles and levels of experience, and the variability in this group emerged in their interviews about how they used the SEM-R. Many teachers demonstrated ease in planning for instruction and monitoring the skills they were integrating, and in integrating key objectives from the district or state standards into the SEM-R. Several of the teachers with less experience or less confidence seemed to need to preserve some of the security they had experienced with whole class instruction related to state standards and state test assessments in previous years.

Another area of variability was in teachers' questioning during conferences, including both what was observed and what they discussed in interviews. Some seemed to place a stronger emphasis on encouraging enjoyment and sharing than on fostering specific strategies or higher-level thinking. Other teachers selected specific areas to emphasize across conferences, usually demonstrating instructional differentiation as they worked with different students. Finally, some of the teachers seemed better able and prepared to target differentiated questions directly to individual students as opposed to using a similar pattern across students.

Limitations

Several limitations exist in this study. The geographic spread and time frame of this study meant that extensive on-site observation over several months was not possible, but multiple classroom observations did occur in each school. The time constraints may limit the depth and breadth of the observations and subsequent analysis of themes and processes found in the SEM-R classrooms. The nature and frequency of observations was within acceptable case-study guidelines (Yin, 2002). Observations were conducted of the majority of SEM-R and comparison teachers in every school. All members of the research team who conducted case study research have doctorates in gifted education, with extensive training in research methodology overall and case study methods. Another limitation involved the selection of classroom teachers for interviews and observations, as it varied among the larger and smaller schools. In the majority of the schools, all SEM-R classroom teachers were both observed and interviewed, and in others, a random selection of teachers implementing the SEM-R occurred.

Researcher bias is possible when researchers conduct observations (Yin, 2002). Every attempt was made to avoid such bias by these researchers throughout the observation and analysis process. When using interviews in a qualitative study, validity and reliability standards are applicable (Gall et al., 2002). To achieve cross-validation of the qualitative data, "between-methods" triangulation was used, including document review of the observation and interview notes as well as other records. Construct validity was achieved through the use of the SEM-R treatment fidelity instrument, and an audit trail was used to validate coding and key decisions made during the research process. As with any new program, results may have been influenced by novelty effects. The extended period of the SEM-R implementation and the frequent observations by the onsite observers, along with the observations by members of the SEM-R research team, mitigated against the possibility of this effect.

Discussion

Students using the SEM-R had increased enjoyment of, interest in, and engagement in reading, supporting the research mentioned earlier by Guthrie & Wigfield (2000), Teale and Gambrell (2007), Gambrell, Palmer, Codling, and Mazzoni (1996), and Meece and Miller (1999). Across interviews and across schools, the principals, teachers, literacy coaches, and reading specialists routinely discussed the increased enjoyment of and engagement in reading of students who participated in the SEM-R. At Kendrick School, for example, Mrs. Alton and Ms. Knight highlighted student enjoyment of reading as the most important benefit of the SEM-R program. Ms. Knight, one of the SEM-R classroom teachers, explained that students' reading time had become "a sacred 45 minutes a day" and that they were upset if they did not get that time. She said that some books became so popular among the students that they would be anxiously waiting their turn for specific titles and asking the librarian for copies. In addition, students formed "book clubs" around certain books to have more opportunities to talk about the books with one another. She also noted that parents had reported an increase in reading in their children, and that children had been asking their parents to get more books for them, a finding that emerged in several other schools as well.

The SEM-R teachers' reflections about student enjoyment and engagement in reading supports Guskey's (1986) framework about the influence of teachers' trying out an innovation with their own students before they are likely to change their beliefs and attitudes and fully adopt the innovation. These teachers gained confidence from the positive response and growth of their students within the SEM-R. All of the teachers interviewed were enthusiastic about the benefits of SEM-R for

their students, and expressed eagerness about continuing to use the SEM-R and their plans to improve their implementation further through additional reading, planning, alignment, and practice. Other research suggests the necessary level of attention is rarely given to support teacher growth and change when new reading policies are adopted and implemented (Allington, 2002; McGill-Franzen, 2000). The attention of the local coaches in the implementation of the SEM-R may have been helpful, as they regularly monitored progress and assisted the SEM-R teachers, as well as completing SEM-R treatment fidelity checks. As these coaches may have been perceived as supportive of teachers' efforts to make change occur, an implication that may emerge from this finding is the importance of local support and help in the ways that teachers are asked to differentiate as well as the ways in which they are supported in this challenge. In this study, principals supported the teachers' use of the SEM-R, and teachers received classroom libraries with books for a wide range of student reading levels. In addition, they received portable CD players and a collection of books on CD as well as print copies of the books.

Differentiation of Instruction and Content

The most dominant teacher theme in this study was the consistent use of differentiated instruction and content, with specific comments and observations about how teachers used differentiation to challenge all readers, including those who were talented and those who struggled in reading. Differentiation is both a challenging and time-consuming process that requires effort to address wide variations among learners in the classroom through multiple approaches including different teaching strategies, materials, content, and other aspects of the learning environment (Renzulli, 1977, 1988; Tomlinson, 2001). The use of differentiated instruction occurred across all phases of the SEM-R, but appeared to be most successful when used in Phase 2 conferences with differentiated questions about strategy use, challenge level, vocabulary development, fluency strategies, comprehension, and/or literary elements such as plot, theme, and setting. Researchers noted teachers' increased efficacy and ability to conduct these conferences, often without bookmarks or other prompts, as the year progressed. This suggests that teachers increased their levels of skill and comfort with differentiated instruction over the course of the year. Instructional differentiation was guided by the teachers' knowledge of their students' skills and reading patterns, due to the frequency of their Phase 2 conferences. The use of the SEM-R appears to help teachers differentiate by giving them specific suggestions for different levels and types of questioning during conferences and enabling each student to read appropriately challenging books within areas of interest.

As opposed to previous research that shows that teachers often have not had the professional development or training to implement differentiation effectively (Archambault et al., 1993; Hertberg-Davis & Brighton, 2006; Reis et al., 1993; VanTassel-Baska & Stambaugh, 2005; Westberg, Archambault, Dobyns, & Salvin, 1993), this study corroborates previous research that shows that with training and support, teachers can implement differentiated instruction and use differentiated materials (Reis et al., 1993). Principals attending the introductory workshop for the SEM-R agreed to support teachers' efforts and make time available for local coaching and support. These elements may also be an important implication for the use of differentiated instruction in reading. With time for professional development and preparation, materials such as a diverse set of books at appropriately challenging levels of content, and local coaching and support, differentiation was much more able to be implemented in this content area. This may indicate that starting in one content area with sufficient levels of materials and support may be an effective way to promote successful differentiation.

Self-Regulation

Teachers' and administrators' perceptions about the increase in self-regulated reading in the SEM-R intervention suggest that in this study, personal processes, the environment, and individual behaviors of both teachers and students increased students' use of self-regulation strategies in reading in the SEM-R classrooms. Researchers (Boekaerts & Corno, 2005; Winne & Perry, 2000; Zimmerman & Martinez-Pons, 1990) have found that academic achievement can be increased with the use of self-regulation strategies such as organizing, goal-setting, planning, self-evaluating, information seeking, record keeping, self-reflecting, self-monitoring, and reviewing. The study

suggests that the environment in SEM-R classrooms promotes organization of materials, order, clear expectations, and rules, and also supports the use of student self-regulation strategies in reading.

Implications of this study include the need for more opportunities for self-regulation to develop in school. In the SEM-R classrooms student choices in reading material made reading more personally meaningful and challenging, gave teachers more flexibility in classroom procedures, and enabled students to engage in complex tasks, including longer periods of challenging reading and independent studies that support self-regulated learning. The teachers in SEM-R classrooms in this study modeled and integrated higher order thinking skills, encouraged students to use literacy strategies, differentiated individual conferences, and provided explicit instruction in metacognitive strategies, all of which may have contributed to student engagement and application of self-regulation to reading. Another implication of this study may be the need for other teachers to enable these strategies to be used more often in classrooms across the country to effectively engage, differentiate, and encourage self-regulation in reading.

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The Five Dimensions of Differentiation

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"True differentiation requires that we look at all the characteristics of the learner in addition to achievement level." **Joseph Renzulli**

"Differentiation is a journey that all teachers must take. With multiple levels of achievement, interests, readiness, learning and product styles represented in each classroom, effective and meaningful differentiation may be the most important attribute of the 21st century teacher who wants to help each student make continuous progress in learning." **Sally Reis**

The diversity of skills, talents, and interests of students that we serve in our schools requires a remarkable range of teachers' skills, time, and resources. This brief article focuses on differentiation and the ways that teachers can adapt and differentiate the regular curriculum to meet the academic needs of all of their students. Challenges and solutions about how differentiation can be implemented will be discussed, as will a variety of strategies that can be used to differentiate, challenge, and engage all students. Defined simply, differentiation is matching a required curriculum with the learning styles, expression styles, interests and abilities of students. It is predicated on the simple belief that engaged and motivated students score higher, are easier to manage, and enjoy learning more. Both research and current practice illustrate the importance of differentiated instruction for meeting every child's needs as well as raising achievement– and some of that research is summarized in this article.

Defining Differentiation

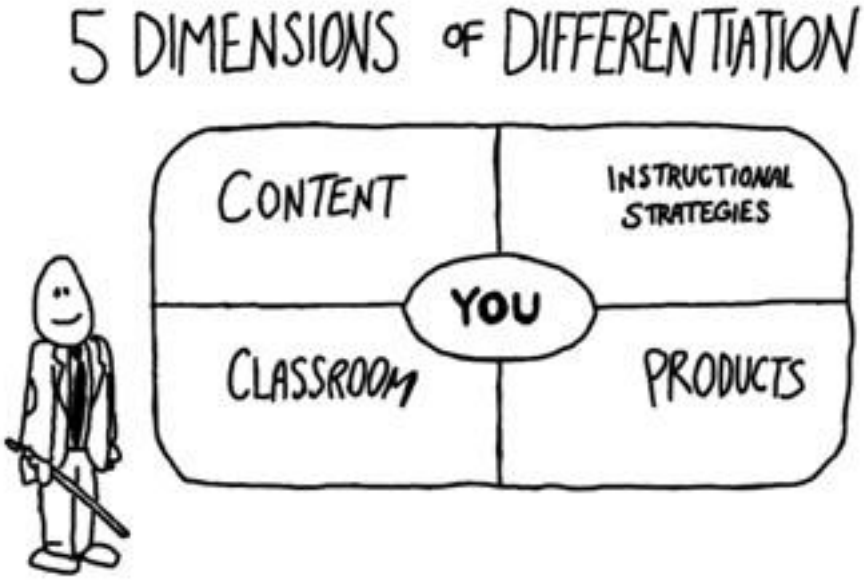
In order to accommodate the needs of students across many different levels of academic achievement, teachers across the country have implemented within-classroom strategies referred to as differentiated instruction. Differentiation is an attempt to address the variation of learners in the classroom through multiple approaches that modify instruction and curriculum to match the individual needs of students (Renzulli, 1977; Tomlinson, 2000). Students vary in their abilities, interests, and prior knowledge. Differentiation serves to address this variation by matching the content, instruction, and assessment to students' needs and interests. Tomlinson (1995) emphasized that when teachers differentiate curriculum, they stop acting as dispensers of knowledge and serve as organizers of learning opportunities. Differentiation of instruction and curriculum suggests that students can be provided with materials and work of varied levels of difficulty, different levels of assistance, various types of grouping, as well as different environments in the classroom. In other words, differentiation is the opposite of a "one size fits all curriculum".

Five Dimensions of Differentiation

The three components that are most often associated with successful differentiation are: curriculum or content--what is being taught; instruction or process—how it is being taught; and student product—tangible results produced based on students' interests and abilities. More recently, Joseph Renzulli expanded these components in the "Five Dimensions of Differentiation", to explain five ways to integrate differentiation into teaching practices.

1. **Content**: Students have different academic abilities, and interests – and teachers can differentiate the content/curriculum delivered to their students. Some students need content that matches their interests, or is more or less challenging and appropriate for their reading level – and not every student should receive the same content in any given lesson.

2. **Instructional Strategies**: Students also arrive with different learning styles. Some learn best through group work and some by working alone, some learn best by doing projects, while other learn by discussion. Teachers can differentiate by using different instructional strategies that match the preferences of individuals or groups in their classrooms.



3. **The Classroom:** Teachers can differentiate the learning environment itself, and how they manage it. Students can have the opportunity to work in groups with other students like themselves, or work in groups in which every student has a chance to demonstrate their different style – or, you can introduce new guest speakers or technology – or bring your class into new environs like the computer lab, library, or a field trip.
4. **Products**: Students express what they have learned in different ways – some students' preferred expression style is written – while others do better with technology, social action, or visually. Teachers can differentiate products by giving students options, when practical, to choose their own modes of expression to demonstrate what they have learned.
5. **The Teacher**: Obviously, it is hard to imagine that teachers can differentiate every lesson every day– so differentiation is about the decisions and choices that teachers make about how to differentiate the curriculum for a diverse group of students. Differentiation requires that teachers consider their students' learning styles, interests, abilities, and expression styles – and that they accept the freedom, flexibility, and creativity to implement this process in the classroom.

Renzulli's (1977; 1988; Renzulli & Reis, 1997, 2014) five dimensions of **content, process, products, classroom organization and management, and the teacher's own commitment to differentiate** into a learner as well as a teacher provides a method to differentiate instruction. As noted in Figure 1, the differentiation of *content* involves adding more depth to the curriculum by focusing on structures of knowledge, basic principles, functional concepts, and methods of inquiry in particular disciplines. Within the **content** area, representative topics are explored and webbed, with open-ended questions that probe a particular field of knowledge (Renzulli, 1997).

The differentiation of **process** incorporates the use of various instructional strategies and materials to enhance and motivate various students' learning styles. The differentiation of **products** enhances students' communication skills by encouraging them to express themselves in a variety of ways. To differentiate **classroom management,** teachers can change the physical environment and grouping patterns they use in class and vary the allocation of time and resources for both groups and individuals. Classroom differentiation strategies can also be greatly enhanced by using the Internet in a variety of creative ways. The Internet can expand the **learning environment** far beyond the walls of

the classroom and offer particular promise for engaging and differentiating content for children. Last, teachers can differentiate **themselves** by modeling the roles of athletic or drama coaches, stage or production managers, promotional agents, and academic advisers. All these roles differ qualitatively from the role of teacher-as-instructor. Teachers can also "inject" themselves into the material through a process called artistic modification (Renzulli, 1988). This process guides teachers in the sharing of direct, indirect, and vicarious experiences related to personal interests, travel experiences, collections, hobbies, and teachers' "extra-curricular" involvements that can enhance content.

Five Dimensions of Differentiation Described in a Classroom

The following description illustrates what differentiated classrooms would look like if each of Renzulli's five dimensions were implemented. Content would be adjusted and changed to meet the needs of advanced students. In reading, for example, advanced self-selected reading materials would be used to challenge talented readers and less than challenging but high interest content would be used to engage struggling readers (Reis, McCoach, Little, Muller & Kaniskan, 2011). Instructional strategies or **processes** used to teach and stimulate student problem solving and critical thinking would include but not be limited to problem-based learning, simulations, independent study (both guided and unguided), and higher-level thinking questions. Higher-level thinking questions should incorporate critical thinking skills to enable students to conduct research, brainstorm, identify problems and develop an action plan and motivate students to pursue independent investigations of real world problems, what Renzulli calls Type III studies (Renzulli, 1977).

These types of **products** associated with a differentiated approach reflect both the learners' expression and the applied skills of a field of study. These products can be achieved through exposure to learning opportunities developed within the classroom or through the out of school environment such as agencies, museums, TV, radio, community organizations, and mentorships or apprenticeships. When differentiation is occurring in a **classroom environment**, teachers use a combination of interest and learning centers across the classroom, and organize study areas, computer stations, and work areas for products as well as artistic, literary, and scientific work. Some students will need to use additional out of school learning areas (e.g., library, gym, auditorium, lab) if the topic being investigated requires additional resources or environments that allow for freedom of movement. In the last dimension of differentiation, the **teacher** extends him/herself by becoming part of the learning exploration through direct personal experiences, by offering an opinion or belief that sparks a curiosity or confrontation with knowledge, or by modeling the love of learning. Using Renzulli's five dimensions of differentiation, educators can adapt and implement differentiation in a consistent and progressive manner to meet the needs of all learners.

Differentiation by Competency, Grouping, and Using Compacting

A recent emphasis on differentiated instruction calls for the use of assessment data to support modification of curriculum and instruction to respond to differences in students' readiness, interests, and learning profile (Renzulli, 1988; Tomlinson, 2001). Differentiated instruction emphasizes that learning is most effective when teachers are able to assess students' current levels of functioning and learning preferences, and then use this information to help students progress to more advanced levels of functioning and more advanced learning. This is exactly what the Renazulli Learning activities are developed to do. The Renzulli Learning process enables teachers to use data-based decision making to pre-assess student learning and use assessment, instruction, and data management to differentiate content.

Differentiated instruction combines flexible grouping of students with adjustments to the learning tasks; in some instances, whole group instruction is the most appropriate delivery model, while in other instances, students work in small groups or individually to complete tasks that are targeted to their own levels of readiness, interests, and learning preferences. Kulik and Kulik studied the use of some form of grouping—the practice of organizing classrooms in graded schools to combine children who are similar in ability to ascertain whether they were positive or negative effects in their meta-analysis of 31 separate studies of grouping children at the elementary school level

(1984). The studies primarily focused on grouping students within a school into different classes based on differing average ability levels. After analyzing 28 separate studies that examined effects of grouping by achievement test performance, the authors found that grouping over heterogeneous grouping worked. Another study by Tieso (2005) found that significant student achievement gains resulted when teachers used flexible within-class ability grouping. To differentiate for students in homogeneous groups, teachers should use formal and informal assessment data to determine the most appropriate learning objectives and instructional strategies to better ensure that students will gain the most learning from being placed into these instructional groups. In addition to differentiating instruction for students in tiered groups, professional development for teachers, flexibility, and a combination of different grouping structures may also attribute to student achievement. In a three-year longitudinal study, Gentry and Owen (1999) found that flexible cluster grouping had positive effects on all ability levels of students in a small rural, Midwest elementary school when accompanied by professional development.

Another proven strategy for differentiation is curriculum compacting. Curriculum compacting, a service described by Joseph Renzulli and Sally Reis (1992), is another process that can be used to eliminate or modify work that may already be mastered, and thus enable students to prove that they already know the course content. This strategy is one of the most widely used approaches to encourage curriculum differentiation (Renzulli & Reis, 1992; Reis, Renzulli, & Burns, 2016). Curriculum compacting is an instructional technique that is specifically designed to make appropriate curricular adjustments for students in any curricular area and at any grade level. Essentially, the procedure involves (1) defining the goals and outcomes of a particular unit or segment of instruction, (2) determining and documenting which students have already mastered most or all of a specified set of learning outcomes, and (3) providing replacement strategies for material already mastered through the use of instructional options that enable a more challenging and productive use of the student's time. Curriculum compacting might best be thought of as *organized common sense*, because it simply recommends the natural pattern that teachers ordinarily would follow if they were individualizing instruction for each student. In research on compacting, approximately 40 to 50% of traditional classroom material was compacted for targeted students in one or more content areas. When teachers eliminated as much as 50% of regular curricular activities and materials for targeted students, no differences were observed in post-test achievement scores between treatment and control groups in math concepts, math computation, social studies, and spelling. In science, the students who had between 40 to 50% of their curriculum eliminated actually scored significantly higher on science achievement post-tests than their peers in the control group. And students in group one whose curriculum was specifically compacted in mathematics scored significantly higher than their peers in the control group on the math concepts post-test (Reis, Westberg, Kulikowich, & Purcell, 1998).

Differentiation with Enrichment

Enrichment opportunities enable children to move beyond grade level lessons and extend the regular curriculum with individualized opportunities. Examples of enrichment include exposure to new topics and ideas, training in creative and critical thinking skills, problem solving, first-hand investigative opportunities, the development of an independent study in areas of choice with individual research, and the use of advanced research methods. There are a variety of factors to consider when using enrichment to differentiate instruction and content. For example, what types of enrichment opportunities can and will be made available? Will the regular curriculum be extended with enrichment or will it be compacted and replaced with teacher-selected advanced content? Will students have the opportunity to pursue their personal interests using independent study? Enrichment can take many forms and these questions about content and how curriculum can be enriched are at the core of the decisions that guide enrichment selections.

The Triad Model, along with its larger-scale translation into the Schoolwide Enrichment Model-SEM (Renzulli, 1977; Renzulli & Reis, 1985, 1997), is one of the most popular approaches in enrichment education pedagogy (Van Tassel-Baska & Brown, 2007). This model has been applied and used with students in urban, suburban, and rural schools across the country with positive

outcomes for the last three decades (Reis & Renzulli, 2003; Renzulli & Reis, 1994). The SEM has been used widely in both gifted and regular education programs, with this broad applicability of the SEM's three central goals: developing talents in all children, providing a broad range of advanced level enrichment experiences for all students, and providing follow-up advanced learning opportunities for children based on interests.

The SEM emphasizes engagement and the use of enjoyable and challenging learning experiences constructed around students' interests, learning styles, and product styles. Renzulli's Enrichment Triad Model and the subsequent, Schoolwide Enrichment Model suggests the need for a comprehensive approach to elementary enrichment to differentiate instruction. The Enrichment Triad Model, an organizational and service delivery model, has three components: Type I enrichment (general exploratory experiences), Type II enrichment (group training activities), and Type III individual and small-group investigations of real problems. Their work includes elements such as enrichment planning teams, needs assessments, staff development, materials selection, and program evaluation.

In summary, classroom teachers can provide differentiated levels of enrichment to many students using various types of enrichment. Enrichment usually includes some or all of the following components: exposure to new topics and areas of interest, training in thinking and research skills, opportunities for self-selected investigative activities of problems that students select or are assigned by their teachers. Enrichment usually includes emphasis on authentic content and process, enabling students to serve as firsthand inquirers, and explore the structure and interconnectedness of knowledge. Enrichment teams, as advocated by Renzulli and Reis in the Schoolwide Enrichment Model, can help plan enrichment experiences for the entire school. Enrichment programs should evolve into an integral part of a differentiated system and should be regularly reviewed to determine both content effectiveness and appropriateness of delivery. All students benefit from a planned, articulated and coordinated enrichment program that will provide differentiated challenges as well as engagement and enjoyment of learning.

Differentiation Using Renzulli Learning

The main goal of the Renzulli Learning System is to provide students with experiences that help them enjoy the *process* of learning through their personal engagement. Renzulli Learning is an on-line educational profile and matching database geared to enrichment resources, creative productivity, and high-end learning that matches student interests, learning styles, and expression styles with a vast array of educational activities and resources designed to enrich students' learning process. Renzulli Learning is an exciting new, interactive online program that matches student interests, expression styles, and learning styles with a vast array of educational activities and resources, designed to enrich gifted and high potential students' learning process. Using Renzulli Learning, students can explore, discover, learn and create using the most current technology resources independently and in a safe environment.

Field (2009) studied the use of the Renzulli Learning System, an innovative on-line enrichment program based on the Enrichment Triad Model, for students in both an urban and suburban school. In this 16-week experimental study, both gifted and non-gifted students who participated in this enrichment program and used Renzulli Learning for two to three hours each week demonstrated significantly higher growth in reading comprehension than control group students who did not participate in the program. Students also demonstrated significantly higher growth in oral reading fluency and in social studies achievement than those students who did not participate (Field, 2009).

Teachers can use Renzulli Learning to differentiate instruction using four steps. The first step consists of a computer-based diagnostic assessment that creates a profile of each student's academic strengths, interests, learning styles, and preferred modes of expression. The on-line assessment, which takes about thirty minutes, results in a personalized profile that highlights individual student strengths

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

Next, the differentiation search engine matches student strengths and interests to an enrichment database of 40,000 enrichment activities, materials, resources, and opportunities for further study that are grouped into the following categories: virtual field trips, real field trips, creativity training, critical thinking, projects and independent study, contests and competitions, websites, fiction and non-fiction books, summer programs, on-line activities, research skills, and high interest videos and DVDs. These resources are not merely intended to inform students about new information or to occupy time surfing around the web. Rather, they are used as vehicles to help students find and focus a problem or creative exploration of personal interest to pursue in greater depth. Many of the resources provide the methods of inquiry, advanced level thinking and creative problem solving skills, and investigative approaches. Students are guided toward the *application of knowledge* to the development of original research studies, creative projects, and action-oriented undertakings that put knowledge to work in personally meaningful areas of interest, and provide students with suggestions for outlets and audiences for their creative products. The resources available in step two also provide students with opportunities to pursue advanced level training in their strength areas and areas of personal interest.

The third part of Renzulli Learning for students is a project organization and management plan called The Wizard Project Maker. Using this project planner, teachers can help students target their web-based explorations to undertake original research, investigative projects, and the development of a wide variety of creative undertakings. The sophisticated software used in this tool automatically locates potentially relevant web-based resources that can be used in connection with the student's investigative activity. This management device is designed to fulfill the requirements of a Type III Enrichment experience, which is the highest level of enrichment described in our discussion of the Enrichment Triad Model. Specifically, the Project Maker provides students with the metacognitive skills to define a project and set a goal; identify and evaluate both the resources to which they have access and the resources they need (e.g. time, Internet sites, teacher or mentor assistance); prioritize and refine goals; balance the resources needed to meet multiple goals; learn from past actions, projecting future outcomes; and monitor progress, making necessary adjustments as a project unfolds. The Wizard Project Maker helps students make the best use of web resources, helps to focus their interests as they pursue advanced level work, and establishes a creative and viable responsibility for teachers in their role as "the guide on the side." By helping students pursue advanced levels of challenge and engagement through the use of the Wizard Project Maker, we hope students will begin to regard their teachers as mentors rather than just as disseminators of knowledge.

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

of previous activities and creative accomplishments that they might want to include in college applications, and it is an ongoing record that can help students, teachers, guidance counselors, and parents make decisions about future educational and vocational plans.

Teacher resources in Renzulli Learning enable teachers to differentiate assignments and send tiered and compacted assignments to students by placing them in their electronic talent portfolio. Teachers can also use Renzulli Learning to group students based on their interests, learning, and expression or product styles.

How Many Teachers Actually Differentiate?

While most teachers, if asked, would indicate that they are committed to meeting students' individual needs, many teachers do not have background information to put this commitment into practice. Research demonstrates, for example, that many academically talented students receive little differentiation of curriculum and instruction and spend a great deal of time in school doing work that they have already mastered (Archambault, Westberg, Brown, Hallmark, Emmons, & Zhang, 1993; Reis, Westberg, Kulikovich, Caillard, Herbert, & Plucker, 1993; Westberg, Archambault, Dobyns, & Salvin, 1993). Many educators would like to adapt or modify or differentiate the regular curriculum for their above-average students. Accomplishing this, however, is no small task. Too little time, too many curricular objectives and poor organizational structures—all can take their toll on even the most dedicated professionals. The emphasis on differentiated instruction uses assessment data to support modification of curriculum and instruction to respond to differences in students' readiness, interests, and learning profile (Renzulli, 1988; Tomlinson, 2001). Differentiated instruction emphasizes that learning is most effective when teachers are able to assess students' current levels of functioning and learning preferences, and then use this information to help students progress to more advanced levels of functioning and more advanced learning. Differentiated instruction combines flexible grouping of students with adjustments to the learning tasks; in some instances, whole group instruction is the most appropriate delivery model, while in other instances, students work in small groups or individually to complete tasks that are targeted to their own levels of readiness, interests, and learning preferences.

Tomlinson and Allan (2000) detailed the roots of differentiated instruction as well as research relating to the importance of challenge in promoting engagement, growth, and authentic feelings of success for students (e.g., Byrnes, 1996; Csikszentmihalyi, Rathunde, & Whalen, 1993; Renzulli, 1977). Nevertheless, teachers still struggle to implement differentiated instruction, and among the challenges they face in implementing differentiation are concerns about planning for and managing differentiation, as well as fear of state assessments and little administrative support (Hertberg-Davis & Brighton, 2006; Katz et al., 2009; Moon et al., 2003; Reis et al.,1993; VanTassel-Baska & Stambaugh, 2005).

With tools like Renzulli Learning, teachers have a much easier and more focused task of implementing differentiated instruction in the classroom. And when this happens, gifted, creative and high potential students will have the opportunity to be challenged and to make continuous progress in all content areas. They will also have the time to pursue more challenging and creative work in their areas of talent, creativity and interest.

Glossary of Differentiation

Compacting- Determining goals of curriculum, assessing student mastery, and providing enrichment opportunities.

Differentiation- Matching the given content area with a student's interests, abilities, and learning styles through various instructional strategies.

Enrichment- Activities related to student's curriculum or interest area that involve higher level thinking skills and guided problem solving.

Personalized Instruction- Customizing the curriculum to students' achievement level, learning style, social-emotional concerns, interests, abilities, potential, creativity, and task commitment.

Instructional Style- Method of delivery used by teachers to stimulate learning within and beyond the

classroom.

Modification- Changing the existing curriculum either by expanding the depth or breath of the content area.

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Joseph S. Renzulli is the Neag Professor of Gifted Education and Talent Development at the University of Connecticut where he also served as the Director of the National Research Center on the Gifted and Talented for over two decades. He has spent his 40-year career in research focused on the identification and development of creativity and giftedness in young people and the use of gifted education pedagogy to increase engagement and achievement for all children. He has worked on the development of organizational models and curricular strategies for differentiated learning environments that contribute to total school improvement. A focus of his work has been the application of the pedagogy of gifted education to the improvement of learning for all students. His work on the Enrichment Triad Model was one of the first efforts on problem-based learning in the 1970's and his work on curriculum compacting and differentiation were pioneering efforts in these areas in the 1970's.

Gifted Young Musicians Poised for Advanced Training: Selection Measures

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Abstract

While Australia is without a national policy on gifted and talented education (ACARA, 2014) each state and territory education department offers strategies and guidelines for the education of gifted and talented students. A performance audition, primarily subjective, dominates entry to specialist music secondary schools for musically gifted youth despite policy recommendations towards a multivariate identification approach drawing on both objective and subjective strategies (DET, 2004). The purpose of this paper is to present the case for widening the selection gap for specialist music programs through a review of the entry test process. Reported here are the initial findings for Phases 2 and 3 with tests, Gordon's Advanced Measures of Music Audiation (*AMMA*, 1989) and Gordon's Iowa Test of Music Literacy Level 5 *(ITML 5*, 1970 rev. 1991), administered to musically gifted applicants (n=73) as part of the entry process to an Australian specialist music secondary school. Results indicated a significant relationship between music potential and achievement and confirmed the predictive value of an objective aptitude test as criteria for ongoing success. A posttest of Gordon's *ITML 6* was conducted with the successful cohort (n=25) on site, six months after entry, revealing high percentiles and significant relationships with *ITML 5*. It is surmised that the findings as reported in this paper, clarify an identification model that has the capacity to select highly able young musicians with broad-based potential based on diversity stage of development and skills mastery, in transition from general primary school to secondary specialist music school.

Keywords: Gifted education; music aptitude and achievement; objective measures.

Introduction

Australian government organisations and state education departments recognise the needs of gifted and talented students, most recently within the framework of "diversity of learners" (ACARA, 2014, p. 13). The emphasis has shifted to the non-homogeneous factors of variance of abilities and aptitudes, variance in levels of giftedness, variance in achievement and variance in characteristics and backgrounds (Haroutounian, 2002; Subotnik & Jarvin, 2005). The *New South Wales Department of Education and Training Gifted and Talented Policy and Strategy* (DET, 2004) is underpinned by Gagné's *Differentiated Model of Gifts and Talents* (DMGT, 2003) wherein the school plays a critical role in the development of potential and for the transition of gifts to talents (Gagné, 2013; ACARA, 2014).

Each Australian State and Territory recommends the identification of gifted students through a balance of subjective (nominations) and objective (standardised tests, individual and group IQ, school assessment, rating scales, creative tests, competitions) measures (DET, 2004; DECS, 2010; Andreasen, 2016). As McClain and Pfeiffer (2010) and others report that levels of IQ can establish academic potential; DET, 2004; Gagné, 2013), so Gordon (1991, 2008), Haroutounian (2000) and McPherson (1997) report a measure of music aptitude to indicate music potential. However, relevant to specialist music high school programming and selection is identification through "multiple criteria", "degrees of giftedness and talent" that are organised and "linked to differentiation" (DET, 2004 p. 7). Therefore, "grouping by ability or achievement" is based on diverse levels of gifts and of talents. (p. 10).

Definitions and models

Gagné (2013) posits dynamic integrated pathways wherein talent development begins with access through an identification process. Simonton's (2005) emergenic-epigenetic model refers to the dependence of polygenic and complex factors accounting for dissimilar types of giftedness that may

appear at different rates during stages of talent development (Persson, 2011). Subotnik, Olszewski-Kubilius and Worrell (2012) in referring to a "proposed talent development megamodel" caution the impact of variance in "start, peak and end points" in relation to the identification and selection of gifted youth (p. 181). Thus, identification, selection and ongoing success is conditional to a plethora of factors.

Measuring music ability.

Consensus as to what leads to musical success depends on a variety of definitions and meanings that might, according to Ericsson, Nandagopal and Roring (2005), include exceptional ability through deliberate practice and environment and intrapersonal catalysts (Sloboda, 2005; Gagné, 2013). Law and Zentner (2012) suggest that there is no agreement on how best to measure musical ability using objective tasks despite research-based standardised explicit forms of musicality tests with practical aims, such as selection of students for advanced training programs

Tests of music aptitude.

Relative moderate correlations have been recorded between different tests and between tests and criteria possibly due to traditionally different approaches such as the atomistic tradition of Seashore (1919) and the omnibus approach of Wing (1968) as cited by Shuter-Dyson and Gabriel (1981). The revised version of Seashore's Measures of Musical Talents or *SMMT* (1919) consists of six measurements of musical ability including pitch, loudness, rhythm, time, tonal memory and timbre. Despite fragility as a psychometric measure (low correlations with actual music performance), the *SMMT* has directly influenced many subsequent music test batteries. Seashore (1919) described "auditory imagery" characteristic of the *SMMT*, as "perhaps the most outstanding mark of the musical mind" (p. 161).

Like the Seashore tradition, Gordon's Advanced Measure of Music Audiation or *AMMA* (1989, 2008) the selected instrument for Phase 2 of this study, is applicable, computerized, time efficient, age appropriate and contains predictive elements. It is suitable for the assessment of music aptitude (potential) among musically gifted primary school graduates. Gordon's Iowa Test of Music Literacy (*ITML*, 1970, rev. 1991) chosen to measure music achievement, complements the *AMMA* and thus, builds diagnostic student profiles.

The criterion-related validity coefficients ranging from .40 for subtests to .70 for total tests, indicate that the *ITML* scores can be used to objectively and efficiently diagnose students' specific and overall musical achievement (Young, 1973, p. 15)

The *AMMA* is an individual 30-item aural test for listeners to discriminate between pairs of melodic patterns, either identical or with changes, in their tonal and rhythmic properties. The longitudinal predictive validity study with Gordon (1990) using music majors' *AMMA* total scores and 3 judges' ratings of the students' recorded end-of-year performances provide statistics useful to frame the psychometric results for the student stakeholders in Phase 2 of this study. For the Gordon study, the highest AMMA scores ranged from 72 to 78 (percentile 88 and above on national norms) while the lowest scores ranged from 44 to 55 (percentile 40 and below on national norms). Intercorrelations with *AMMA* total scores and the end-of-year performance ratings of three judges, .80, .81 and .76, respectively (Gordon, 1990, p. 190) were significant. Schleuter (1993) in conducting a study wherein his subjects, drawn from a mix of undergraduate music majors, reported *AMMA* findings with "composite mean of 58.2" (p. 61). According to Gordon (1989) the composite percentile on the *AMMA* identifies musically gifted students such as "those with High music aptitude who have the potential to achieve high standards in music" (p. 34).

For this study, prediction is calculated in the context of the *AMMA* for music aptitude (potential) and the *ITML* for music literacy (music achievement).

The study

Placement for musically gifted primary school graduates at a "unique selective music school" (Pascoe e al., 2005) is conditional to successful auditions and diagnostic workshops (Macrae & Dunbar-Hall, 2004) and cognitive data from a Selective Schools Test (SST) or the Wechsler (2003) WISC-IV (Curry, 2012; Andreasen, 2016). It is a given that successful candidates are proficient in the repertoire and understanding of music in the western art tradition (Macrae & Dunbar-Hall, 2004).

Phase 1, questionnaires and interviews with adult stakeholders, was a mixed methods data collection strategy to provide an historical position for an evolving test process since the school's foundation in 1918. The aim of Phases 2 and 3 of the study as reported in this article, was to examine Gordon's *AMMA* and *ITML 5* student applicant scores, for the strength of relationships and predictive value. This led to the question, *to what extent have the Gordon aptitude and achievement tests been appropriate to the prediction of ongoing success for musically gifted youth?*

The purpose of the study was to review the entry test process with the use of objective aural test measures to differentiate musically gifted youth at the cusp of advanced music training and in transition from primary to year 7, the first year of secondary school in the NSW secondary education school system.

The rationale of the study was linked to entry test process review, due to the additional curriculum of a junior vocal stream (JVS) into the specialist music school environment. Such a change impacts on entry hitherto open only to junior instrumentalists. In addition, a general concern was to address the issue of gaps in equitable selection for gifted and talented NSW school placement (Scott, 2017; Ho & Bonner, 2018). In the context of broad-spectrum potential, it was intended that the addition of an objective aptitude test, would provide a stable measure of music ability outside skills acquisition.

Process

Following ethics approval and informed consent from all participants, Phase 2 of the study commenced during the regularly scheduled entry test process period.

Method

Creswell and Plano Clark (2007) refer to mixed method case study and quantitative and qualitative data collection techniques as was applied for the complete study. However, this paper is concerned with Phases 2 and 3, based on a quantitative approach (Creswell, 2003). Student stakeholders were musically gifted youth applying for entry to specialist music programs. Gordon's *AMMA* (1989, 2008) and *ITML 5* (rev. 1991) were administered during the scheduled entry test process. For Phase 3 of the study, Gordon's ITML 6 (rev. 1991) was administered to the successful entry cohort, six months after entry. Descriptive statistics including means and standard deviations were obtained for *AMMA* and *ITML 5* and *6*. A correlation matrix was computed for all scores using the R Core Team software package (R Core Team, 2010).

Phase 2 Participants

The participants were primary school student graduates (males=32, females = 41; mean age=11.6; SD=1.06) from diverse musical backgrounds. They were domiciled at varying distances from the school's inner-city location and were applying for year 7 entry.

Phase 3 Participants

For Phase 3 of the study, the successful cohort (males=10, females =15) were administered post-tests after immersion into accelerated and enrichment music programs. The successful cohort encompassed the student stakeholders who had met entry test criteria and at the discretion of the selection panel had accepted placement.

Instruments, Phase 2a: Test for Music Aptitude, Gordon's AMMA (1989, 2008).

The *AMMA* software was installed on site, on each of 15 Mac Computers and student stakeholders (n=73) were individually asked to aurally discriminate between same-different pairs of pitch (n=30) and rhythm (n=30). Recorded directions for all practice exercises and test items were provided and performed on a Moog Synthesiser.

Instruments, Phase 2b: Test for Music Achievement, Gordon's ITML 5 (1991)

The Iowa Test of music literacy Level 5 or *ITML 5* (1970, rev. 1991), a paper and pencil activity was administered in two sittings to the complete applicant cohort (n=73). The student stakeholder cohort were asked to aurally discriminate between items on subtests of pitch (morning sitting) and rhythm (afternoon sitting) in modes of listening, reading and writing.

Instruments, Phase 3: Test for Music Achievement, Gordon's ITML 6 (1991)

To address the second research question, the successful cohort (n=25) were post tested using Gordon's *ITML* Level 6 after entry, on site. Scoring for all three tests was calibrated to grade 8 appropriate to off-level, gifted and talented testing modes.

Results

Pearson Product Moment correlations were conducted, and significant relationships were reported for the *AMMA* and *ITML 5* (n=73) and the *ITML 5* and *ITML 6* (n=25). Table 3 reports standardized scores in percentiles "the most widely used type of standard score" (Gordon, 1989, p. 24).

Table 3: Phases 2 and 3: Student scores, percentile means.

Group	***AMMA***	***SD***	***ITML 5***	***ITML 6***
	PR Mean		**PR Mean**	**PR Mean**
Successful (n=25)	88	2.4	99	99
Unsuccess (n=48)	58	4.2	97	-
All (n=73)	68	3.4	99	-

Note: Only the successful cohort (n=25) undertook ITML 6
PR Mean = percentile mean. *SD*= standard deviation

Table 3 indicates "High" *AMMA* (PR mean = 88; SD = 2.4) for the successful entry group with and "Average" (PR mean = 58; SD = 4.2), for the unsuccessful non-entry group. According to Bluestine, (2000) aptitude levels range in the *AMMA* percentile ranks as, "High 80-99%; High Average 60-79%; Average 40-59%; Low Average 21-39% and Low 1-20%" (p. 27). *ITML 5* mean percentiles rank norms at 97+ and 99 were "High" for the complete cohort. The rank norm percentile means for all three tests for the successful entry group were high and as stated previously, comparable according to those recorded on the longitudinal predictive of Gordon studies with high school music and non-music high school students (Gordon, 1990; Schleuter, 1993; Young, 1973).

Figure 1 illuminates the data for *AMMA/ITML 5* visually. The scatter plot in Figure 1 show correlations for AMMA and ITML 5 (n=73).

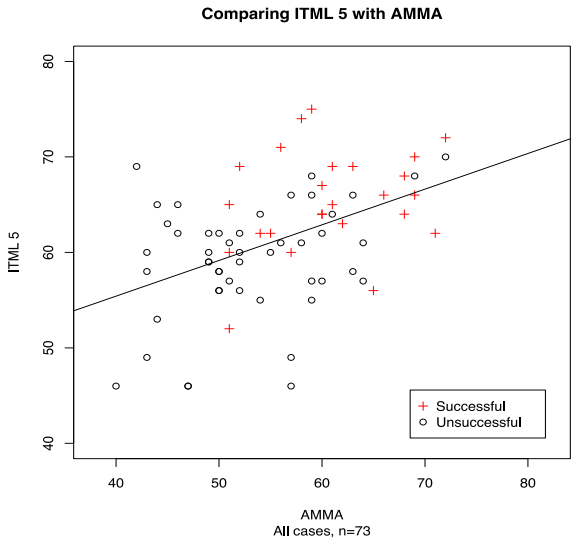

Figure 1: ITML 5 and AMMA Pearson's product-moment correlation = 0.46; *p* <0.001; t = 4.31; df = 71; *p*-value = 2.496e-05 (n=73).

Figure 1 indicates that *AMMA* Tonal and Rhythm scores and *ITML 5* Listening, Reading and Writing scores correlated at .46 and were significant at the .001 level of probability. Thus, the findings confirm the relationship and predictive value between music potential and achievement in the context of objective entry test criteria. While the range of standardised scores for the complete cohort is wide (40-75), the successful group demonstrates few off-trend scores, considerably less than the non-successful group.

Figure 2 is a scatter plot of correlations for *ITML 5* and *ITML 6* (n=25).

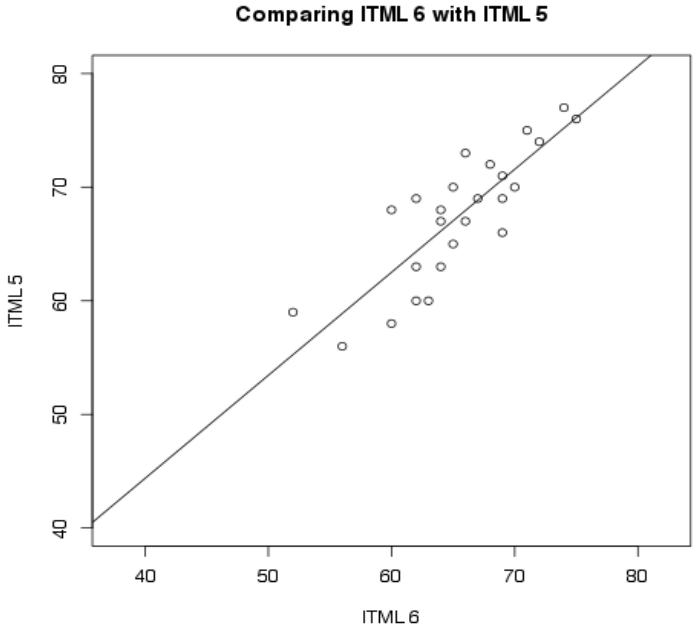

Figure 2: ITML 5 and ITML 6 Pearson's product-moment correlation = 0.84; *p* <0.001; t = 7.37; df = 23; *p-value* = 8.517e-08 (n=25).

Figure 2 shows that *ITML 5* and *ITML 6* Listening, Reading and Writing scores, correlated at .84, were significant at the .001 level of probability. Thus, the findings confirm the predictive value of

the *ITML 5* and *ITML 6* (achievement) in the context of objective entry test data and ongoing success. The successful entry cohort was represented mainly by percentile ranks at 99 with evidence of individual progress. As expected, learning capacity was maintained, six months after entry following an enriched, accelerated and differentiated music program.

Discussion

It is not within the scope of this paper to report on the complete study, suffice to say, Phase 1 AS interview data pointed to conventional dimensions of psycho-social traits such as engagement, motivation and resilience, indicative especially of the successful applicant cohort entering on partial criteria (AS transcription). The mastery gap between the two types of successful entrants narrowed with rapid progress after entry (AS transcription). Thus the Phase 1 data was supported by evidence of the significant statistical relationships reported for the *AMMA* and *ITML*.

In response to the research question, while Phase 2 and 3 findings confirmed the predictive value of the objective Gordon aptitude tests, Phase 1 AS data suggests that in the context of entry test criteria and for ongoing success of musically gifted youth, other dynamic factors need to be considered. Specific to the successful entry cohort (n=25) was a High *AMMA* mean, while an Average *AMMA* mean was reported for the non-successful applicant cohort (n=48) reflecting the validity of using and objective aptitude measure within the entry test battery. However, some outlier percentiles as shown in Figures 1 and 2 above were reported for individuals within the complete applicant cohort (n=73). Thus there was some indication of aptitude variance across the applicant cohort.

In addition, the return of some off-trend successful entrant *AMMA* scores provided a diagnostic value to the findings (see Figures 1 and 2) and implied skill level variance and mastery gaps. Gordon (1989, 1990) maintained that students "with High music aptitude have the potential to achieve high standards in music" (p. 34) and that while "music aptitude and music achievement are different they are not mutually exclusive" (p. 8). High ITML 6 results (PR mean = 99), suggest stability of achievement levels linked to high potential.

Conclusion

Objective strategies such as audition, standardized testing and nominations, recommended to assist in the selection of gifted students poised for specialist programs (ACARA, 2014; Mönks & Pflüger, 2005; Shuter-Dyson & Gabriel, 1981; McPherson, 1997) will continue to play a major role in music education research and debate. This study implies that more clarification is needed in the area of the subjective strategies that provide the balance in identification of musically gifted youth.

It was significant that individual entrants were reported as successful in a display of both high and average aptitude percentiles. Thus successful entrants could be framed as achieving full or partial criteria. Therefore findings suggest the use of an aptitude test not only for its predictive value but also as a measure of broad-spectrum music potential in the context of developmental stage, performance acquisition, media of expression and skills mastery (Andreasen, 2016). The findings confirm the capacity of Gordon's *AMMA* and *ITML* to demonstrate positive, objective criteria beyond the limitations of exemplary performances for musically gifted youth at the gateway of specialist music programs.

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About the Author

Felicity Andreasen, a doctoral student at the University of Sydney, Sydney Conservatorium of Music, Australia continues to pursue the reality of teaching high school music in research contexts. She has been a teacher of both Music and English in local and international high schools and universities. Most current has been her teacher/researcher role at the Conservatorium High School, Sydney. Her publication with Dr. John Geake (SCU), entitled "musically gifted students in the first year of secondary school: identification and curriculum differentiation" (1988, NSW AGT) led her into the then controversial field of gifted and talented education research which underpins her re-examination of gifted music identification strategies and program implementation. Her current interest is selection of musically able youth in the context of diversity and difference.

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Using an Infusion Based Approach to

Enrich Prescribed and Test-Driven Curricular Practices

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"The goal is excellence, always. And engagement in the task is the means to achieve it."

Nancie Atwell (2015 Global Teacher of the Year)

One of the biggest challenges facing gifted education is how to balance the need to provide students with enrichment opportunities within the context of an overly prescribed or required curriculum. The emergence of standards in individual states and the new Common Core State Standards coupled with the almost overpowering influence of standardized testing has had the effect of squeezing highly engaging enrichment activities out of the curriculum. Many teachers have become so accustomed to requirements for "teaching-the-text" and overusing worksheets to grind up standardized test scores that they no longer have the opportunity or, in some cases, the know-how to deviate from prescribed material. Few would argue that standards-driven curriculum is not important; however, research has clearly and unequivocally shown that high engagement enrichment experiences do in fact, contribute to higher achievement scores *and* they also make school more meaningful and enjoyable for students (Dotterer & Lowe, 2011; Greenwood, 1991; Reyes et al., 2012, & Wang & Holcombe, 2010).

In this article we present a strategy that teachers can use for achieving some balance between the required curriculum and a way of infusing enrichment activities into standards driven material. Teachers who have used this technique have commented about how it has made them feel more creative about their teaching and more like professionals rather than mere purveyors of other people's material. Some examples of exciting ideas developed by teachers are provided to illustrate how the technique has been used.

Q: How do bakers get the jelly in the jelly doughnut?
A: If you don't know the answer to this question take a look at the picture at the end of this article.

The Schoolwide Enrichment Model (SEM) uses an *infusion-based* approach to make prescribed curricular content more interesting and engaging. We do not criticize nor recommend "throwing out" basic curriculum, current practices, programs, or projects if they are currently producing positive results in *both* achievement and joyful learning. Rather, the SEM strikes a balance between traditional approaches to learning and approaches that promote thinking skills, hands-on learning, and creative productivity on the parts of all students. Our goals are to minimize boredom and "school turn-offs" and to improve achievement and creative productivity by infusing what we call The Three Es (Enjoyment, Engagement, and Enthusiasm for Learning) into the culture and atmosphere of a school. We can do this by placing an easy-to-use teaching strategy into the tool bags of teachers.

Selection, Injection, and Extension

An Infusion Based Approach simply means that teachers will:

- review and ***select*** highly engaging enrichment-based activities related to particular topics,
- ***inject*** them into the curriculum to make the topics more interesting, and
- provide support and encouragement for individuals and small groups who would like to ***extend*** their pursuit of the enrichment activities.

Examples of Infusion Related To Prescribed Curricular Standards

Two Early Childhood teachers in North Carolina collaborated to design a unit steeped in experiential learning that clearly meets the demands of numerous state and National standards.[1] They discovered that infusing The Three Es into the classroom allowed them to *select* highly engaging enrichment activities related to particular topics, *inject* them into the curriculum to make them more interesting, and provide support and encouragement for individuals and small groups who would like to *extend* their pursuit of the enrichment activities. The teachers in this particular unit of study for kindergarten social studies students in general education classes discovered that the Enrichment Triad Model could be infused into their unit of study entitled *Global Explorations: A Multisensory, Multicultural Experience* while meeting the North Carolina Essential Standards, the North Carolina Foundations for Early Learning, as well as the 2014 National Core Arts Standards:

North Carolina Essential Standards – Kindergarten Social Studies

K.C.1 Understand How Individuals are Similar and Different

- K.C.1.1 Explain similarities in self and others
- K.C.1.2 Explain the elements of culture (how people speak, how people dress, foods they eat, etc.)

North Carolina Foundations for Early Learning

Developing a Sense of Self with Others

- Recognize, respect, and accept similarities and differences among people, including people with disabilities and those from varying cultures.

Social Connections

- Identify, value, and respect similarities and differences between themselves and others (gender, race, special needs, culture, language, history, and family structures).
- Demonstrate awareness of different cultures through exploration of customs and traditions, past and present.

Creative Expression

- Participate in art, music, drama, movement, dance, and other creative experiences.
- Use a variety of materials and activities for sensory experiences, exploration, creative expression, and representation.
- Develop awareness of different musical instruments, rhythms, and tonal patterns.
- Imitate and recall tonal patterns, songs, rhythms, and rhymes.
- Respond through movement and dance to various patterns of beat and rhythm.

Motor Control

- Develop small muscle control and coordination
- Experiment with hand-help tools that develop strength, control, and dexterity of small muscles (e.g. spoons, paintbrushes, crayons, markers, safety scissors, and a variety of technological tools, with adaptations as needed).
- Increase the ability to move their bodies in space (running, jumping, spinning).

From 2014 National Core Standards

- MU:Cr.1.1PreKa With substantial guidance, explore and experience a variety of music.
- MU:Cr2.1.PREKa With substantial guidance, explore favorite musical ideas (such as movements, vocalizations, or instrumental accompaniments).

[1] We extend our thanks to Kelly Smith and her colleagues at Providence Day School and Gina Terry for sharing this example with us. We also thank Dr. Cindy Gilson for bringing it to our attention.

- Visual Standards: Relate artistic ideas and works with societal, cultural and historical context to deepen understanding.
- VA:Cn11.1.1a Understand that people from different places and times have made art for a variety of reasons.
- Dance DA:Cn11.1.1:a. Watch and/or perform a dance from a different culture and discuss or demonstrate the types of movement danced.

The SEM, and in particular, the Enrichment Triad Model, provided these teachers with the tools that they needed in order to master each of the standards that North Carolina set forth. The students became engaged in the opportunity to explore three different countries during an integrated, month-long unit of study. Three separate classrooms were dedicated to this unit, each focusing on one of three countries - Greece, Brazil, and Japan - and the students spent one week in each. The exploration in each classroom was rich in details of the culture of each country, with a focus on "arts, language, traditions, music, movement, and food" (Smith, K. & Terry, G. 2014). Each classroom had a combination of small group learning centers where students could explore individual and small group interests, as well as whole class lessons. In addition, prior to their journeys, the children created their own "passports" and "suitcases" and then spent their final days preparing to present what they had learned and discovered, based on their interests, to their parents during a Global Day celebration.

TYPE I ENRICHMENT

The teachers planned ahead by preparing many Type I activities including: Websites and DVDs showing images, customs, and traditional celebrations (dances) from each country, as well as children's books (both fictional and reference) for students to explore including individual countries, travel, world, global citizenship, among others. Speakers were invited into classrooms, including the music teacher, dance teacher, travel agents, and presenters, who had visited or lived in one of the countries. Globes and maps, instruments and recordings of traditional music, and artifacts from countries for display and student exploration were located in each room. In addition, each classroom had Interest Development Centers that held a wide variety of materials and activities that engaged the students and stimulated their individual curiosities. Students toured these "countries" and carried "I Wonder" charts upon which they could write down their questions and ideas. At the end of each opportunity to be in a "country" classroom, the students gathered together with their charts to talk about what they had experienced during the day's "tour." The teacher would follow up with the students by asking:

- What did you learn about today?
- What did you find exciting or interesting?
- Do you have anything to add to the "I Wonder" chart today?

As the teachers moved from these Type I activities into Type II methodology, they had some important questions to ask themselves, and they needed to keep the standards in mind. During the Type I activities, the students had the opportunity to see and question the differences between themselves and other cultures and begin to dig more deeply into what they had discovered. To engage in Type II Enrichment, the students became active thinkers and the teachers became the trainers, facilitators, and discussion leaders (Maker and Schiever, 2005), what we sometimes refer to as the "guide-on-the-side."

There were some important questions that would help to guide the teachers in this enrichment and enable them to continue to meet the standards. Infusion of Type II Enrichment allowed for the teacher again to meet the standards and to keep students engaged in the work through the infusion based approach.

TYPE II ENRICHMENT

What prior knowledge should students have to complete this lesson?

- Students will have introductory information about the three countries from Type I activities.
- Students will complete a brainstorming activity with the "I Wonder" chart.

What content or skills will students learn?

- Students will develop skills in the following domains: social, fine motor, gross motor, visual art, musical, aural, spatial awareness, language, writing, emergent reading, creative problem solving, and mathematical.
- Students will gain information in the following content areas: social studies (history, geography, cultural awareness), technology, music, visual art, dance, culinary arts, and foreign language.

How will you model the Type II Enrichment content or skills?

- The teacher will model the appropriate thinking and feeling processes during interactions with students by brainstorming, hypothesizing, making observations, and offering interpretations of data…in a minimal, but guiding way.

Describe any activities related to guided and independent practice.

- Each learning center will have activities with guided practice and completed examples where appropriate.

List at least 3 examples of open-ended questions that you will ask students during the Type II Enrichment.

- Analysis – Compare and contrast elements of each culture: How are the dances similar? How are the languages and alphabet different?
- Evaluation – Assess experiences: What were your favorite/least favorite food samples? What art project did you enjoy the most/least?
- Interpretation – What part of the culture is most like your own?
- Hypothesizing – How do you think your life would be different if you were growing up in one of the other countries?

How will you assess student mastery of the Type II content or skills?

- Students will complete a follow up to the group's "I Wonder" chart entitled "Now I Know" through the process of a brief individual interview.

How will you add closure to your lessons?

- Have students identify and share which Type II process skills were learned and utilized at the end of each day.
- "GLOBAL DAY" will showcase products and activities from Learning Centers.

Once the teachers took the time to infuse Type II Enrichment into the one month integrated unit on different cultures, which would culminate in Global Day, showcasing their accomplishments for an authentic audience, they could see how many standards had been mastered through Type I and Type II activities and how they could utilize Type III enrichment in order to enable students to finish their projects and complete the list of standards that remained.

TYPE III ENRICHMENT

- What will students do at this stage? Where will they work on their projects?
- What will your role be during this stage?
- How will you assess students' Type III Enrichment?
- How will students share their Type III Enrichment with a real-world audience?

In Type III, the student took on the role of the problem finder, data gatherer, producer, and inquirer and the teacher took on the role of the manager and became a resource for students. As the students dove into Type III Enrichment, the teacher's role turned to helping to "identify and refine student interests, to find an appropriate outlet for their products, to develop a laboratory environment, and to provide pedagogical assistance (Maker and Schiever, 2005).

As the students geared up to work on refining their interests and discovering the best way to showcase their work, there were specific goals and resources that had to be identified:

At this stage:

- General interests of students must be refined and focused;
- Students must identify a real problem that can be solved;
- Students must apply proper investigative strategies; and,
- Students must be allowed to make their own decisions.

Where will students work on their projects?

- In the classroom;
- In the Outdoor Classroom (particularly if the investigation is related to nature);
- Research can be conducted in the music room if the investigation is related to music; and,
- In the art room, if more resources are necessary.
- *It all depends on where student interests lead and what type of research is necessary* (Smith, K. & Terry, G. 2014).

Based on areas of interest, possible Type III projects included: presentations, designing a brochure, taking a poll of a favorite food or place, creating an advertisement or TV show, creating an interpretive dance or song, creating a short story or skit from the perspective of a child living in said country, sharing a library or personally-owned book about one of the countries, expanding learning stations to include an area not part of the lesson (such as indigenous animals, unique consumer products, popular sports, famous figures), creating a photo scrapbook of the classmates' experiences as they visit each room, constructing a diorama of a landmark or other scene from a country.

Students were assessed on their "level of readiness and interest in presenting to visitors on Global Day" (Smith, K & Terry, G. 2014). In addition, they had opportunities to prepare to showcase their findings to their fellow classmates and teachers, prior to Global Day. On the final day of presentations, those students who participated in Type III Enrichment presented their problem (what they researched), the solution (what they discovered), and their product (what they created) to their audience. Those students who did not complete a Type III product were stationed at various learning centers to provide information about what was located at each. In this manner, all students, from those who were able to complete a Type III investigation to those who were not, had the opportunity to present, even if at different levels of understanding.

The following less formal but equally demonstrative examples show how an infusion based enrichment approach works in various subject areas.

- An elementary teacher was required to have her students memorize all the states and capitals of U. S. cities. To make the assignment more interesting she gave them an opportunity to select a project that had something to do with this topic and that was related to a personal interest. One group of students interested in music decided to develop a rap song for their state's official anthem. Another group interested in history decided to develop historic site maps, posters, and travel brochures for a state they had visited or would like to visit some day. A third group used state shaped cookie cutters to make an edible map of the U. S. using chocolate bits to designate the locations of each state's capital. This group of students was so enthusiastic that they extended their work by visiting other classrooms, sharing their cookies with other classes, and providing brief historical facts about some of the states.

- A middle grade math teacher had her students develop fictional fantasy baseball cards and analyze the players' statistics to draft and trade players while building their own teams. They drew caricatures of their players and a "Player Wheel" with geometric representations of players' strengths and weaknesses was created and used to play against other students' teams. A regular season schedule was set for the class, ending with a World Series game to decide the classroom champion.

- A high school AP Physics teacher assigned a year-long project that encouraged students to use all of the concepts they covered in his course for addressing a practical problem. The project asked students to apply everything they had learned in Physics. One group decided to

study the topography of their area by launching a weather balloon carying a video camera, a GPS tracking device, and various weather data gathering instruments high above the Earth's surface. They recorded the journey, prepared topographical maps, and analyzed data about temperature, air pressure, and humidity. At the end of each unit of study the teacher asked students how the principles and concepts they studied in the unit applied to their project, making learning more relevant and meaningful.

- A middle school social studies teacher covering Ancient Egypt used the GoQuest database to find a site that enableed students to conduct a virtual dissection and preservation of their own mummies. Tools for removing organs, labeling them, placing them in jars and glueing, wrapping and preserving their mummies enabled them to have hands-on experiences that made this topic more meaningful. Material in hypertext familarized the students with Egyptian language and culture. The excitement of this activity created interest that had far reaching affects on interest and motivation that extended beyond simply covering the material in a textbook.

The Role of Technology in finding Resources for Infusion

This engagement and infusion approach works because teachers have the tools to implant highly engaging material into the standards-based curriculum and to use technology to locate what we call Just-In-Time Information (J-I-T) that is relevant to their projects – exactly what adult researchers do as they go about the investigative and creative processes. The advent and easy access to the larger world of knowledge has provided opportunities to make formal learning a different process than it was a decade or two ago. Today's young people are digital learners and emerging masters of interactive media technology using cell phones and hand-held devices regularly to access J-I-T information (e.g., movie, bus, and TV schedules, sports scores, restaurants, etc.). Traditional ways of learning, even under the best of circumstances, cannot compete with students who find texting under their desks more engaging than listening to their teachers and professors or memorizing factual material for a forthcoming test.

Another development in technology that will aid infusion is the unlimited amount of information now available through the Internet. Thousands of free course-related materials are easily accessible through organizations such as the Kahn Academy, which has produced more than 4,000 videos on topics across all grade levels and several curricular areas. The Massive Open Online Courses sponsored by some of the best-known universities in the country, including MIT's OpenCourseWare program and Coursera, have produced thousands of courses that can be widely accessed without cost.

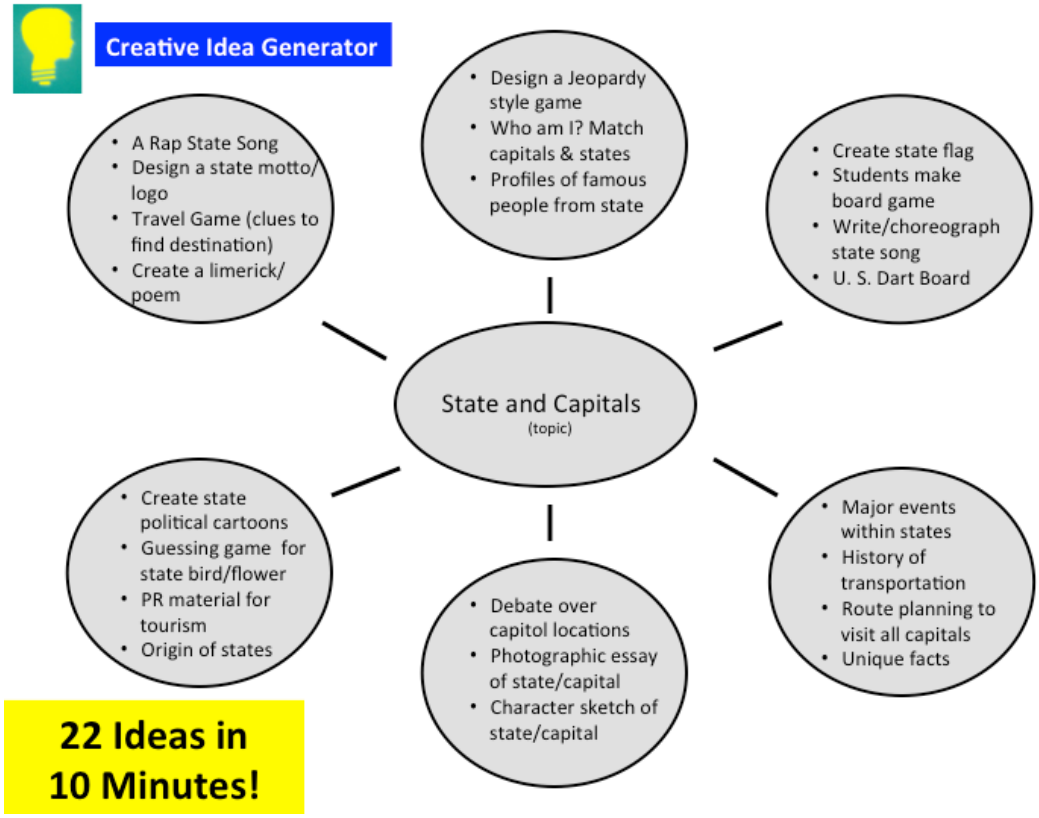
Changing the learning process has become a reality due to the unlimited access to the knowledge sources mentioned above. Teachers, however, can also become creative contributors to the resource stockpile and the producers of their own televised lectures, course related material, and media events. Free or inexpensive software now enables teachers to prepare and upload their own lectures and assignments for student use anytime and anywhere through the application of easy-to-use screen casting software (e.g., Camtasia Studio 8, Screenflow Software).

A program called Juno (http://gofrontrow.com/en/products/frontrow-juno) enables easy recording of high-quality audio/video clips without adding any extra work to a teacher's day. The program automatically adds titles and prepares files for uploading that can then be accessed by computers, tablets, smart phones, or interactive white boards. In addition, as mentioned above, content recorded by others is readily available in all subject areas. These resources enable teachers to easily turn their lectures and related lesson planning tools into audio and video podcasts and printed course and video materials that can then be uploaded for student access. We can capitalize on students' fascination and skills with technology and the availability of vast amounts of on-line material by giving teachers the license and ability to infuse creativity and thinking skills activities into standards driven curriculum.

While it is not practical to use infusion for every topic or course, this approach makes learning more engaging and creates an enthusiasm for learning that seldom results from covering curricular material in traditional ways. The guidelines for infusion are easy to follow:

- Select an activity that does not always have a single, predetermined correct answer.
- Find things that students do rather than sit and listen to.
- Give students choices that they will enjoy pursuing.
- Select activities that have various levels of challenge to which interested students can escalate.

Finding activities for infusion is now easier than ever. Internet-based search engines allow teachers to enter topics, subtopics, and sub-subtopics by subject area, grade level, and difficulty level. Thousands of high engagement activities that enable teachers to locate and infuse an almost endless array of exciting enrichment activities can be found with this new tehnology.



Preparing for the Infusion Process

In the example mentioned above related to learning the names of U. S. states and capitals, teachers used infusion activities in order to engage students' enthisiasm for learning. A traditional brainstorming technique[2] and the Creative Idea Generator presented in Figure 1 were infused into the lesson in order to engage students and to come up with as many ideas as possible for making the teaching of this topic more interesting. Guidelines for brainstorming were briefly discussed (see Appendix A) and teachers were asked to apply as many of the following criteria as possible to the brainstorming process.

1. The activity has a relationship to one or more regular curriculum topics.
2. There is not a single, predetermined correct answer or solution to the problem raised in the activity.
3. The activity consists of something students do rather than sit and listen to.

[2] Brainstorming is a group or individual creativity technique by which efforts are made to spontaneously list many ideas for addressing a particular problem. A brief list of Brainstorming tips is presented in Appendix A

4. The activity is fun for most students.
5. The activity should lead to some form of product development on the parts of students.
6. The activity has various levels of challenge to which interested students can escalate if they would like to creatively extend the interest through follow-up activity.

Students were then given an opportunity to select an activity that they would like to pursue based on their individual interests and learning styles. Most students chose to work in groups, however a few students preferred to work on their own. Infusion activities cannot only make a traditional, memory-oriented topic more interesting; They can also present opportunities for developing creative, analytic, and investigative learning skills. Students learn cooperative, collaborative, and other executive function skills, strategies for acquiring J-I-T information, and most importantly, that learning is, in and of itself, an enjoyable process.

A Note on Problem Based Learning

Problem Based Learning (PBL) has gained a good deal of attention for making the curriculum for students more engaging. We are strong supporters of this approach to enhancing learning material in the regular (prescribed) curriculum. We do not, however, view it as creating the same experience as is the case with Type III Enrichment in the Triad Model. Generally speaking, and we know there are many variations on the use of PBL, teachers can use it to cover a standard curricular topic (e.g., Westward Expansion in U. S. History or Social Studies). There are expected outcomes that will probably show up on an end-of-unit test and perhaps even on a standardized achievement test. If the PBL approach makes the work more interesting and engaging, then such an approach has merit.

Type III Enrichment, however, is different because of the four requirements that make the problem more relevant to student interests and the investigative methods that students choose to select and pursue a topic of their own interest and methodology that further personalizes this approach to advanced level investigations or creative endeavors. The four requirements of a *bona fide* Type III Enrichment project are as follows:

1. Personalization of interest (the student(s) selects the topic);
2. Use of authentic methodology (involves some kind of original data gathering or creative expression);
3. No existing solution or "Right" answer; and,
4. Designed to have an impact on an audience other than or in addition to the teacher.

Summary

Someone once asked us what is the "value" of infusing these activities into the curriculum? We answered, "High engagement and involvement activities are remembered long after the facts, or dates, or formulas you learned in fourth period math or social studies are forgotten." An infusion based approach to education and learning allows teachers to find resources within the school, community, classroom, and in the people who reside within the community that will enable them to *select* highly engaging enrichment based activities related to particular topics, *inject* them into the curriculum to make the topics more interesting, and provide support and encouragement for individuals and small groups who would like to *extend* their pursuit of enrichment activities. The Schoolwide Enrichment Model provides a framework to enrich the learning opportunities for students within a classroom where state standards or the CCSS are present and must be addressed and incorporated into the lessons. By infusing prescribed standards with the richness of what lies beyond the standards or textbook, the academic and creative experiences of students become three dimensional, as they recognize that the world is much bigger, and much more exciting than they could have ever imagined.

We began this article with a quote by Nancie Atwell, the winner of the Global Teacher of the Year Award, considered by many to be the Nobel Prize for educators. We end with her comment at the award ceremony about the importance of infusion.

> *Teachers are people who can't imagine doing anything else; it's their passion. If there's nothing else you can ever imagine yourself doing, be a teacher. If you're passionate about making a difference in this world, be a teacher. A passionate teacher will find ways to infuse creativity and fun into learning, even amid the demands of testing and curriculum. But if the thought of teaching doesn't light you up - if you think it's just a job – don't go into education. There are more than enough teachers like that already. Am I trying to discourage my students from becoming educators? No. But I don't want to encourage someone to pursue a teaching career if the thought of working with children, teaching from the heart and the intellect, and making a difference in the lives of others doesn't light them up. No matter how bright a student is, no matter the GPA, we don't need people entering the field who aren't on fire. Because frankly, it's that fire that often lights our way when the horizon grows dark and ominous.*

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Appendix A
Guidelines for Brainstorming

1. Introduce the question to be brainstormed and review the rules of brainstorming:
   - All ideas are welcome;
   - No comments criticism or evaluation during the brainstorm;
   - The more ideas the better;
   - Don't worry about duplicate ideas at this point; and,
   - Piggybacking on each other's ideas is encouraged.

2. Explain what will be done with the brainstormed ideas. Write the question to be brainstormed at the top of the first page of flipchart paper.

3. If you wish, offer a one-minute "quiet period" before the brainstorm for people to think about the question and jot down a few ideas.

4. Begin the brainstorming:
   - Guide the brainstorm by recording ideas on a flipchart or whiteboard as they come. You may wish to designate a recorder. Stop any comments that evaluate ideas. Invite new ideas, and encourage the group to share their ideas freely. Help generate energy and free thinking through encouragement.
   - As the responses slow down, offer last chances for additional ideas, then stop the brainstorm. Ask the recorder for his or her ideas. Thank people for participating.

5. Ask for clarification of any ideas that are not clear to you or others.

6. Discuss ways that the ideas can be presented to students in appealing ways (e.g., dramatizations, role playing, artistic or pictorial representations, debates, games, friendly competitions, storytelling, digital graphics, 3-D printing, film making, Facebook or Twitter exchanges, community service projects, entrepreneurial endeavors, etc.).

An inquiry into the pedagogical practices of high school social studies teachers: Imagining and reimagining becoming a teacher

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On three days in 2017-18 two university professor-researchers gathered with three high school teachers to talk about the experience of teaching social studies and about the insights, questions, and wonderments therefrom derived. The intent was to research the life and work of social studies teachers. The gatherings were funded by the Brandon school division (Brandon is a small city in the southwestern Manitoba (Canada). The research was conducted under the auspices of the Manitoba Education Research Network (MERN) with support from Manitoba Education and Training (MET).

The underlying premise was that teachers, through their lived experience in the classroom and beyond, were able to access understandings unique to teaching and learning. This article chronicles, in part, what one teacher revealed about his conception of being a social studies teacher and his teaching experience and how, thereby, the understanding of social studies teaching is increased and provides a signal as regards what it might be to be a social studies teacher.

But first: a brief overview of our personal connection to the research topic, the theoretical framework undergirding our assumptions, and our methodological approach.

Personal Context

Before becoming university researchers, we spent several years teaching school; Lloyd taught high school social studies for 25 years before retaining a position at the Faculty of Education at the University of Winnipeg in 2013. Tim taught junior and senior high school social studies for 12 years. In addition to his teaching responsibilities, for six years Tim worked as a mentor teacher under the auspices of a 'Reflective Mentorship Program' before transitioning into academic positions, first at University of Calgary and then at the Faculty of Education at Brandon University in 2015. Our gaze, including our research worries, priorities, and assumptions, is deeply implicated by our school teaching experience – particularly as it intersects with new academic responsibilities and opportunities. To wit:

In the past several years, many of our social studies teaching friends and colleagues - all master teachers, have begun to retire. They take with them their wisdom and rich insight into educating youth for citizenship. It is a pedagogical wisdom developed over the years seeking the engagement of students in a dialogue about themselves and their world. To us, teachers leaving in midlife wastes a lifetime of expended energy and the acquisition of irreplaceable understandings.

We saw this research project as an opportunity to seek out social studies teachers and record their pedagogical insights and understandings. We wished to investigate what their interpretations,

reflections and stories reveal and to examine how their offerings could broaden our horizons of teaching practice and social studies education (Kornelsen, 2016).

In our new academic positions, to reconcile differences between field and academy, high school and faculty of education, by explaining why our previous work operates as a necessary and seamless function for our new academic endeavours, is challenging. Even so, we regard it as worthy of formal academic recognition (Kornelsen, 2017). In our opinion, it is essential to demonstrate how the often unique and indispensable way teachers work in the field informs, advances, and nuances research. This project, working alongside our participants and co-venturing into the topics (pedagogy, social studies, etc.) offered an ideal occasion to bridge field and academe—a way of exploring how teacher-practitioners inform teacher education and education research. In short, our leadership of this project was founded on a deep regard for teachers' lived experience in conjunction with a desire to establish the recognition, and accessibility of their knowledge in an academic environment.

Theoretical Framework

Multiple strands of literature in education speak of the value and importance of teacher voice in education research. Three research traditions – critical theory, narrative inquiry, and philosophical hermeneutics – argue that teacher voice is critical and necessary to advancing understandings of education and pedagogical practices.

Calling attention to issues of power, critical theorists challenge the notion that university researchers, often operating at great remove from the teachers and students they are researching, should have a disparate influence on education policy. Freire (1970, 1977) posited only those who encountered problems themselves (e.g., an 'inquiry' to 'explore,' or a response to emergent challenges/problems in the lifeworld of students and teachers) could most effectively and meaningfully engage with the problem. Meaning, in a learning environment, teachers are most able to inquire into and address significant problems arising in their classroom (Aulls & Shore, 2008). Kincheloe, McLaren, and Steinberg (2011) concur, arguing:

> teachers must have more voice and more respect in the culture of education. Teachers must join the culture of researchers if a new level of educational rigor and quality is ever to be achieved . . . they [teachers] realize that they have understandings that go far beyond what the expert researchers have produced. (p. 165, 66)

It is from a critical perspective Aulls and Shore (2008) review literature focused on the contributions of teacher-led research. They list its benefits, including increased teaching confidence and awareness, and new ways to value and think about teaching. Furthermore, they draw attention to conditions necessary for teachers to do research, including being respected as researcher equals with the university counterparts, and "discussing all aspects of the research project from the start . . . developing a common language through dialogue, and . . . making ample time for teachers to ask questions, reflect, and form conceptual frameworks" (p. 78).

Speaking from both an ontological and a research philosophy perspective, narrative inquiry theorists raise critical questions of those whose stories are being told (Senehi, 2009) and whose experience is being represented (Cain, Esefan, & Clandinin, 2013). As Kincheloe, McLaren, and Steinberg (2011) infer, often it is not teachers' experience. Furthermore, Connelly and Clandinin (1988) argue that because experience informs practice and since there are few other ways of thinking about experience or modes of its inquiry other than narratively, teachers' stories are critical to the field of education research.

Teaching practitioners agree; and they talk of how their stories, although crucial to educational research, are often marginalized. Kathy Carter, writing in 1993, said:

> We can readily point to instances in which we have felt excluded by researchers' language or powerless in the face of administrative decrees and evaluation instruments presumably bolstered by scientific evidence . . . only the teacher owns her or his story and its meaning. As

> researchers and educators, we can only serve by getting this message across to the larger society and, perhaps, by helping teachers to come to know their own stories. (p. 8)

Carter believes that perhaps the best we teacher educators can do is to help teachers know their stories, while bringing them into consciousness and into language.

As a form of research, philosophical hermeneutics calls for one to venture while being prepared to accept one's preunderstandings may initiate opportunities to enlarge understandings of self, others, and the world. It is through encounters with others we come to recognize our limits—the familiar becomes unfamiliar. Researchers and participants enter into a dialogue which ultimately uncovers additional meanings of the topic of inquiry. Philosophical hermeneutics is not attempting to ascertain universal methods, but rather foster an alignment with the ethical responsibilities embodied in a particular practice or associated with a specific theory. Hermeneutic understanding is always tied to a concrete situation, consciously or otherwise, to a particular case, for example, this student, teacher or event.

In summary, we believe our ontological research can be critical to the understanding teaching and education as it reflects the teachers' experience reconstructed in stories told or revealed in recollections of lived experience. The benefit of this research may simply be to raise the consciousness of school teachers and university researchers to their shared concerns (Noddings, 2016), or ultimately contribute to a nation's PISA test scores (Sahlberg, 2015). Researchers in the Canadian provinces of Ontario (The Literacy and Numeracy Secretariat, 2010) and Alberta (Adams & Townsend, 2014) found when teachers are collaboratively and meaningfully involved in research, educational policy is affected, classrooms are transformed, and opportunities for new understandings and actions are generated.

Method

The research group met on three days over the course of four months. Each day followed a similar agenda with the introduction to the session's topics/queries:

i. Reflections on one's social studies classroom: stories, wonderments, etc.;
ii. Unpacking lived experience, i.e., challenges and highlights in teaching high school studies;
iii. Understandings of Manitoba's K-12 Social Studies curriculum framework;
iv. Individual writing periods where participants responded to the sessions topics/queries; and,
v. Group discussion/responses on the written responses.

Participants submitted their written reflections at the end of each day. Tim and Lloyd kept extensive notes during the discussion sessions. All sessions were audio-recorded. Finally, following the three sessions, during the analysis stage, Tim had numerous one-on-one conversations with participants as he sought to authentically reflect their perceptions and understandings as they appeared in our various forms of remembrance: memories, field notes, written reflections and audio-recordings.

All three participants - all names are pseudonyms - had extensive teaching experience in a variety disciplines and contexts. Mark had taught social studies, world issues, and geography for twelve years in a senior high school, Andrea had been teaching French and psychology in junior and senior high school for fourteen years and Lisa had been teaching for twenty-one years. She had engaged in diverse pedagogy practices teaching multiple subjects including inquiry and project-based learning to young people from kindergarten to 12th grade.

Even though the sessions were led and facilitated by university researchers Tim and Lloyd, in many respects, the relationship with teacher-participants was collaborative. Importantly, all participants shared similar and recognizable experiences and educative perspectives. For example, many years had been spent by the researchers wrestling with the challenges and joys of teaching high school social studies. In this context, Ellis (1998) and Van Manen (2000) emphasize the indispensable value of researchers' caring concern and worrying mindfulness in gathering, analyzing and

interpreting data. Clearly, the worries and concerns similar to those of the teacher-participants enhanced a seamless activity for the whole group.

Invariably understandings were derived from overlapping and interpenetrating recollections, reflections, and stories of both researchers and the researched. Even though there were differences with respect to the various viewpoints, for the most part, they had been affected by such things as differing researching responsibilities, analyzing and interpreting undertakings, publishing motivations, and teaching geographies. The shared interests and concerns relating to the study were founded on a common question: What does it mean to teach high school social studies?

For the sake of brevity and in the cause of hermeneutical fidelity the discussion below relates to single case. In subsequent articles, our intent is to write an account of each of the other participants. What follows is Tim's account of one research participant's imagining and reimaging becoming a teacher.

Imagining and reimagining becoming a teacher

> A teacher in search of his/her freedom may be the only kind of teacher who can arouse young persons to go in search of their own…children who have been provoked to reach beyond themselves, to wonder, to imagine, to pose their own questions are the ones most likely to learn to learn. (Greene, 1988, p. 14)

Part of our research project involved several individual and small-group conversations discussing learning outcomes included in the provincial curriculum. Mark was one of the members of our research project who inquired into the pedagogical practices of high school social studies teachers.

Mark is 43 years old, a high school geography teacher in a small rural city in western Canada who loves to fish. When speaking with Mark, his general passion for geography, and specifically the environment, is palpable. He talks about driving to one of his favorite fishing holes in rural Manitoba, describing the vast blue beauty of the sky and the endless prairie horizon. Mark laments that in seeking economic benefits from the land, humans have scarred this place—his home. His attunement to life is apparent when he talks about his commitment to the students in his care as they learn the subject matter of the provincially mandated curriculum. He asks himself:

> "How might I design learning experiences that invite students to explore life's mysteries? How might I cultivate reflexive spaces for my students and me to venture into the world? How might I honour the infinite interpretability of the world?"

During one research day, participants were asked to respond in writing to the following excerpts from the Manitoba Curriculum Framework of Outcomes (2003) and later shared their insights, questions, worries, etc. during a group discussion:

- "Through social studies, students are encouraged to participate actively as citizens and members of communities and to make informed and ethical choices when faced with challenges of living in a pluralistic democratic society (p. 3);
- "Discussion and debate concerning ethical or existential questions serve to motivate and make learning more personally meaningful" (p. 6);
- "Citizenship is a fluid concept that changes over time: its meaning is often contested, and it is subject to interpretation and continuing debate" (p. 9); and,
- "Many factors influence identity and life in communities, including culture, language, history, and shared beliefs and values. Identity is subject to time and place, and is shaped by a multiplicity of personal, social, and economic factors. A critical consideration of identity, culture, and community provides students with opportunities to explore the symbols and expressions of their own and others' cultural and social groups" (p. 11).

On many occasions, Mark stressed that when pursuing such outcomes as, for example, fostering critical reflection regarding the making of ethical choices, engaging in open dialogue with others regarding existential questions, examining students' subjectivities by merely applying universal methods, was insufficient. Moreover, he emphasized that venturing into the abundance of curriculum

topics is not simply a service rendered, but rather a golden opportunity for a student to learn, work from within, *study* their own experiences with others in the world and provoking new understandings.

Experiencing the outcomes mentioned above is important for any social studies class in Manitoba. Mark believed the provincially mandated outcomes call on students and teachers to confront ambiguity and to risk their previously held understanding. *Study* and encounters with alterity make new understandings possible. As Gadamer (2004) reminds us, "self-understanding always occurs through understanding something other than the self" (p. 367). Mark talked about the notion that there is no terra firma on which to stand—there is no place of innocence, as all of us, students and teachers, are always and already imbued with ways of being in the world, always situated in a time and place. He suggests that it is important to cultivate a vigilance that honours the un-finishedness of one's life.

Mark's initial thoughts during teaching

When embarking on his teaching career fifteen years ago, Mark believed he possessed the knowledge, skills, and strategies to ensure his students could successfully *cover* the objectives stated in the provincial curriculum. He trusted that if he adhered to *best practices,* he could control students' responses to the activities he planned for the class and move them toward a predefined outcome.

In the classroom, however, "beyond [his] wanting and doing" (Gadamer, 2004, p. xxvi), his carefully crafted lessons came face to face with the eternal flux of the lifeworld: Alexa could not read. Ismail's unexcused absences were mounting up. After many years spent in refugee camps Aziza and her family struggled to adjust to their new lives in Canada. Heather's provocative questions concerning life's mysteries revealed concepts such as justice, democracy, and personal and collective identities are temporal and do not possess singular meanings. These concepts live in the world, begging to be interpreted anew. Mark learned that in the messy, ever-unfolding demands of the classroom and his students' real lives, despite all his planning he could not compete with the realities plaguing human kind.

Like teaching, fishing is a way of being

As the research progressed, Mark and Tim had several one-on-one conversations about Mark's love of fishing and how he recognized something familiar, something he already knew to be true of the lifeworld. His experiences conspire in the cultivation of a sensitivity to the fact that nothing remains static. Metaphorically - each cast of his fishing line invites new possibilities.

As Mark described his love of fishing, he acknowledged the need to linger on the water—to pay attention to its playfulness. Once at the lake, Mark launches his boat and upon reaching the place where he has fished for decades, turns off the boat's motor and drops the anchor. Sitting and lost in reverie, he fixes his gaze on the stillness of the water, remembering learning his ways as a fisherman from his father. Mark recalls admiring the well-practiced motion of his father's casting, the position of his wrists, the rhythmic movement of his fishing rod, the apex of the release point, the unreeling of the fishing line and the lure's entrance into the water many meters away.

Mark recalls learning from his father about the need to pay attention, the ever-emerging ways of this place, and recollections about weather patterns changing dramatically, how water levels became increasingly shallow, how the water had warmed considerably, and why new species of fish were introduced into the lake.

During countless hours on the lake Mark garnered a deep appreciation that universal principles are insufficient when responding to a particular time and place. It is not simply an epistemological quest or the amassing of knowledge. Though fishing requires *techne*- a repeated bodily practice - a special mode of knowing and being, it is insufficient to learning *its* ways He understood that fishing is also a way of *being* that it calls for a presence in the world; a particular attunement to the unceasing and ineradicable flow of life

What is it *to be* in this place? As Gadamer (1977) suggests, venturing necessitates a "momentary loss of self" (p. 51), which is a form of suffering. According to Gadamer, it is in moments of suffering that we experience our own limited understanding of the world, and "the truly experienced person is one who has taken this to heart" (Gadamer, 2004, p. 357). As Mark experiences the *ways* of fishing, he becomes *someone* – *someone* due to the way he carries himself. And perhaps it is his love of the wonders of the open water, his embracing of *its* ways that assists him in loving teaching. "If you know one landscape well," Anne Michaels writes, "you will look at other landscapes differently. And if you learn to love one place, sometimes you can also learn to love another" (1996, p. 82).

Regardless of how much Mark prepares for success in either fishing or the classroom, success is not simply the application of universal methods. Instead, Mark must dwell in the necessary tension between a world that is familiar to him and the *other* that resists assimilation.

The fecundity of the individual case: The maple tree

Mark recounted a lesson presented many times before with his grade 10 and 11 geography students. After sharing his experiences tapping maple trees for syrup, he asked if anyone had ever tapped a maple tree. Hearing many negative responses, Mark created a space for his students to reflect and wonder. Some students were bewildered and naturally quiet while others posed questions revealing the ambiguity and vulnerability of life.

In this relational moment, Mark confronted the limits of his planning reason. What was he now pedagogically called to do? He understood how much he took for granted, his finitude and the limitations of hidden assumptions. He realized that there is no place free of presuppositions and how one is always historically situated. Mark recognized, as Gadamer (2004) suggests, that encountering the *other* reveals "a hitherto concealed experience that transcends thinking from the position of subjectivity" (p. 90). This intersection drew him outside himself; a salient moment in the classroom revealing possibilities for learning.

Student questions can often be perceived as interruptions that "gum up the works" of careful lesson plans, derailing the smooth delivery of the subject matter. After all, there is so much content to cover. Immersed in the frenetic pace of school, Mark often felt anxiety, induced by the ever-present shackles of time. Time was always running out; "time's up"; "we're out of time"; "time on task"; "we need to move on." As teachers, remaining vulnerable to what we cannot foresee, in the words of Jardine (2006) reveals the, "way we carry ourselves in the world, the way we come, through experience, to live in a world full of life, full of relations and obligations and address" (p. 100).

The maple tree can be studied as an object, examined by parsing it into its constituent elements. There are multiple ways a maple tree may be treated. Perhaps objectively, its constituent parts examined—bark, leaves, roots, trunk, etc. Perhaps in an interdisciplinary way, considering it through lenses of science and culture. However, knowing his students wanted to try tapping maple trees, Mark decided to take his students outside to give them an opportunity to experience maple trees in an embodied way.

Lewis Hyde (1979) stated that "the way we treat a thing can sometimes change its nature" (p. xiii). Perhaps as part of a living place, among living interdependencies: a refuge for birds, a medium for the exchange of essential gases, a sustainer of life. Perhaps from a cultural perspective, as a maple tree is full of ancestral voices, historically embedded and waiting to be understood in this moment. Along these lines, the Aboriginal academic achievement worker found out that Mark's classes were going to tap trees. She asked if she could join the activity and discuss the role maple syrup played in local Aboriginal culture, providing an opportunity to explore fuller meanings possessed by the tree.

Once outside, Mark encouraged students to explore the trees' textures. He invited them to venture into their own concrete experiences, into their flesh and life; their sentiments revealing

troubling, beautiful, and anxious events in their lives. Students questioned how they could walk by these maple trees for years and not be conscious of the trees' existence. They wondered how many other things and ideas existed that eluded their attention, realizing that as we move through the world, we are not conscious of all that is in it. Although those things still exist. They wondered, now that they were awakened to the multifariousness of the maple tree, what they might learn by knowing this. As one student jokingly put it: "Is this going to be on the test?"

By way of this experience, Mark recognized his initial lesson plans, relied only the method of telling students about tapping maple trees - closing other opportunities for inquiry. However, the maple tree, being alive in the world exceeds the strict confines of method and is full of possibilities. As Gadamer (2004) suggests, our preunderstandings "do not [imprison us], as if behind insurmountable barriers, but to which we are opened" (p. xxiii). Mark's preunderstandings of teaching, of the maple tree, and of fishing did not enclose him; rather, his preunderstandings are "the biases of [his] openness to the world" (Gadamer, 2004, p. xv). He reached a vital clarification about teaching. Mark's pedagogical responses to the students in his care point to an attunement to the ever-unfolding presences of classroom life. Dunne (1993) portrays these ambiguities and contingencies as:

> **"**not a process of making which can be judged exclusively on its end-results, and that teaching methods are never merely means but are intrinsically related to some ends—perhaps unintended ones; that the open-endedness and hazard of action haunt what a teacher does; that, no matter how much she strives to remain 'in role,' she unavoidably expresses 'who' she is; that her character, with its fusion of emotion and reason, is always 'on the line'; that she acts within the field of an individual and communal 'effective history'—which is the more effective for operating pre-judgmentally; and that her own greatest effectiveness of 'power' is realized in moments not of manipulation but of interplay" (p. 367).

Mark recognizes he is increasingly at home in the lifeworld of teaching—engaging its constant interplay, which as Gadamer (2004) suggests "preserves itself by drawing into itself everything that is outside it. Everything that is alive nourishes itself on what is alien to it" (Gadamer, 2004, p. 253). In the lifeworld of the classroom, Mark confronts his own historicity—his privilege as an upper-middle-class male and how his understandings have been shaped by living in a communal world. As a young boy he had extensive opportunities to travel, an opportunity many of his students have never had. Venturing with the young into the living disciplines they must learn, he has realized that he is not hermetically sealed from the world. His own historicity influences his gaze on himself, students, and the subject matter. His interactions with students make him question his assumptions, and dialogic space with students frequently challenges him ethically. Mark is continually *opened* by classroom conversation to the voices of his students; he must consider the students' questions in this deeply relational space, and at times, he must strengthen their comments. Mark can question the subject matter along with his students; as Gadamer (2004) suggests, "the art of questioning...is to lay open, to place in the open. As against the fixity of opinions, questioning makes the object and all its possibilities fluid" (p. 376). Students and teachers are already imbued with understandings; students' reflections are not merely "their opinions" or "their constructions," but rather show the substrate that undergirds their understandings.

Mark cultivates a hermeneutic imagination, gaining the capacity to see what is questionable: his pedagogical orientation and his understanding of the disciplines he teaches. This allows him to explore himself, as "understanding is to be thought of less as a subjective act than as participating in an event of tradition, a process of transmission in which the past and present are constantly mediated" (Gadamer, 2004, p. 302). The voices of his students often interrupt his previously held beliefs regarding his identities and his understanding of the topics that he teaches, but he nurtures the capacity to hear them. Gadamer (2004) writes that "openness to the other…involves recognizing that I myself must accept some things that are against me, even though no one forces me to do so" (p. 369). In the tension between curriculum-as-plan and curriculum-as-lived-experience, his pedagogical commitment remains to foster a space that greets and embraces and *studies* Alexa's, Ismail's, Aziza's and Heather's lived experiences, inviting his students to extend their understandings—and his own—of themselves, others, and the world. For Mark to become an experienced teacher, *he* must become

vulnerable in order to experience the multiplicity of fabrics and textures of the world. As Smith (1999) asserts, how one transforms:

> Depends upon [one's] orientation and attitude toward what comes to meet [one] as new: whether [one] simply [tries] to subsume or repress it within prevailing dispensations or whether [one] [engages] it creatively in an effort to create a new common, shared reality. (p. 34)

When Mark encounters his students in the world, he is reminded of his own commitment to become a "better teacher, a better father and a better person" (Mark, personal communication, February 10, 2018). Mark seeks to continually embrace alterity, and in encountering otherness his experiences are not simply confirmed but his expectations are surprised. "I am not the kind of teacher that I was when I first started…I am more responsive to the uniqueness of students" (Mark, personal communication, February 8, 2018).

Throughout his career, Mark has become increasingly committed to the notion that teaching is a *practice*; teaching is a way of being, relating to his students and the subject matter. Moreover, he has embarked on his own existential journey and he acknowledged the unfinishedness of this quest. This is no solo journey, for he has embraced the alterity that initiates an educative process, enabling him to garner more expansive horizons of understanding. Mark acknowledges that this venture is risk-laden; feelings of vulnerability abound. Through his encounters with *others* he often feels uncomfortable or estranged; however, it is in moments of breakdown, when familiar pathways are no longer suitable, that the possibility of education emerges. In the end, he will become at home in the world "in a more creative way, in a good way, a healthy way, a way tuned to the deepest truth of things" (David Smith, 1999, p. 2).

Mark now orients his practice around the generative tension that ought to reside between his own intentionality and the living disciplines contained within provincially mandated curriculum documents. A teacher cannot merely amass strategies, formulas, or sure-fire methods; to do so, as Grumet (1988) argues, would forego their own freedom, and such demands "come from those whose actions are not organized around their own intentionality...[like] an eagle scout looking for the badge instead of the mountain" (p. 121).

Mark's heightened consciousness around the maple tree—a specific matter, with a specific class, at a specific time—does not live as a universal construct. The teaching of the maple tree is not simply an abstract concept but is full of relations. Mark's decision to take his students out into the schoolyard is illustrative of a pedagogic heart; an imaginative and generative space that embraces a concrete particular. Mark's heartfelt commitment to be present as he co-ventures with his students leads to a dialogue between him and his students that is (as articulated by Gadamer) "not merely a matter of putting oneself forward and successfully asserting one's point of view but being transformed into a communion in which we do not remain what we were." Similarly, Jardine (2006) purports, "you become someone (not just anyone) as a consequence of how you carry yourself in the world. With practice, you can become more experienced in experiencing things in their abundance" (p. xxv).

The classroom is alive, full of possibilities not yet known; it is where the young live, move, navigate, worry, wonder, learn, and unlearn. This interpretable place is replete with intersections where students and teachers gather to explore the living disciplines of history, geography, religion, economics, gender studies, etc. Mark is conscious of the fact that as he enters the world of a classroom, he already sees it as a place where students may be perceived as worrisome, troubling, wondrous, lovable, and fecund. And through certain types of practices, certain modes of experiences, Mark may become more attuned to the frailty of life—all life—his life. Mark knows that it is not enough to merely plan in advance, that is, read all there is to know about a topic; he needs to linger in a quiet presence with the topic's rhythms—*its ways*. Here, in the varied textures of classroom life, Mark must dwell in this "living space, a living field of relations, and...to make [his] way into it

requires a momentary sense of loss, of giving [himself] over to *its* ways by 'letting'" (Jardine, 2006, p. 66) the students and their responses to the topic have something to teach him about their lives.

Mark's attentiveness to his students helped create a liminal space that embraces a tension central to hermeneutic inquiry. This in-between space is hermeneutics' "true locus" (Gadamer, 2004, p. 306). The life of a teacher requires improvisation; Mark's students' responses called on him to tarry with the negative, to live in the tension, and to respond to the young in his midst. This call—and Mark's response to it—points to the deeply relational quality of teaching. Teaching calls for constant mediation between Mark's preunderstandings and the understandings of his students in relation to the subject matter. Mark must comport himself with humility and reciprocity, creating opportunities to dwell in the tension "not so much [as] a matter of overcoming the tensionality but more [as] a matter of dwelling aright within it" (Aoki, 2005, p. 163).

End bit

Ethically, a teacher must not only possess a "toolkit" full of strategies, but also a perceptual acuity to respond to the concrete moment. The universal application of methods in the form of best practices assumes that providing a teacher possesses this "toolkit," it negates the need to cultivate wisdom. This orientation conceives teaching as a practice where teachers learn to deftly respond to each child. The cultivation of praxis—a wisdom that is intentional, contextual and reflexive—allows educators to enact judgments that are attuned to the nuanced lifeworld of the classroom. Perhaps such attunement assists in fostering a convivial and loving space to venture. Perhaps a generous and open space will invite students to embark on their own existential quests.

As we come to an end point in our research with Mark, we are ever more drawn to the complex task of teaching, of co-venturing with the young. Throughout his journey, Mark exhibited humility, acknowledging his limits as a teacher. As Gadamer (2004) suggests, "experience is experience of human finitude" (p. 365). Our own limitations as educators caused us to seek fellow travelers, to better understand others, the world and ourselves. As teachers, perhaps venturing into the subject matter with students offers new understandings that contribute to the cultivation of a pedagogical attunement, a wisdom that spawns a responsible responding to the students in our care. Moreover, becoming experienced makes us welcome our journeying with others and occasions a radical openness to possibilities not yet known. As Mark has alluded, our greatest gift to the young is inviting them to embrace their own existential quest and become partners in a shared responsibility for humankind.

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Teachers' Knowledge and Perceptions on ADHD and Overexcitabilities in Gifted Learners

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Abstract

The purpose of this study is to examine Jordanian teachers' knowledge and perceptions on overexcitability, and attention deficit hyperactivity disorder (ADHD) in gifted students. Twelve semi-structured in-depth interviews were conducted with secondary classroom teachers including one school counselor. The study was conducted at an independent co-educational secondary school for gifted and talented students in Jordan. The interviews explored issues related to the conceptions and characteristics of giftedness, ADHD and overexcitability, and the overlap between ADHD and overexcitability in gifted learners. The findings of the study are discussed and reported.

Keywords: Gifted; Overexcitabilities; ADHD; Teachers' Knowledge; Perceptions; Misconceptions; Psychomotor; imaginational; sensual; emotional; intellectual.

Introduction

Gifted students are sometimes extremely energetic, have a highly sensitive and emotional temperament and lifelike imaginations (Al-Hroub, 2007; 2010; 2018; Silverman 1993). Some students can display behavioral characteristics similar to those exhibited by children and adolescents who have been diagnosed with attention-deficit hyperactivity disorder (ADHD), leading to a possible misdiagnosis (Rinn & Reynolds, 2012). When a gifted individual is assessed for ADHD, his or her tendency to be overly excited should also be considered. It is difficult to discriminate a gifted child's overexcitability (OE) from ADHD symptoms (Kyuman Chae, Kim & Noh, 2003). Literature indicates a significant overlap between the symptoms of ADHD and overexcitability among gifted students (Rinn & Reynolds, 2012); however, little research has been conducted on this topic. Such research is limited in the Middle East, rendering it vital to study this issue in an Arab country such as Jordan. Below, we will review literature related to ADHD and overexcitability in gifted learners.

The Gifted and ADHD

Literature represents the analogous behaviors associated with both gifted students and students with attention deficit hyperactivity disorder (ADHD) (Baum, Olenchak & Owen, 1998; Hartnett et al., 2004; Rinn & Nelson, 2009; Webb, 2016). Baum et al. (1998) outlined a variety of perspectives from which to consider and interpret the behaviors of gifted students with ADHD. Hartenett et al. (2004) explained that children who are gifted and children with ADHD are frequently engaged in similar behaviors. Edwards (2009) explained that some gifted children are misdiagnosed with ADHD because giftedness and ADHD share similar characteristics. Rinn and Nelson (2009) found that due to the lack of pre-service training, several practitioners are unable to distinguish between giftedness and ADHD. Webb et al. (2016) characterized the analogous behaviors associated with both gifted students and students with ADHD that lead to confusion between different types of ADHD and giftedness whereby some of them overlap (See Table 1).

The Confusion of Overexcitability and ADHD in Gifted Learners

The concept of overexcitability branches from Dabrowski's (1964) theory of positive disintegration, which is a theory of personality development. Dabrowski used the term "overexcitability" to emphasize the intensification of mental activity as well as the differential types of responding,

experiencing, and acting distinguishable as characteristic forms of expression beyond the norm (Piechowski, 1986; Piechowski & Colangelo, 1984). In fact, when many of the characteristics and behaviors of gifted students mirror those of special education students, multiple instances where misdiagnosis occurs have been observed. It is possible that gifted students will have more than one type of overexcitability; if not many (Alias, Rahman & Rosadah, 2013). Dabrowski's theory states five different forms of overexcitability: psychomotor, sensual, imaginational, intellectual, and emotional (Piechowski, 1975, 1977). ***Individuals with psychomotor overexcitability*** appear very busy and restless. Signs of psychomotor can be either extreme energy or nervousness. Nervousness can be noticed when observing an individual act impulsively or display a psychomotor activity such as nail biting or spasms (Mendaglio & Tillier, 2006). ***Individuals with sensual*** overexcitability may have extreme reactions and may be described as picky eaters who hate certain foods with a passion. Such individuals also love to be the center of attention (Daniels & Piechowski, 2009). ***Individuals with intellectual overexcitability*** have a drive for probing questions and problem-solving. They seek out truth and knowledge and are very observant. When upset, such individuals may analyze things in-depth (Daniels & Piechowski, 2009). ***Individuals with imaginational overexcitability*** experience regular diversion, drifting attention, and fantasizing. These occur because of free play of the imagination (Mendaglio & Tillier, 2006). Such individuals are creative and love metaphors. They believe in pictures and magic and have a capacity for living in a world of fantasy (Daniels & Piechowski, 2009). Gifted individuals with imaginational OE often conduct their activities on their own (e.g., drawing or writing stories) rather than participate in class discussions (Lind, 2001). ***Individuals with emotional overexcitability*** have a strong capacity for building relationships. They may experience an extreme and broad range of emotions; they can be compassionate and caring, form strong attachments to others, be sensitive to and understand others as if they are living the experience. They may have concerns about death, love, loneliness, and care deeply about others (Daniels & Piechowski, 2009). Emotional OE is the most frequently observed form of overexcitability in individuals. Such individuals experience anxieties, fears, feelings of guilt and desperate tempers (Mendaglio & Tillier, 2006).

Table 1: Behaviors associated with ADHD and giftedness

Types	Behaviors associated with ADHD	Behaviors associated with Giftedness
Hyperactivity	More active, restless than normal children	High activity level; may need less sleep
Inattention	Poorly sustained attention in almost all situations	Poor attention, boredom, daydreaming in specific situations
Impulsivity	Impulsivity, poor ability to delay gratification	Judgment lags behind intellect

Webb (2016, p.45)

Signs of high psychomotor, intellectual, and emotional overexcitabilities in gifted students might lead to a misdiagnosis of ADHD and other behavioral disorders (Kyuman-Chae, Kim & Noh, 2003). Gifted students with ADHD may demonstrate behaviors such as daydreaming, excessive talking, the inability to be seated, and social immaturity; all prospective features of the diverse signs of overexcitability (Tieso, 2009). According to Hartnett and her colleagues (2004), "Both groups often possess high activity levels, have difficulty paying attention, act without much forethought, experience problems persisting on certain tasks, and have difficulty following rules" (p. 73). Therefore, it is critical to differentiate symptoms of ADHD from overexcitability in gifted individuals (Kyuman-Chae et al., 2003).

Nelson, Rinn, and Hartnett (2006) concluded, "No known empirical data exists to examine the relationship between overexcitabilities and ADHD" (p.247). Rinn and Reynolds (2012) provided empirical support for a relationship between ADHD and overexcitabilities for intellectually gifted adolescents from a summer program in the United States. Teachers' perceptions of children with ADHD might vary according to the child's gender (Maniadaki, Sonuga-Barke, & Kakouros, 2003). Teachers' tend to be biased when it comes to diagnosing a

boy or a girl with ADHD, and this might be a result of unexplored knowledge of ADHD (Bauermeister et al. 2007). One of the major findings by Al-Hroub and El Khoury (2018) is that gender plays a role in giftedness in Lebanon, yet very limited research has been done to examine whether gifted students, no matter girls or boys, are misidentified with ADHD and may be instead exhibiting types of OE. Thus, this study aimed to fill a gap in the literature about the teachers' perceptions on the misdiagnosis of gifted Jordanian adolescents with ADHD or overexcitability. It also aims to add to Rinn and Nelson's study (2009) as it investigates the potential for teachers misidentifying gifted students with ADHD.

The Current Research

The purpose of this study is to investigate Jordanian teachers' ability to identify whether an adolescent gifted student exhibits ADHD or OE symptoms. The research question that guided this study was "What knowledge do teachers in Jordan have about ADHD and overexcitability symptoms in Gifted Students?"

Participants and Method

Twelve faculty members including teachers and one counselor from the Jubilee Institute in Jordan were interviewed using open-ended questions. The interviewed teachers taught classes ranging from grades 9 to 12. The researchers randomly chose three teachers from each grade level to participate in the semi-structured interview. Open-ended questions allow participants to answer from different angles, giving them the opportunity to express their thoughts, feelings, and perceptions based on their specific situation (Al-Hroub, 2013, 2014, 2015). The interview was divided into four parts, namely: definitions of giftedness, characteristics of ADHD in gifted adolescents, the definition of OE, and a possible overlap along with any misconceptions between OE and ADHD. The research question "What knowledge do Jordanian teachers have about ADHD and overexcitability symptoms?" was answered in four different parts: (a) how Jubilee school teachers defined the term giftedness; (b) teachers' knowledge of the characteristics of ADHD in gifted adolescents; (c) the definition of overexcitability; and (d) whether teachers thought there was an overlap between OE and ADHD characteristics, in addition to the misconceptions they might have about characteristics of ADHD and/or OE in gifted adolescents.

Study Site

The study was done at the *Jubilee School for Gifted and Talented Students, known as the "Jubilee Institute"* in Jordan. The Jubilee Institute disseminates national and local educational standards through the extension of advanced curricula and training programs for public and private school teachers in Jordan and other Arab countries (Issa, 2013). The teaching staff consists of about 60 teachers, most of them working full time and others working part-time at the school. The teacher/student ratio is 1:6. There are around 550 students distributed over grades 9-12 at the school. Noted above, the Jubilee School applies a rigorous multiple-criteria system for admission. Criteria include (Issa, 2013): (a) academic distinction over the last three semesters (30%); (b) the highest scores in the Jubilee Scholastic Aptitude Test (JSAT), which measures verbal, mathematical, and logical reasoning abilities (30); (c) passing the 'Evaluation of Potential Creativity- EPoC' test (20); (d) meeting the behavioral characteristics of gifted individuals (10%); and (f) passing a personal interview (10%).

Results

Teachers' Knowledge about 'Giftedness'

Jordanian teachers were asked: "How do you decide whether a student in [your] school is gifted?" Their responses varied, but all agreed that academic achievement is inadequate to determine whether a student is gifted or not. Rather, they decide whether a student is gifted based on a combination of social, emotional, and cognitive aspects. Teachers noted that in addition to reviewing students' grades from previous years, students must sit for tests and take part in one-on-one interviews.

Ziad, a grade 12 computer teacher, stated that students do not have to be gifted and talented in every way. Some of them might be gifted in sports, in arts, or even in sciences. Generally, in order to be accepted as a student in the Jubilee School, s/he must have a very high grade point average and must sit for an entrance examination and take part in an interview. Upon acceptance, the student is enrolled in the summer school program in order to examine his or her ability to adapt to the school's environment.

Manal, a grade 11 Arabic teacher and a supervisor in the Jubilee School mentioned that "special tests" are done to decide whether or not the child is gifted and talented. The schools or parents usually refer the children to the Jubilee Institute. Grades are one criterion, but not the only factor when considering whether to admit a child. She also added that when students are candidates for entry at the school, their names are announced in local newspapers, after which they are contacted for interviews.

When a grade 11 teacher, Sanaa, was asked about the definition of giftedness, she said,

> I guess that a gifted student here must have a wider and broader imagination than a student who is not gifted, aware of all the words s/he is saying, gives unexpected information and ideas, has a sense of responsibility, is aware of everything s/he is doing, is able to work in a group setting and is a leader, all of this is very important. In addition of course, to time management.

Issam, a grade 11 teacher answered that the school usually refers to specific standards to help it decide whether a student is gifted or not. The student sits for an examination and has a scheduled interview to help the committee decide on his/her acceptance.

Faten, a grade 9 teacher stated that teachers are not who decide whether a student is gifted or not; there are certain examinations and interviews that students take before the final decision is made. But in general, Faten believes that Jubilee School students differ from other students in regular schools in terms of the selection criteria for the gifted programs, meaning that it is not only grades that are taken into consideration, but the individual as a whole.

A grade 10 teacher, Farouq, stated that a gifted student in Jubilee School possesses a wide range of information, an ability to reflect, analyze and synthesize information, and has more than one answer or solution to any problem they are presented with.

Nadia, a grade 9 teacher, stated that the gifted student in Jubilee School quickly grasps information and generates creative answers. When she works with gifted students in the laboratory, she expects them to be creative when it comes to experimenting, analyzing and synthesizing information, as well as formulating new ideas from the experiments they are conducting.

Furthermore, Mo'az, a grade 9 teacher in the school said, "Usually giftedness comes from a student who has unique thoughts, unheard of by anyone else before; the student is also very intelligent and quickly grasps ideas."

Finally, Iman, a grade 9 teacher and counselor at the school, declared they usually arrange for students to sit for examinations that are prepared and revised by university professors. These examinations test students' academic abilities, after which they undertake subsequent tests to examine their social and cognitive abilities. Finally, students are called for an interview based upon which the decision on acceptance is made. Once accepted, an English examination is usually taken by the student. Although there is no passing or failing grade, those with the highest marks are considered priority students.

Teachers' Knowledge about ADHD in Gifted Adolescents

Jordanian teachers were interviewed about the characteristics of ADHD in gifted adolescents. The findings revealed that at least five of the teachers interviewed were unsure what the term

‘ADHD’ meant. They claimed that gifted students have little self-control especially because they understand and quickly grasp concepts. They may become easily bored and distract others in the classroom, which worries teachers. Iyad, a grade 12 teacher stated, “Definitely, I notice ADHD being exhibited a lot in the classroom with gifted students. Some cannot sit still, others constantly feel the urge to change their seats, and sometimes you will see them sitting on the table.”

Manal, who has been an Arabic teacher and a supervisor for 18 years in Jubilee School, remarked:

> Yes, the gifted student grasps concepts quickly and depending on his/her interest, might pay attention to what I am saying. Sometimes the student might react this way because s/he already knows the information I am explaining; that is why we need to be careful when talking about gifted and talented students. Sometimes, the home environment also plays a role affecting students’ hyperactivity and behavior as well.

Other teachers argued that the characteristics of ADHD are displayed to a lesser degree in gifted students. For instance, Farouq said, “Sometimes a student might be very polite in class, while other times there would be a student who is very energetic and would not stop talking and/or moving”. So far, and for the past few years, Farouq has noticed a trend. The politer the students are, the more gifted and talented they tend to be. He has observed that gifted students listen the majority of the time and do not interrupt, in stark contrast to earlier claims about how disruptive these students are: they do, however, still participate and talk in class. It does not mean that they are always silent and never participate in class, but they are generally polite.

Similarly, Issam, a grade 11 teacher said, “I can tell you that not every energetic or hyper student I see is considered gifted. Some gifted students want to show everyone what they are capable of, so they get really excited trying to prove themselves in their environment.” Issam added that, occasionally teachers understand these students, but at other times, they neglect such students whose behavior thus becomes extreme. In this case, students then may say, “I have something to say, but you are not listening to me”.

Nadia, a grade 9 teacher, perceived herself to be a teacher with ‘old-school thinking’ and considered that the behavior she sees in gifted students is the exact opposite of what she has in mind when considering her idea of gifted. Nadia regarded herself as being ‘old school’ and views a gifted student as one who is quiet, a high achiever, a good listener, obeys the rules, and pays attention in the classroom. She was critical of modern schools that consider other characteristics of gifted students, such as being cool and “having a sense of humor”. She had noticed that when one student makes a joke, classmates begin to copy this behavior especially when they know the student is gifted and talented. Nadia also believes that gifted and talented children cannot have ADHD.

In contrast, Iman, the school counselor, believed that some students cannot learn unless they are constantly moving, and teachers at Jubilee School can perfectly well deal with “very active” or “hyperactive” students using different strategies, which she provided for the teachers in her role as a counselor. Iman had also noticed that some gifted students at Jubilee School could not study unless they were provided with a peaceful environment. According to her, gifted students have different personality traits and characteristics.

Teachers’ Knowledge about Overexcitability in Gifted Adolescents

Teachers at the Jubilee Institute were asked about the meaning of ‘overexcitability’, to which the majority were unable to provide an accurate or clear answer. However, a noticeable finding is that when asked about the term ‘overexcitability’ in Arabic, which translates into ‘al hasaseeya al fa’eqa الحساسية الفائقة’, the teachers answered differently. They emphasized ‘sensitivity الحساسية’ and overlooked hyperactivity as a potential aspect of this term; they just translated the term into Arabic and defined the Arabic term. None of the participating teachers was able to state or describe the five different types of OE. Some teachers suggested that they should receive training on ‘overexcitability’ since it relates to the identification and teaching of gifted and talented students at the school.

Khalifa, a grade 12 Arabic teacher, for instance, said that one of the gifted student's characteristics is sensitivity. He also added that, if a teacher tries to give a gifted student criticism of any sort, s/he might react negatively towards the teacher. However, Khalifa was unable to identify or describe the types of overexcitability.

Ziad, another grade 12 teacher, gave a definition of OE from his understanding of the term in Arabic. He said, "The term implies that the student would be very sensitive and that the environment plays a major role in making this student overstressed and more sensitive". Concerning the types of OE, Ziad said, "The term is not generally used in the school so I do not really know".

Manal, a grade 11 teacher and supervisor, believed that OE exists in each person but at different levels, although she did not know the different types of OE. As one who talks toand deals with gifted students, Manal mentioned that, as teachers and supervisors, they continually have dialogues about gifted and talented students. One characteristic she pointed out was related to gifted and talented students being "perfectionists", which in her opinion points to overexcitability. A student competing with others, or perhaps even with themselves qualifies them as a perfectionist. Due to this overexcitability, during the first two months of the academic year, the staff at the school work hard with students and new teachers to ease the students' transition.

Sanaa, a grade 11 Arabic teacher, offered her opinion about OE from a different perspective: the example was taken from when students with OE were reading and writing in Arabic class while sharing their ideas and experiences. She stated,

> Most of the time, students are stubborn and they stick to the ideas they have. They are also very sensitive to every comment or word the teacher says. Even when it is just a joke sometimes, some students take it personally. In return, these students are not sensitive towards others; they are sensitive about their own personality, belongings, and intelligence, etc.

Some teachers immediately tried to provide answers about the different types of OE, others, like Sanaa and Issam, stated that they have never heard of this term before.

Farouq, a grade 10 teacher who has been teaching for 19 years, gave examples of OE students even though he was not informed about the different types of OE. He assumed that every gifted student has extremely sensitive and overexcitable qualities. Farouq brought to attention a case in which a student asked him, "Why were you pointing at me?" The student had expressed anxiety when the teacher had not meant it in a negative way. Farouq believed that since these students are very intelligent, they understand the message you are trying to convey with one look. The teacher must be careful not to offend them when translating a thought or idea directly to them.

Overlapping Characteristics of Overexcitability and ADHD in Gifted Students

Teachers' Conceptions and Misconceptions

During the semi-structured interview, one of the questions asked was whether teachers considered if there was an overlap between the characteristics of OE and those of ADHD. Answers varied between yes and no, the majority agreeing that overlapping characteristics do exist.

When asked this question, Iman immediately answered, "You are talking to someone who is knowledgeable… of course there is an overlap". However, she neither provided specific information nor examples of such an overlap. Khalifa, a grade 12 Arabic teacher, believed that a student with ADHD might show signs of OE characteristics, but not to a striking degree. Noha, a grade 10 German teacher, similarly thought that ADHD characteristics do not necessarily overlap with those of OE. Likewise, Iyad considered that these characteristics do not have a strong overlap. Meanwhile, grade 9 teacher, Nadia, assumed that students with ADHD characteristics care less about what they are studying and do not automatically get overexcited. She gave the example of a hyperactive student she once had asked to stop performing a certain activity in class, and he told her, "Okay, sorry, miss" and continued the activity as if nothing had happened. She added, "Trust me, they are not sensitive towards what I say at all!"

Conversely, of the 12 teachers who were interviewed, seven believed that there are overlaps between ADHD and OE. Manal specified that 10 to 15 percent of students displaying OE characteristics might later be diagnosed with ADHD. Moa'az believed that there is an unquestionable overlap between characteristics of OE and those of ADHD.

Ziad, a grade 12 computer teacher, said that some students are confident and know that they are excelling, and in turn, they become more vibrant and active. That is how the teachers find out that these gifted and talented students are actually 'hyper' and sensitive to everything around them.

Issam, a grade 11 teacher, believed that there is a complex and strong overlap between the characteristics of excitable gifted children and those children with ADHD. Issam also recalled the time when grade 12 gifted and talented girls delayed their graduation by a year because of how sensitive they had become about leaving their comfort zone, which in turn affected their grades. Issam deemed it very important to discuss and explain such an interesting and outstanding topic. He also added that the terms and strategies are even more significant for teachers since they need to employ them with these gifted and talented students.

Discussion and Conclusions

Teachers' responses varied when it came to defining the term 'giftedness' at school, but the majority agreed that it was neither one teacher nor one grade level that determined whether a student was gifted or not, rather it was teachers who determined who was a gifted student taking into consideration a combination of social, emotional, and cognitive qualities.

Some teachers did not recognize the term ADHD. The school administration should attempt to address this major loophole. Workshops, seminars or even professional development programs should be implemented on a regular basis to ensure that the teaching team and faculty members know what behaviors or aspects they may encounter upon meeting a gifted adolescent. Berri and Al-Hroub (2016a; 2016c) also found that no common concept of ADHD was particularly agreed on amongst teachers, and many debates occurred during the focus group discussion in their study.

None of the participating teachers was able to state or describe the five different types of OE. Some teachers suggested that they should receive training on 'overexcitability' since it relates to the identification and teaching of gifted and talented students at the school.

During the semi-structured interview, one of the questions asked was whether teachers considered that an overlap existed between the characteristics of OE and ADHD. Answers varied between 'yes' and 'no', with more agreeing that there are overlapping characteristics.

From the interviews, it is obvious that teachers both lacked background knowledge on OE and did not have solid knowledge about the characteristics of ADHD, making it hard for them to identify the differences between these two terms. Therefore, the problem arises from their pre-service and in-service training.

Once teachers, counselors, administrators, and even parents become aware of these characteristics, it is hoped that they will immediately shift to be more tolerant, patient and understanding. Based on what research shows, many people might confuse the characteristics of ADHD with those of overexcitability. Teachers with limited knowledge of overexcitability may mistake their students' disruptive behaviors for disciplinary problems (Rotigel, 2003), which could lead to a misdiagnosis, and/or mislabeling. The authors of this study consider it important that the Jubilee Institute and all other schools take account of these research findings to serve their gifted students.

Since this study has helped conceptualize the current views on giftedness, the next research studies could include more 'in-depth analysis of identification' procedures in different schools levels.

A further study is needed to learn about giftedness from students' and parents' perspectives as well, in addition to those of other school stakeholders (e.g. counselors and principals).

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Webbed Understanding: A Conversation for Understanding

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Abstract

Teaching for understanding is an important educational theory and practice that has generated an enormous body of theoretical and practical literature in recent decades. To give structure to the concept and facilitate its application in the classroom, the present article resolves the concept of teaching for understanding into three distinct, key questions and addresses each separately. What is the essence of understanding? Which content is worth understanding? How should we teach for understanding? The answers to these questions are addressed in a dialogic style that explores the concepts of understanding in terms of making correct and systematic relationships, the meaning and role played by "big ideas," and how these considerations impact the development of curriculum geared towards developing understanding. To support application of these ideas in the classroom, the concepts are graphically illustrated in tables and with concrete examples of curriculum design.

Introduction

The concept of teaching for understanding has received an enormous amount of attention from both educational theoreticians and practitioners in the last two decades. Partly, this attention it the result of the "ironic path" that the influential teaching thinking movement traversed. The approach of teaching students to think originated as an alternative to teaching knowledge (knowledge that would be forgotten). Inevitably, however, it was necessary to refocus attention on knowledge because good thinking simply cannot occur in the absence of knowledge. The resolution of this conundrum was to teach for understanding. Good thinking stems from understanding of the knowledge in the realm one thinks about and with which one thinks (Harpaz, 2011, pp. 39-46).

The importance and popularity of the subject has proven to be a two-edged sword. Teaching for understanding have given rise to such a vast body of literature and to such a profusion of specific methodologies that even the most highly motivated classroom practitioners may well feel confused if not overwhelmed. What is sorely needed is a judicious analysis of the "very big question," What is teaching for understanding?, in order to provide a workable foundation for thinking about the subject and putting the theories to practical use. To achieve this goal and in the hope of making teaching for understanding more understandable, this article is formulated as a conversation.

Could you please tell me what exactly is "teaching for understanding"?

Well, it's a very big question. Let's begin by dividing it into three big questions, and discuss each in turn. The three questions are: What is understanding? What is worth understanding? And how do we teach for understanding? We'll call the first question "the essential question"; the second, "the value question"; and the third, "the practical question." As may be apparent, these questions follow a logical progression.

We need to know something about the essence of understanding in order to promote it. We also need to know to which worthwhile content or subject matter to direct it. And, ultimately, we need to know how to promote and direct it effectively.

A good point of departure is John Dewey's definition of understanding: "To grasp the meaning of a thing, an event, or a situation is to see it in its *relations* to other things." (Dewey, 1933/1998). We, therefore, may say that to understand something, a phenomenon or a concept, is to relate it to other things, i.e., to other phenomena or concepts. Understanding applies to relationships; relationships are the content of understanding (Newton, 2000).

Could you give an example?

Let's consider the concept "democracy". When we want to understand what democracy is, we relate it to other relevant concepts.

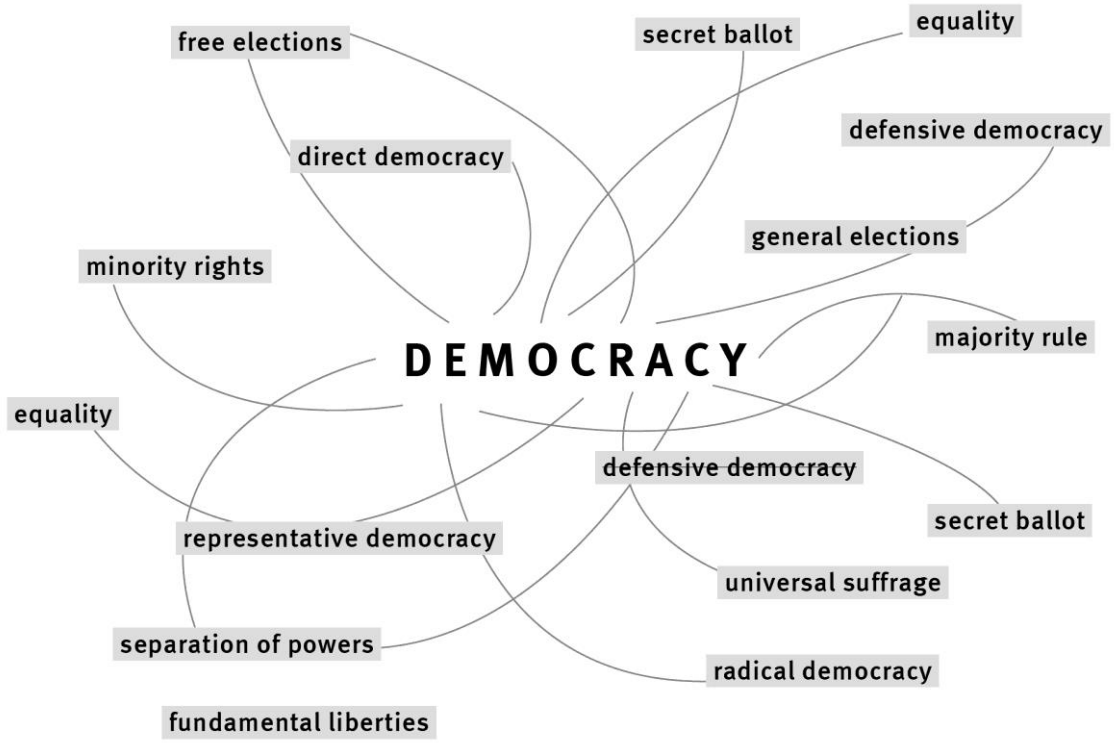


Figure 1: Democracy as a webbed concept.

At first blush, Fig. 1 may suggest brainstorming—the idea of retrieving relevant information on a subject. But understanding is *not* brainstorming. First, understanding does not contemplate just any sort of relating. Rather, the content of understanding is *correct relationships*. Second, the relationships that are forged must be reasonable. The content of understanding are *systemic relationships*.

What are "correct relationships"?

Correct relationships are relationships that conform to the rules of producing and verifying knowledge in the relevant field, i.e., the field in which we are trying to achieve understanding. For instance, assume you were to add "climate" to the democracy web of Fig. 1, claiming that democracy can flourish only in a certain climate. We would say that your understanding of democracy is incorrect since it cannot be verified on the basis of the accepted rules of the discipline that deals with forms of government, political science. (Incidentally, Montesquieu, one of the fathers of this discipline, thought that there are causal relationships between kinds of climates and forms of governments.)

The relationships a person makes between phenomena or concepts in a given field correspond with the rules of generating and warranting knowledge in that field. Understanding is not a personal event in which anyone can relate as he or she wishes; the relating should be reasonably correct, i.e., subject to rules of scientific method or rules of interpretation. There is an element of general and accepted truth in understanding. You cannot understand something that is completely idiosyncratic.

Sometimes the truth is analytical as in math; sometimes it is empirical as in physics; and sometimes it is interpretive (or hermeneutical) as in literature. In any case, it corresponds somehow to the state of affairs in the world or in a text. If, for instance, there is a mismatch between the network of streets in a certain city and the representation you have of those streets in your mind, you are bound to get lost.

For that problem we have the Waze app . . .

Indeed, technological means, such as GPS navigational software, are reducing the spaces of human understandings. Artificial intelligences understand for us. While they lack a sense of understanding and, therefore, are mindless, in their own mechanical, computational ways they do understand very efficiently. It will be interesting to see how this crucial detachment of intelligence and mind will affect understanding and other functions of our mind—whether it will empower or stagnate them.

What are "systematic relationships"?

Systematic relationships are relationships guided by a principle. In the process of understanding, we relate phenomena or concepts according to some guiding principle. The principle is implicit in our question, which imparts what we want to understand. We may, for instance, ask about the essence of democracy or about the connection between democracy and economy or law or education or anything else. In such cases, the conceptual web we will weave around democracy will not be associative or intuitive, but disciplined and systematic.

When does this process of relating correctly and systematically stop? It must stop somewhere or else it will be infinite.

In theory, the conceptual web that constitutes understanding is infinite since each concept in the web connects to other concepts and so forth. That is, a complete understanding of a tiny thing necessitates understanding of the whole world. But our process of understanding is limited by the principle that guides our weaving and by the real life context in which we understand. The principle frames the process of relating, and the context puts limits on it. We stop the process of relating when the answer satisfies us in the given context.

And what is "relating"?

Relating, as we said, is generating affinities between phenomena or concepts. In this respect relating is a creative process, since you don't see relationships; you create them. When people say "I see" when they understand, they manifest the common and misleading perception that relationships between phenomena and concepts are seen or accessible like the phenomena and concepts themselves. In fact, when you relate phenomena (in causal relationships) or concepts (in logical relationships), you go beyond them and create or invent (Piaget, 1973)) something new. Most of the time this creation is prosaic, but sometimes it is rather creative. And since understanding is a creative process performed in and by the individual mind, it cannot be transmitted directly from one mind to another like information. The individual has to construct it in his or her own mind and, therefore, it is hard to understand (whenever the relationships are not prosaic).

I see . . . Sorry, understand. In understanding we create various kinds of relationships.

Depending on the field, we create causal, conceptual, logical, numerical, spatial, tonal, or other sorts of relationships. The scientist creates causal relationships; the philosopher, conceptual relationships; the lawyer, logical relationships; the mathematician, numerical relationships; the architect, spatial relationships, the musician, tonal relationships; and so on. Most of the relationships that understanding applies to, however, are causal relationships. In most of our daily life and in most scientific work we try to understand "what caused it and/or what it caused." For instance, if we hear a blast right now, we are immediately inclined to grasp what caused it and what effect it caused.

These causal relationships also can be divided into two kinds: causal relationships between things and causal relationships between humans. Think about causes in the natural realm such as pressures, speeds, or temperatures. Then think about causes in the human realm such as intensions, thoughts, or feelings. Causal relationships in the natural realm are fixed and measurable forces that act upon each other, whereas causal relationships in the human realm are fluid forces stemming from minds bounded by society and culture. Hence, understanding things and understanding humans have different qualities, as Wilhelm Dilthey unpacked in his well-known concept of *Verstehen* (Dilthey, 2010).

Say a bit more on these two kinds of casual relationships.

Understanding things is external and general, and understanding humans is internal and particular. In order to understand causal relationships between things, we observe them from "the outside." When we discover or invent, as the radical constructivists claim (Von Glasesrfeld ,1995), such relationships, we generalize from this particular case to all similar things in similar conditions. What interests us then is not the particular thing we observe but the generalization—the general rule, process, phenomenon—that it verifies or refutes.

By contrast, in order to understand causal relationships between people we observe them from "the inside"; we "feel" them through identification or empathy. And when we recognize causal relationship—a comment that gave offense, for instance—we cannot make the generalization that "comments cause offence," since one person may be offended by certain comments while others accept them amiably.

The point is this: Where humankind is concerned there are no generalizations! The concept of “human nature” was “discovered” by philosophers, psychologist, biologists and others who discourse endlessly about the concept of "human nature." But each individual is a unique version of whatever that is, be it a will to power, a will to survive, a conflict between components of the psyche, a search for meaning, selfishness, altruism, or any other manifestation of "human nature." Moreover, when a person becomes aware of his or her "human nature," he or she can change it. People, in contrast to things, understand themselves and adjust their behaviors accordingly. “Human nature" is not forced upon humans like the nature of things is forced upon things. And this is also a comment on "human nature."

Thanks for clarifying this point. Now let's move on to the second question: What is worth understanding?

One more comment concerning the first question before we move on. When someone wants to understand something, she doesn’t say to herself, "Let’s web it!" Something provokes a question in her mind and she tries to answer it. This "something," by the way, doesn’t manifest itself in a form of a question. Rather, the question mark is attached to it by the questioner. Hence, the act of questioning, like the act of understanding, is inventive: the one who questions or understands introduces questions or understandings to the world. And beyond that, the act of understanding is not mechanical or computational. It is the product of our excited mind—wonderment, engagement, frustration, satisfaction, etc. Israel Scheffler wrote in this spirit on "cognitive emotions (Scheffler, 1991)," and David Perkins wrote about "hot cognitions (Perkins, 1992)."

Okay. Now we can move to the second question . . .

One more comment please before we move to the second question. We can talk about the conceptual web that is generated in the process of understanding in terms of context. In other words, to understand something is to put it in a context, i.e., something becomes understood or meaningful when it is located in a context. The meaning of something does not reside in the thing itself (as Dewey claimed in the opening quotation), but in its context, in its web of relationships. The various contexts lend it different meanings. Think, for example, of the act of zooming out—picturing an object in a larger context that lends it a new meaning. And note: we zoom out or in according to our

interests, according to what we wish to understand and do. It makes sense to claim, like the pragmatist philosophers, that the will to understand stems from the will to act. And it also makes sense to claim with Ludwig Wittgenstein that the web of relationships that lends meaning to something—the context—is the web of its uses (Wittgenstein, 1963).

And a last comment in the context of the first question. The denser and more abstract our conceptual web is, the deeper our understanding is. That is why we talk about deep or superficial understanding. And, likewise, understanding of complex phenomena or concepts is an open-ended task, an infinite endeavor of deepening and refining our understanding.

What are the preconditions for deep or superficial understanding?

There are many. Let's comment on the most important one: A new understanding is always conditioned by previous understandings with which we approach the world. Understandings, as well as misunderstandings, are generated on the basis of pre-understandings and pre-misunderstandings. And misunderstandings are robust and resist replacement since they develop in an early age, correspond to our intuitions, and explain a lot. (Consider stereotypes or clichés.) But it's very important to replace them because they lay shaky foundations for building new understandings.

Sometimes new concepts or phenomena are assimilated smoothly into our conceptual web, and sometimes they create problems and force us to adapt our conceptual web in order to accommodate them. This is how Jean Piaget understood understanding—as a process of assimilation and accommodation (Piaget, 1985). Accommodative understanding, whereby one has to change his or her conceptual web, involves cognitive distress, since people identify with their understandings' webs and are not willing to readjust them. Understandings, as we already pointed out, are not cold cognitions; they are wired into our identity. (Perhaps our identity is the sum of our understandings, at least those which touch existential issues.) Hence, people are inclined to understand accommodatively only when they are undermined, when they experience internal problems (contradictions in their web) or external problems (their web fails to capture a phenomenon or a concept they seek to grasp).

Thus, undermining motivates people to learn and to understand. Learning and understanding are mechanisms calculated to restore the undermined cognitive equilibrium. People, according to Piaget's pessimistic notion of learning and understanding, tend to learn and to understand only when they are unsettled. But note that undermining as an instructional means should be used with a pedagogical tact. When it is too zealous, people tend to be defensive or aggressive. Socrates, as you remember, undermined the Greeks too strongly, and they condemned him to death.

But we shouldn’t be too pessimistic concerning the nature of understanding. Understanding involves enjoyment too, especially in the assimilative form. When you say "got it" you mean that a new concept was comfortably incorporated in your web, it was assimilated. This incorporation sometimes involves a feeling of "click" that is called insight—a sudden and eye-opening understanding. This insight involves enjoyment (unless its contents are sad). But note that the enjoyment of an insight is not necessarily evidence of understanding. Sometimes people experience exciting insights, even to the point of illumination (then they might become dangerous), but they don’t understand at all. And sometimes the opposite is happening: people understand a lot without experiencing a high feeling. The feeling of understanding is misleading.

I'm a bit undermined. Does understanding entail generating a conceptual web or incorporating a concept into it?

The answer is both. There is a cognitive stage in which we generate a web of relationships, and there is a stage after we have established the web in which we grasp phenomena or concepts in our web. Weaving a conceptual net is a hard work, while grasping a new concept with it is a moment of a cognitive satisfaction. And sometimes when grasping a concept in the existing net is failing and we can no longer deny it, we have to generate a new net or fix the existing one. Generating our

conceptual net or fixing it is a life process. Actually, it's the life's meaning. As Socrates said, life without inquiring, without seeking deeper understandings, is not worth living.

Okay, I think we webbed understanding pretty well considering the context of our informal conversation. Now we can turn to the second question: What is worth understanding?

There are a few possible answers to this question. The answers depend on the context. In our case, the context is the kind of education we are talking about and our pedagogical perspective. We are talking about school education and, to my way of thinking, our pedagogical perspective is pragmatic acculturation.

Let me explain. It is important to bear in mind that teaching for understanding is not the final aim of education. Our concern must be identifying the aim of teaching for understanding. Education, as a few philosophers have claimed rather convincingly (Lamm, 1976; Fenstermacher, & Soltis, 1986; Schubert, 1986; Egan, 1997), has three "super-aims" or three meta-perspectives or paradigms. Actually there are three educations: education as socialization, education as acculturation, and education as individuation. The super-aim of education as socialization is to impart to the students knowledge and skills for practical success in life. The super-aim of education as acculturation is to shape the students' character in the light of the truth and values that constitute the preferred culture. And the super-aim od education as individuation is to enable and support the self-fulfillment of each individual student.

The aims of teaching for understanding are derivative of these three educations: understanding for the sake of practical achievement (socialization); understanding for the sake of understanding (acculturation); and understanding for the sake of self-fulfillment (individuation). Choosing a super-aim and choosing the aim of teaching for understanding are not the product of scientific findings or objective observation but, rather, a function of our educational disposition or pedagogical sentiment (Harpaz, 2015).

The philosophical tone of our conversation attests to the fact that our pedagogical sentiment is disposed to acculturation and to understanding for the sake of understanding. But we are not idle philosophers who merely want to understand understanding. We want to teach for understanding, to make our students wiser. Accordingly, we are pragmatic acculturists.

Mmm . . . so, our question can be restated: "As pragmatic acculturists, what's worth understanding?"

In the spirit of our pedagogical sentiment, we vote with David Perkins for "big understandings," (Perkins, 2014), and with Grant Wiggins and Jay McTighe for "big ideas." (Wiggins, & McTighe, 2005).

Big understandings are understandings of big ideas. Big ideas are rich ideas. They are *rich in sense*: they explain a lot of phenomena and concepts. They are *rich in values*: they shape moral sensitivity. They are *rich in motivation*: they encourage learning and understanding. They are *rich in culture*: they originate from a cultural tradition and reinterpret it. They are *rich in presence*: they are applicable to many situations in our life. And they are *rich in doing*: they have positive impact on our behavior.

Owing to this richness, big ideas are very productive thinking tools. Generally, we distinguish between contents and tools. In this case, the contents are the tools—if we know how to think with them. And owing to this richness, we, the pragmatic acculturists, talk about *education for understanding* and not, as is typical, about *teaching for understanding*, because teaching for understanding in our educational version has an overall effect on the student—on the student's positions and dispositions.

Please suggest an example of a big idea.

Think about the idea of sustainability in the environmental discourse. It explains many phenomena (from climate change to political tensions) and concepts ("greenhouse effect," "ecological footprint," etc.). It fosters ethical thinking, i.e., a readiness to sacrifice selfish interests for the general good. It produces motivation for learning and understanding by undermining and resonating content. It originates in the humanistic tradition and reinterprets it. It can and should be applied to many circumstances. It encourages and leads to commitment to many and varied activities.

Alternatively, you can think about big ideas like evolution in biology, narrative in history, separation of powers in civic studies, the unconscious in psychology, the human being as an end in itself in philosophy, representation in arts, gender in cultural studies, and many other central ideas in our culture.

But note that big idea should be formulated as a claim not as a concept or an issue. For instance, instead of "gender" (a concept), "gender identity is constructed by society and culture" (a claim).

In sum, we should understand big ideas and generate correct and systematic conceptual webs around them. And, in addition, we should understand how they themselves generate such webs. One might say that to understand a big idea is to understand the conceptual web that generates it as well as the conceptual web that the big idea itself generates. Big ideas by their nature, or their bigness, are conceptual webs. And they are not only big, they are also great insofar as they are breakthrough ideas that stimulate our wonder and admiration. The big/great ideas are the very best of our culture.

It does not mean that the preferred curriculum for understanding consists exclusively of a succession of big ideas. There are also small ideas ("niche understandings" is Perkins' term), but ideally, they are integrated into big ideas. And the big ideas are not taught in a succession of one idea after another like culture's greatest hits. We approach them through the mediation of "big questions." (Wiggins; & McTighe, 2013). At their inception, big ideas are answers to big questions. Frequently the questions were forgotten, especially in schools that throw bits of knowledge at students out of the blue, and we should restore them to life through an "archeology of questions." Big ideas gain meaning when we understand which questions they grapple with.

A characteristic of big questions that they don't have final answers, the kinds of answers that typically have been favored in schools. Rather, they have tentative or possible answers. The big questions that lead to the big ideas very often remain open and invite new questions. Big questions are never at rest.

How is a curriculum organized around big questions and big ideas reflected in the syllabus of an individual teacher?

A teacher for understanding organizes the contents of his or her syllabus around big ideas and extracts big questions from them. The architecture of a syllabus for understanding might look like this: A very big idea from which a very big question is extracted, and both the very big idea and the very big question function as a framework for a series of lessons. Each lesson is based on a discrete big idea and discrete big question that relate to the very big idea and very big question.

A teacher for understanding should know how to answer the question, "Which big ideas are you about to teach, and which big questions that point to them you are about to ask?"

Suppose you want to teach history based on the bestseller (sometimes bestsellers are good books) of Yuval Noah Harari's *Sapiens: A Brief History of Humankind* (2014). You probably agree that in our global world we can afford to liberate history teaching from its parochial, national outlook, zoom out, and teach from a broad, world outlook, a point of view that imbues historical events with new meanings.

Harari's book describes three revolutions that changed humanity: the cognitive, the agricultural, and the scientific revolutions. (Meanwhile, the present, fourth revolution is in progress, altering biological rules and generating a new human being, *Homo deus*—a new species that robs God of his abilities and relegates *H. sapiens* to history, just as *H. sapiens* did to their predecessor.) The book is rich in big ideas. One very big idea is the idea of imagined orders or imagined realities—an intersubjective reality originating from the imagination of many people such that many people imagine a certain reality and, by their common imagination, mold an objective reality that verifies their belief in the reality of their imagined reality. Religions, nations, democracy, humanism, corporations, money, are examples of imagined reality that shape the actual reality.

The idea of imagined reality is rich with all the characteristics of the big idea we talked about. The very big questions we can extract from it is: What generates reality? What sustains and changes it? Or what drives history? These ideas and questions are the lens through which the book describes and analyzes the three crucial periods of human history. The architecture of a *Sapiens* syllabus might look like this:

- **A very big idea: Imagined (intersubjective) reality molds real (objective) reality**
- **A very big question: What drives history?**

The cognitive revolution (70,000 years ago)**: Big ideas —**

- The cognitive revolution enables humans to commonly imagine reality;
- The imagined reality jump-starts history (initiates an ontological track that bypasses DNA); and,
- *Homo sapiens* gain an advantage over other human species and animals by force of their imagination.

The agriculture revolution (10,000 years ago)**: Big ideas —**

- The domestication (by wheat production) of humans and their imagination;
- The appearance of the imagined challenging future;
- Myths (par excellence a product of the imagination) bind many strangers;
- The invention of letters and numbers and their influence on the imagined order;
- The imagined gender order;
- Cultures as imagined realities imbued with contradictions; and,
- Empires, religions, and money as imagined realities.

The scientific revolution (500 years ago)**: Big ideas —**

- The imaginative origin of the modern science;
- The emergence of a culture of imagined ignorance;
- Imagination as the engine of capitalism; and,
- The permanent revolution initiated by the creative imagination.

The above big ideas are pregnant with big questions since, as you know, questions are born from imagined initial answers.

Fine. We can produce big questions from big ideas and get excited together, but our big questions are not necessarily big in the eyes of the students. In their eyes our big questions are simply school assignments to be disposed of as quickly as possible.

If that is the case, and too often it is, we must turn these into questions that are big in the students' eyes, to have them experience them as their own questions and as worthy of their efforts. As we have already observed, understandings are not transmitted from one mind to another. If the

students do not engage their minds in the process of living the questions and coping with them, there is no chance for understanding.

So, how do we motivate our students to understand?

As may be apparent, we have entered into the zone of the third question, the practical one: How do we teach for understanding effectively? Otherwise stated: How do we motivate our students to understand?

School learning is overwhelmingly performative—students regard it as something to be done and over with—whereas learning for understanding should be "intentional learning," that originates from curiosity and a thirst for new insights (Bereiter & Scardamalia, 1989). We want our students (and their teachers) to ascribe value to understanding for the sake of understanding and work hard to achieve it; we want them to recognize this state of mind of understanding. Many of them do not experience it in school but, rather, identify understanding with knowing or remembering. In Lee Schulman's terms they suffer from the third pathology of school learning—fantasy. They think they understand but they don't. The other two pathologies that characterize school learning for non-understanding are amnesia and inertia (Shulman, 1999). For that matter, we have to change our students' intensions and their materialistic and utilitarian worldview (Pope, 2001).

It is important to recognize that the defective quality of students' learning is not their fault. It is a natural product of school, an institution that is not structured for education for understanding. From the school's perspective understanding is a luxury. Understanding is a demanding business, and it is widely believed that students can "do school" without it.

So, how do we motivate our students to understand? By their nature, human beings are motivated, even passionate, to understand—to relate phenomena and concepts, to put them in context, to make the world intelligible and friendly. We can reduce the passion for understanding to other passions like the will to power, to dominate, to survive, and so on, but we are not dealing here with the geology of passions. We only emphasize the fact that the passion for understanding is quintessentially human, and we can construct education for understanding on that foundation.

Rather than fueling the will to understand, the institutional structures of schools and colleges stifle it instead. To activate the will to understand we need to provide the necessary conditions: a challenging curriculum, provocative teaching, flexible organization, formative feedback, a supportive climate, enabling technology, an inviting physical environment, and so forth.

With respect to the curriculum, consider a curriculum for understanding founded on the principle of "multiple understandings"—understanding in sciences (external and general); understanding in humanities (internal and particular); self-understanding (psychology, bibliotherapy, group dynamics); understanding through the arts; understanding through the body; and others. What is evident is that there is one word "understanding" but multiple kinds of understandings.

And it's worth noting that big ideas and big questions should not be confined only to the usual school subjects. They should play out on the field of new disciplines like cosmology, neurology, behavioral economy, futurology, or on the field of multiple disciplines through cross-disciplinary big questions about the origins of poverty and prosperity, war and peace, and so forth. In fact, perhaps we should discard the concepts of school subjects and disciplines altogether and look for another, more fertile, concept.

But the school subject or the discipline is the foundation of schooling!

That certainly is true, but subjects and disciplines do not support education for understanding. Hence, we should find an alternative concept, another way to package knowledge.

The first step in this process is to distinguish between the terms "school subject" and "discipline" (Karmon, 2007). Educators tend to regard these terms as the same, but they are two different forms of knowledge organization. In contrast to the school subject, the discipline encourages teaching and learning for understanding. But that's not necessarily the best approach for schooling. To illustrate that point, consider Table (1).

It should be apparent even from this summary table that disciplinary organization of knowledge is superior to subject-based organization in promoting understanding. Disciplines seeks to generate new knowledge, demand research work, operate in challenging zones, ask open questions, create rational knowledge and a reasonable picture of knowledge.

Table (1): Disciplinary organization of knowledge.

The organization of knowledge → Basic characteristics ↓	**School Subject**	**Discipline**
The ultimate goal	Transmitting existing knowledge	Generating new knowledge
The preferred cognitive performance	Final examinations	Research papers
The rule for choosing knowledge	Consensual and the certain knowledge	Controversial and the uncertain knowledge
Sources of knowledge	Secondary sources	Primary sources
The structure of questions	Closed	Open
The deployment of knowledge	From fewer topics in fewer school subjects to more topics in more school subjects	From more topics in more disciplines to fewer topics in one discipline
The quality of knowledge	Pre-disciplinary; "Fragile knowledge" (naïve, inert, ritualistic)	Disciplinary knowledge
The picture of knowledge	Absolute truth; knowledge as a mirror of nature	Getting close to the truth, to a better mirroring of nature

If that's so, why not organize school teaching and learning by disciplines?

Because the discipline is an organization of knowledge for producing experts, and that's the goal of the university. To a large degree, disciplinary understandings are niche understandings or even nano-understandings, whereas we aim for big understandings. As primary and secondary school educators, we do not grow experts; we grow "understanders"—people who understand big ideas and want to understand more.

So perhaps instead of talking about disciplines we should talk about "spheres of meaning." A sphere of meaning organizes knowledge in the framework of big ideas and big questions. Tracking the categories of the above table, the ultimate goal of the sphere of meaning is understanding big ideas and a motivation to understand. The preferred cognitive performance is a project (a research project, a piece of art) rich with understandings and insights. The rule for choosing knowledge is looking for big ideas.

The sources of knowledge are primary and secondary. The structure of questions is big questions. The deployment of knowledge is a small number (five, let's say) of spheres of meaning. The quality of knowledge that the sphere of knowledge cultivates is meaningful and understood knowledge. And the picture of knowledge it promotes is contextual and reasoned.

Big ideas are, by definition, meaningful ideas—both objectively and subjectively. From the objective point of view they are rich conceptual frames, and from subjective point of view they are motivationally rich. Hence, knowledge organized by the principle of big ideas generates sphere of meanings.

What makes a big idea "motivationally rich"?

A big idea has the potential to provoke a motivation for understanding because it undermines and resonates. It undermines because it challenges students' understanding webs and compels them to restore them and resume to their cognitive equilibrium (which should be undermined again and again), and it resonates because it explains many phenomena and concepts that students vaguely know or "feel" and want to clarify to themselves. The undermining generates tension, and the resonating resolves the tension. A teaching for understanding is done dialectally by means of these two instructional processes.

A dialectic instruction guaranties understanding.

No teaching and no teacher can guaranty understanding. Understanding is accomplished by the student for the student, but good teaching and a good teacher can support this process, and help him or her to construct understanding.

Let's give teaching and teachers for understanding one more boost. From a practical point of view, understanding understanding as a conceptual web has a weakness since it difficult to know if a student understands, if he or she has a dense, correct and systematic web of relevant concepts in mind. The minds of others are not accessible to us (thankfully), and the student's mind is inaccessible to the teacher. But we can make understanding accessible, a public event, if we define it differently—as a performance. Perkins and his colleagues (Wiske, 1998), distilled understanding to a series of "understanding performances"—thinking operations with knowledge. To understand is to think flexibly with knowledge. Perkins suggested seven understanding performances; we suggest eighteen understanding performances divided to three categories:

Table (2): Peformances categories:

To present knowledge	Manipulate knowledge	To criticize and create knowledge
To express knowledge in your own words	To analyze and synthesize knowledge	To give reasons and justify knowledge
To summarize knowledge	To suggest example, metaphor, analogy, comparison	To reveal contradictions or tensions in knowledge
To explain knowledge	To generalize from detailed knowledge	To question knowledge
To suggest interpretations of knowledge	To predict from knowledge	To reveal basic assumptions of knowledge
To represent knowledge in various ways	To contextualize knowledge	To formulate counter-knowledge
To present perspectives on knowledge	To apply knowledge	To create knowledge on the basis of knowledge

The performative view of understanding reduces the concept of understanding to thinking. Understanding is not a state of mind but an activity—an intellectual activity or performance. And note that an understanding performance must be done well, otherwise it is low quality performance (a student asking a trivial question, suggesting a banal metaphor, etc.) or a misunderstanding performance (a student misinterprets, explains ineffectively, generates mistaken ideas, etc.). And note further that an act of thinking with knowledge does not necessarily reflect one understanding performance, but a several.

I'm undermined again. If understanding is performance, why did we invest all the effort and time in understanding understanding as a conceptual web?

Our investment is not entirely lost. Remember, understanding according to the performative interpretation (an understanding performance) is thinking with knowledge. Knowledge consists of conceptual webs one stores in the mind or, in cognitivists' language, in long term memory. And the better, the more densely woven your webs are, the better your understanding performances. In other words, there is an intimate and integral connection between knowledge and understanding, conceptual webs and understanding performance. The conceptual webs, the knowledge, that one preserves is one's mind is the foundation of the individual's actual and potential understanding performances.

But it should be admitted that there is "a world war" in the last decades between these two concepts of understanding – understanding as a web, as a conceptual representation of the world, and understanding as a performance done without conceptual representations in mind. We don't have to take a side in this argument. We may claim that these two theories of understanding are effective when they are unified in an overall theory or as separated theories, just like in quantum theory you may grasp quantum once as waves once as particles.

Well, let's take this all into the classroom.

We can suggest seven very general directions in preparation for, during, and at the end of the lesson for understanding:

1. Formulate a very big idea you want your students to understand, or formulate the main goal of your teaching in terms of a very big idea, and divide it into several subordinate big ideas;

2. Extract from the very big idea a very big question and divide it into several subordinate big questions;

3. Base your lessons on big questions leading to big ideas; undermine and resonate;

4. Anticipate before the lesson and spot during the lesson personal and class understandings and misunderstandings, and address them persistently and systematically;

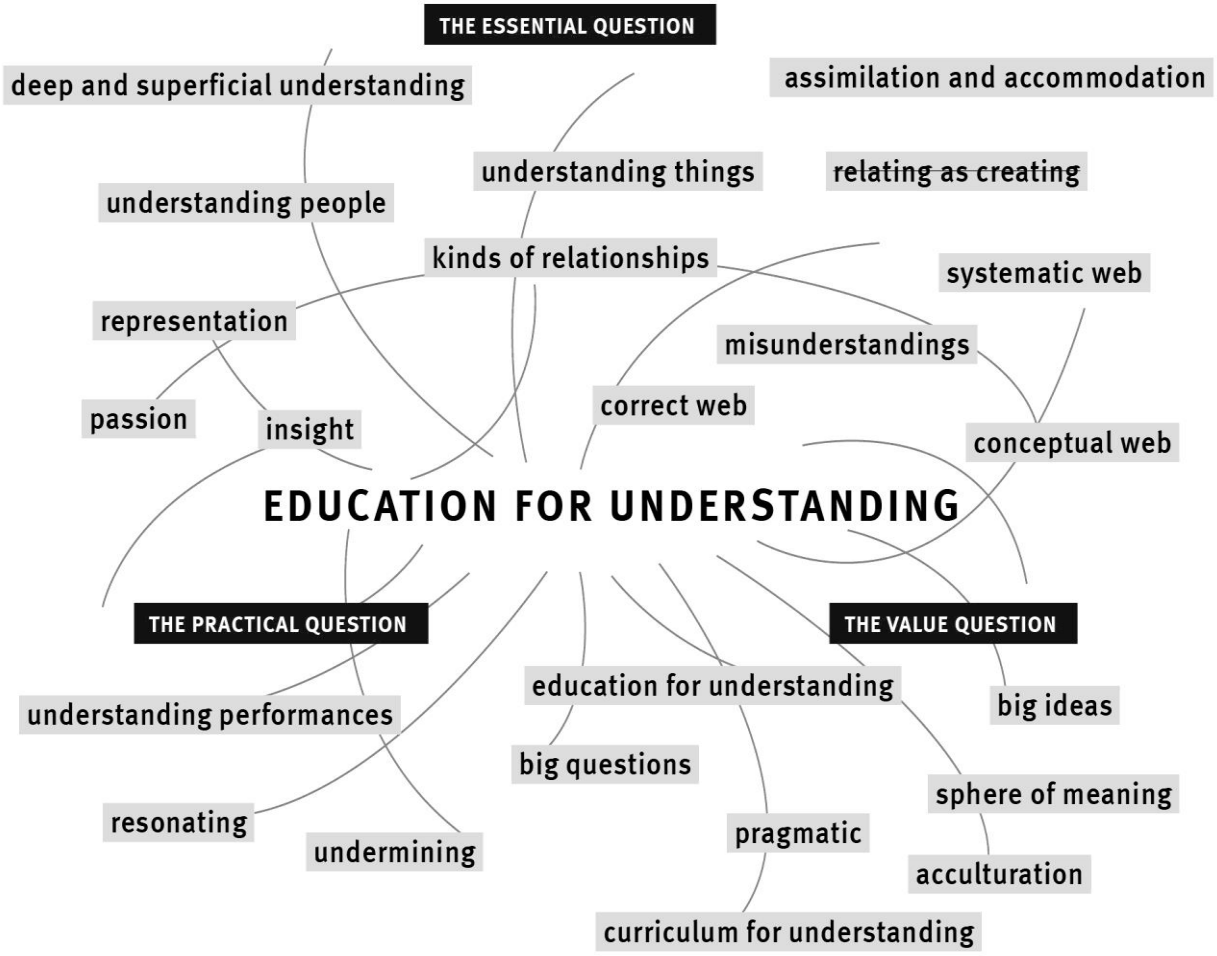
5. Direct your students to understanding performances and provide feedback accordingly;

6. Give your students understanding, challenging assignments and assess them on the quality of understanding performances; and,

7. Design and mold a culture of searching for understanding in your classroom (through modeling, explanations, interaction, and feedback).

We need to provide more detailed directions, but avoid too much design for understanding. Understanding, as we said, is creating, and creating calls for freedom, spontaneity, and improvisation. And since understanding is creating done in each individual mind, we cannot generate it directly but, rather, furnish conditions that will maximize its prospects both inside and outside school. We need a whole village to educate for understanding.

Well, I think I begin to understand what teaching for understanding is all about. We may conclude our conversation …



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From Teaching for Understanding to Educating for Understanding the World

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Abstract

The article maintains that the "Teaching for Understanding" movement successfully achieved one key objective – developing effective teaching frameworks for understanding the subjects taught in schools. However, it failed with respect to two other core objectives – constructing a comprehensive educational concept that promotes in-depth, critical understanding of the world, and making such understanding the focus of the educational enterprise. The movement's important achievement is attributable to the development of a new paradigm – "the performance view of understanding." However, this paradigm led the movement to a narrow concept of education for understanding that concentrated almost solely on teaching methods, meanwhile discarding crucial educational components such as the contents taught in school and its organization of knowledge. In order to achieve these objectives the article suggests four central steps: expanding the movement's educational objectives, scrutinizing the content taught in schools, designing an ideological-political position and changing the basic organizational patterns of schools.

Introduction

The term "Teaching for Understanding" denotes the movement that has enjoyed considerable currency in educational circles both in Israel and internationally over the past several decades. As I will maintain, the movement successfully achieved one key objective – developing effective teaching frameworks for understanding the subjects taught in schools. However, it failed with respect to two other core objectives – constructing a comprehensive educational concept that promotes in-depth, complex, critical understanding of the world, and making such understanding the focus of the educational enterprise. Further, I will argue that this failure resulted, at least in part, from a number of related lapses by a majority of the movement's theoreticians, their critics included, and I will suggest several steps that may be taken to address these problems and advance the movement – from teaching for understanding to education for understanding the world.

The Teaching for Understanding Movement

Teaching for Understanding is not an institutional but, rather, a conceptual movement (or insight) of educational academics and practitioners who share a pedagogical sentiment and conceptual disposition that was addressed in articles and conferences and implemented in schools worldwide. Beginning in the 1990s the movement gained recognition and began to be implemented in Israel largely under the influence of the Branco Weiss Institute.

Among the best-known proponents of the movement are David Perkins and Howard Gardner, founding members of Harvard University's Project Zero. Both have published widely on understanding and teaching and both nurtured an impressive cadre of thinkers, scholars, and practitioners who initiated projects on teaching for understanding. Project Zero's flagship program is "Teaching for Understanding," at the core of which is the concept of "understanding performance," which "require [the students] to extend, synthesize, and apply what they know" (Wiske, 1998, p. 4).[i] To that basic concept the developers of the program added three more components: generative topics, understanding goals, and ongoing assessment (1998, p.4).

Other leading thinkers and scholars of the movement approach the subject from different perspectives, among them Martin and Jacqueline Brooks (1977) who emphasize the constructivist dimension of teaching for understanding and Grant Wiggins and Jay McTighe (2013) who identify six facets of understanding (explanation, interpretation, application, perspective, empathy, and self-

understanding) and advocate application of "backward design" for teaching for understanding (i.e., first defining the understanding goals; then determining the evidence necessary to assess them; and thereafter designing appropriate instructional methods).

Prominent among British educationists is Douglas Newton (2000) who developed a general, research-based concept of understanding and its development. In Israel, as well, there developed an original framework for teaching for understanding – the so-called "Community of Thinking" – that develops understanding through a fertile question, research questions and concluding performances (Harpaz, 2014).

These and other thinkers and scholars developed the dominant paradigm in the field of teaching for understanding that responded to two problems. The first is defining the concept of "understanding." This concept originated in the domains of philosophy and cognitive science. Beginning in the late nineteenth century, philosophers grappled with the concept of understanding and formulated their insights in the field of hermeneutics (Dilthey, 1996; Gadamer, 1975). Cognitive psychology, which emerged in the second half of the last century, explained understanding in terms of a model called "information processing."

The problem for educational thinkers was that both concepts were too abstract and removed from teaching practice to serve as useful concepts for education. Dilthey's and Gadamer's key concepts – "empathy", "hermeneutical circle," and "fusion of horizons" – were fruitful concepts for interpreting texts and interpreting the act of interpretation, but much less so for guiding the practice of school teachers. Mental representations, mental models and schemas were helpful concepts for explaining the operation of the mind.

However, as Gardner remarked, "one cannot directly examine mental representations" (Gardner, 1999, p. 132), and as Perkins noted the "representational view of understanding" was linked to the folk conception of understanding that equates understanding with perception as exemplified in expressions like "I see what you mean" and "I see the point" (Perkins, 1998, p. 44). Such expressions, he warned, "suggest not only that understanding involves attaining an internal representation but that it comes quickly, like a visual gestalt" (1998, p. 51).[ii] A new definition of 'understanding' was needed.

The performance view of understanding served as a breakthrough concept. Evading the philosophical abstractions and focusing on agreed upon practical expressions of "understanding behavior," the concept was now viewed as "the ability to think and act flexibly with what one knows" (Perkins, 1998, p. 40), and this ability is expressed in a series of well-defined, systematic and practical understanding performances of students in the classroom. This new definition would provide practical guidance to teachers who wanted to cultivate understanding in their classrooms.

The performance concept of understanding served as a springboard for constructing an elaborate instructional framework that is continuously developing and which serves as the foundation of the "Teaching for Understanding" movement. Within this framework, important distinctions were made between understandings in various disciplines and beyond (Gardner and Boix Mansilla, 1994; Boix Mansilla, & Gardner, 1997). Educators identified intuitive theories that impede acquisition of new knowledge and offered teaching methods to address them (Gardner, 1991); they introduced various types of questions that promote understanding (Harpaz, 2014); and they designed understanding generating feedback and assessment mechanisms (Wiske, 1998).

The concept of understanding performances served as a point of departure for coping with the second problem that thinkers and scholars of teaching for understanding confronted, i.e., developing a practicable framework for teaching in existing schools. Efforts to develop a framework to promote understanding are hardly new. John Dewey made initial attempts beginning at end of the nineteenth century. Yet earlier, were Michel de Montaigne in the sixteenth century and before him Socrates and Plato in the fourth century B.C. However, these efforts to develop frameworks for teaching for understanding were unsuitable to modern, mass education schools. Socratic dialogue, for example, is an ideal framework for cultivating critical understanding

in a setting of intimate dialogues among participants on all sorts of fundamental issues, but it doesn't have much to offer in today's crowded classrooms.

Likewise, various methods of "adventurous teaching" inspired by Dewey's thinking were ineffective in typical schools (Cohen, 1989). William Kilpatrick's "project method" in the early twentieth century (Kilpatrick, 1918), Jerome Bruner's "discovery learning" in the 1960s (Bruner, 1961), and various inquiry-based learning methods that followed all demanded fundamental changes in schools and, therefore, either were abandoned or were neutralized by the existing framework of schools in which they were implemented. By comparison, frameworks of teaching for understanding that developed from the performance concept of understanding were tailored to the operation and structure of schools.

Criticisms of the Teaching for Understanding Movement

As is the case with prevailing paradigms in other fields of knowledge, likewise one finds critics in the area of teaching for understanding. Two Canadians are among the most prominent. Kieran Egan (1997) didn't directly challenge the concept embodied in teaching for understanding, yet a criticism is implicit in his educational philosophy. His central claim is that this concept is insufficiently sensitive to the phases of cognitive development of young learners, prematurely subjecting them to the "philosophic stage" in the development of understanding, thus impairing critical potential capacities, particularly the creative imagination. This infirmity leads, in turn, to superficial understanding and a lack of vitality in thinking.

Karl Bereiter (2002) criticized directly what he called the "performance perspective" of teaching for understanding, asserting that it faltered in precisely the two areas that were considered its strengths: a clear and workable definition of "understanding" and dictating effective teaching methods that flowed from this definition. He maintained that the performance perspective reduces understanding to a collection of performances (explanation, interpretation, application, etc.) without explaining the precise meaning of the term "understanding" and, in effect, vitiates the concept.

According to Bereiter, the concept of understanding performances is at its heart a "process approach" that emphasizes procedures and cognitive skills at the expense of conceptual knowledge – the essence of what should be understood. The most evident problem with this characterization is the resulting concept of teaching that follows: ". . . teaching for the test – defining a set of performances that will be accepted as evidence of understanding and then schooling learners in those performances" (Bereiter, 2002, p. 101).

The criticisms of the dominant paradigm in teaching for understanding are compelling and call for fresh thinking. To my mind, however, our most earnest efforts will not rescue the paradigm of teaching for understanding from two fundamental failures: it neither constructs an educational concept that will enable learners to achieve in-depth, complex, critical understanding of the world in which we live nor does it establish teaching for understanding as the focus of the educational enterprise. I will clarify these points in the sections that follow.

Understanding Knowledge and Understanding the World

Isn't teaching for understanding designed to help students understand the world they live in? If so, why do I claim that it is failing in this respect? The key to answering these questions lies in the commonly overlooked fine distinction between two associations of the term "understanding" in the context of teaching for understanding. The first association – the one preferred in the movement – emphasizes the association of understanding to the learned **knowledge** and, more specifically, the knowledge learned in school. The second association, which does not receive the attention it deserves, emphasizes the relation of understanding to **the world and to the individual** who lives and acts in it.

In the first instance, the central question is what will be recognized as understanding of knowledge taught in school and how will it be advanced. As we have noted, the "Teaching for Understanding" movement furnished a clear and

practical answer to this question – and this is its key strength. And yet, even if the student demonstrates understanding of the knowledge presented in class, it does not follow that s/he understands the world in which s/he lives and functions. This is so because the school knowledge that has been mastered may be insignificant for understanding the world or, at best, important but partial.

In the second instance where the focal point is the student's ability to understand the world and himself, a fundamentally different question is involved: What would be considered as understanding the world and how will we go about promoting it? The answer implicates a central concept – one's **world view**. A world view is an amalgam of ends, values, and knowledge that guide a person's choices and actions. A learner's understanding of the world finds expression in the world view that develops over the course of his or her education. Thus, we can say that the learner understands the world only if s/he has developed a coherent and applied world view based on broad, reliable knowledge that concerns the formative aspects of the world. If this is so, understanding one or another bit of knowledge is insufficient. One must understand a whole series of facts and theories essential for understanding the world, make appropriate connections between them, and apply them in real world situations. The measure of understanding school knowledge is the quality of students' understanding performances whereas the litmus test of understanding the world is the quality of the students' world view. The goal is not to fashion a single world view that is shared among all students but, rather, to enable each learner to develop his or her own coherent and dynamic world view.

This analysis suggests that education for understanding will lead a learner to understanding of the world and him or herself only if two conditions prevail. First, that what is being taught is truly formative and authoritative knowledge that is essential for understanding the world. Second, that the organization of contents and the teaching for understanding are directed towards active integration of the different elements of taught material with an eye towards constructing students' coherent and dynamic world view. I have maintained that these two conditions do not prevail in existing schools even when they adopt and implement teaching for understanding.

Below, I will adduce evidence that schools do not satisfy these two conditions. Presently, however, I want to emphasize that the movement for teaching for understanding poses a circumscribed question, which is not tailored to developing students' understanding of the world: What teaching methods will lead to understanding of the knowledge taught in school?[iii] By contrast, an educational movement whose objective is understanding of the world and oneself poses a broader question: What are the contents, organizational patterns, and teaching methods necessary for an educational environment to promote students' understanding of the world and themselves?

The relationship of the two movements is asymmetrical. The movement of educating for understanding of the world subsumes the movement of teaching for understanding as an essential element. One cannot understand the world if one does not master the knowledge intended to achieve that goal. The movement of teaching for understanding, on the other hand, does not subsume educating for understanding the world since, as stated, students are liable to understand the knowledge taught in school without understanding the world. This alone is one important reason to opt for understanding of the world as the primary objective of education for understanding. But there is another, more important reason as well: our prevailing and anticipated reality that is fraught with unparalleled complex, social, economic, cultural, and identity challenges. Only if we succeed in developing in-depth, complex, and critical understanding of the world in our learners will we be able to equip them with essential skills and motivation to cope with those challenges – and we are obligated to do so. We cannot settle for the understanding of knowledge that currently prevails in schools.

However, such a far-reaching goal is only achievable if it forms the core of teaching and learning in schools. I have argued that teaching for understanding faltered on precisely this point. Accordingly, to avoid a similar fate with respect to education for understanding of the world, it behooves us to address the causes of this failure.

Why has Teaching for the Understanding been marginalized in schools?

Despite the fact that teaching for understanding has been functioning for decades in many places throughout the world, it has not succeeded in taking its place at the center of school systems. And despite its efforts to develop teaching methods adapted to the practices of existing schools, it remains marginalized. We ought not assign principal blame to the movement's guiding paradigm but, rather, to the policies of the educational systems in which the movement operates. These systems are based on uniform standards and high-stakes examinations that reinforce traditional teaching – authoritarian teaching geared towards standardized tests. But this assertion is insufficient to exonerate the paradigm of teaching for understanding because it also suffers from a structural defect that prevents it from taking a central place in teaching even in most schools that seek to implement it.

The failure is rooted in the movement's non-systemic approach to schools. It functions as if it is possible to change a single component of the schooling system – the teaching methodology – and leave the other elements unaltered. However, if the educational system was initially designed to serve a purpose other than teaching for understanding, then any attempt to change only a single element is doomed to failure.

Many educational thinkers have unpacked the systemic structure of schools and the fact that its purpose is delivery and reproduction of knowledge. Seymour Sarason (1996) identified the organizational regularities of schools that, in turn, establish the behavioral regularities of teachers and students in classrooms. Zvi Lamm (1976) demonstrated how the basic structures of schools depend on the ideology of socialization, which, at its core, is associated with a pattern of teaching – the "imitation pattern." Ted Sizer (1984) has dwelled in great detail on the way in which the structure of class periods, the number of students a teacher meets within the course of a week, and the structure of the teacher's job lead teachers to compromise and prevent them from implementing teaching for understanding, notwithstanding their best intentions. David Tyack and Larry Cuban (1995) characterized the systemic foundation of schools as the "grammar" of schooling and demonstrated how it impedes all efforts to effect change.

In several articles (Karmon, 2007, 2010, 2016), I have introduced the concept of "organization of knowledge" as a means of integrating and focusing these important insights, maintaining that we should view schools as a system that organizes knowledge for purposes of teaching and learning in terms of a hierarchy of knowledge levels. The first is the institutional level, i.e., schools' most fundamental and general patterns of organization. At the root of these patterns is the "organizing framework" that forms the foundation of schools' organization of knowledge at all levels – the so-called "school subject" – which functions as a general mold with fixed characteristics that organizes the taught knowledge. Next, within the environment created by the institutional level, the content level establishes the areas of knowledge that will be taught and their respective curricula. It is only on the heels of these two levels that we arrive at the third level – teaching, i.e., how teachers organize the knowledge established in the previous two levels for delivery in the classroom. Stated otherwise, teachers organize the contents that were determined in the content level in accordance with the organizing framework – the school subject – that was designed in the institutional level. It can be shown that the fundamental characteristics of the school subject are decidedly geared towards delivery by the teacher and reproduction by the student – and not towards student understanding.

The potency of the school's systemic dimension and the fact that the element of teaching is derivative of other foundational elements rather than the formative one lead to an inescapable conclusion: so long as teaching for understanding is unable to effect a profound change in the foundational elements of schools, there is little chance that it will establish itself at the center of and play a leading role in schools.

In light of the two fundamental failures of the "Teaching for Understanding" movement it is necessary to forge a new concept of educating for understanding that focuses on education for understanding the world and oneself and that offers a path to move from the periphery to the core of

schools. In order to develop such a concept, we must go beyond teaching for understanding and even beyond the various criticisms associated with it because even the critics largely share the views that give rise to the two fundamental failures that we have identified. In what follows, I will offer four steps to formulating such a new concept.

Education for Understanding the World: Four Central Steps

The first and most important step entails **expanding the educational objective** of the movement in three dimensions: (1) From understanding of the knowledge taught in school to understanding of the world; (2) From implementing education for understanding only with respect to teaching to implementing it in all systemic elements of the school; and (3) From discrete understanding performances to a general world view that embodies a multiplicity of understanding performances and the relationships between them.

The second step, which follows from the first, involves **scrutinizing the content taught in schools**. Engagement with the curriculum is controversial, as it implicates deep ideological, political, and theoretical disputes – one reason that may explain why the movement of teaching for understanding refrained from dealing with it. Nonetheless, a movement that aims to promote understanding of the world is obliged to offer a systematic and reasoned framework for a newly designed curriculum.

One possible framework could be based on the "four spheres of meaning" (Karmon, 2016) – four interrelated contexts that give meaning to our contemporary lives in two senses of the word: meaning as understanding reality and meaning as the significance of and reason for living. The four spheres of meaning are: the personal sphere; the communal sphere; the state and national sphere; and the global and environmental sphere.

The spheres of meaning are dynamic and historically context-sensitive. Evidently, they are undergoing expansion. Thus, for example, until the mid-nineteenth century, most of humanity constructed the meaning of their lives with reference to the first two spheres – personal and communal. Emergence of nation states marked the addition of a third powerful sphere of meaning that influenced the first two. Beginning in the last third of the twentieth century, with accelerated development of globalization and environmental developments that crossed national boundaries, a fourth sphere of meaning emerged that exerted strong influence on the others.

Two spheres of meaning find virtually no expression in the common curriculum – the personal sphere and the global-environment sphere. Since these two spheres have a profound influence on our understanding of the world and of ourselves, a movement for educating for the understanding of the world is obliged to include their content in the curriculum. For example, to understand the self in relation to the world, it is advisable to study subject matter such as psychology, sociology and anthropology aligned with core humanities such as philosophy, literature and history, supplemented by varied group workshops related to interpersonal and emotional aspects. Understanding the global-environmental sphere demands deep and lasting integration of subjects such as sustainable economies, cultural studies, ecology, systems thinking, and global citizenship.

Such a framework, however, is insufficient for making informed choices regarding the essential contents for understanding the world and the self. To make these choices we must establish a set of priorities among and within the spheres. And this requires the third step: **systematic design of an ideological-political position**. Here, again, the movement of teaching for understanding avoids taking a stand. The reason for this is clear enough: involvement with teaching frameworks supposedly devoid of ideological and political points of view confers broad audience appeal. And, indeed, teaching for understanding should suit all social and cultural sectors. However, is that really so? Not precisely. Implicit in the pedagogy of teaching for understanding is a guiding ideological and political concept embodying values such as rationality, critical thinking, pluralism, and personal autonomy. The movement makes no public claims regarding its core values, but policy makers who hold

divergent values – nationalists, ethnocentrists, traditionalists, and the like – are well aware of them and obstruct the movement's access to their schools in various ways. In current circumstances, therefore, the movement of teaching for understanding comes up short however you look at it: it doesn't enjoy the important educational advantages reserved for educational concepts that flow from an integrated socio-political position, and it doesn't win a broader audience by abstaining from such a position.

The preferred course, therefore, is to articulate with clarity the core values of education for understanding the world and to expand them to relevant ideological and political contexts. Even if this course of action invites divisions and disputes, it is preferable to the current situation because education based on a rich and cohesive ideological-political narrative promotes a deep sense of meaning and purpose among teachers. A second rationale was mentioned earlier. The existence of an ideological-political concept makes possible an informed and reasoned ordering of priorities among the many subjects that compete for place in the curriculum. How so? Consider the following: suppose we agree that global thinking doesn't receive due attention in our curriculum and, by consequence, that graduates' understanding of the world in which they live is unsatisfactory. Nevertheless, time constraints force us to choose among a mass of possibilities. Should we focus on poverty and hunger in Africa, the accumulation of fortunes by a few hundred capitalists, and environmental injustice, or should we target economic development, the free flow of goods and information, and the diverse, hybrid cultures that exist today? The preferred answer of many educators is: "All of the above." Yet this response is untenable. Over and above the time constraints, a long line of researchers in cognitive psychology, neuroscience, and processes of teaching and learning maintain that in the absence of focus on a few key ideas discussed from multiple perspectives and which are the subject of meaningful understanding performances, very little of what is taught is retained in long-term memory or transferable to new contexts (Willingham, 2014; Perkins, 2014). Thus, it is precisely the educational movement whose ultimate objective is understanding of the world that is obliged to decide on the most important subjects for understanding the world that will serve as the focus of learning. And this determination cannot be made intelligently and responsibly without a clear ideological-political concept.

Finally, establishing and developing an education for understanding of the world demands a fourth, critical step: a **profound change in the basic organizational patterns of schools** such that they will support education for understanding the world. I have argued that the organizing framework of the school subject is the foundation of knowledge organization in contemporary schools (Karmon, 2007). This framework was developed for delivery and reproduction of knowledge in learners' consciousness. All its basic characteristics are geared to this purpose. The central learning performance is the examination that measures the learner's reproduction of knowledge. Questions are closed in nature and demand a single correct answer. The guiding principle in choice of the knowledge to be learned is, "Choose the basic agreed-upon knowledge in the field." The sources of knowledge are what the teacher delivers, and special materials that are of one sort – textbooks, workbooks, and websites specifically tailored to the material on the test. Time divisions are in small, standardized units (typically 45-50 minutes) that occur at fixed daily and weekly intervals – 6 to 7 per day; 35 per week – that are taught one after another interspersed with short breaks.

These basic characteristics of the school subject constrain efforts in teaching for understanding the world. Accordingly, the basic and indispensable change is a transition from organizing knowledge into school subjects to knowledge organization in an understanding-based organizational framework– "spheres of meaning" (Karmon, 2010). A sphere of meaning is an organizing framework of knowledge and teaching whose purpose is to develop understanding of the world through the taught content and simultaneously to cultivate the student's cognitive, emotional, and moral engagement with that content. It can be based on the traditional disciplinary structure of existing schools or on social or other theoretical problems (bearing upon understanding of the world and the self) that require cross-disciplinary knowledge. All the basic characteristics of spheres of meaning differ from the organizing structure of school subjects. The key learning performance involves experience with creating in the learned domain. That creative experience may be expressed in constructing knowledge, in an artistic product or in a relevant social action; questions are open-

ended, generated in large part by students themselves, the answers to which call for applying the methodologies and thought processes of the particular discipline; the focus of taught knowledge are the central ideas that drive the discipline and the principal disputes that expose its theoretical and moral complexities; the sources of information, to the extent possible, are primary sources; allocation of time is characterized by a reduction in the number of disciplines taught concurrently in order to allow more active engagement in them and by flexible units of time both in and out of school. Significant amount of learning time is the student's responsibility.

The transition from subjects to spheres of meaning demands material changes in other patterns of organization and action in schools. For example, a significant portion of teachers' working hours will be devoted to planning and thinking in collaboration with other teachers and facilitated feedback to learners; to a certain extent, learning will take place outside the classroom walls and beyond the confines of the school; a large part will take place in learning frameworks other than the traditional classroom, such as one-on-one mentoring, small group learning, theme-based study groups, and the like.

The fourth step clarifies a major point that has been emphasized several times: meaningful and enduring education for understanding the world cannot come about within the framework of the patterns of organization and action in existing schools. Failure to grasp this critical point is one of the primary reasons for the marginal status of the movement of teaching for understanding. Of course, there is no guarantee of success in "upgrading" teaching for understanding to education for understanding the world. However, if the analysis proposed here is correct, the corollary is clear: education for understanding the world necessitates reinventing schools.

Conclusion

The movement of teaching for understanding made significant contributions to pedagogy and to the educational discourse. The performance concept of understanding effected the translation of abstract philosophical and psychological theories into teaching methods and created fertile ground for research and improved teaching. Yet, over the course of more than two decades, the movement's failures and limitations have become increasingly clear. The movement of teaching for understanding did not establish itself at the core of schools and did not adequately help students and graduates understand the world in which they live. The source of these failures stems from the movement's basic assumptions. Accordingly, it is necessary to design a new concept – education for understanding the world. This new concept doesn't stand in opposition to teaching for understanding but, rather, incorporates it as one of its elements. Therefore, the important pedagogical and theoretical insights of the teaching for understanding movement will continue to serve us going forward. Nevertheless, the most important conclusion of this essay bears repeating: the teaching for understanding movement in its current form is inadequate to the central educational challenge of our time – educating young people for complex and in-depth understanding of the world and themselves that will confer the knowledge, skills, and motivation needed to make the world a better place.

Notes

[1] The definition of the concept 'understanding performance' was not uniform. Elsewhere in the book, Wiske herself defined it "as the ability and inclination to use what one knows by operating in the world" (Wiske, 1998, p. 72). Gardner claimed that "An individual understands a concept . . . to the extent that he or she can apply it appropriately in a new situation"(Gardner, 1999, p. 119), and Perkins defined it as "the ability to think and act flexibly with what one knows" (Perkins, 1998, p. 40). Although not uniform, all the definitions emphasized the basic intuition that a performance of understanding is "going beyond the information given" (Bruner, 1973) and that "understanding performances ask the learner to stretch" (Perkins, 1998, p. 42-43).

[2] The attitudes of Perkins and Gardner toward the representational view of understanding were quite complex and, at least in the Perkins case, changed considerably during the years of the Teaching for Understanding (TfU) project. In his book "Smart Schools" (1992), published in the first years of the TfU project (started in 1988), Perkins goes out of his way to show the "reciprocal relationship" between mental images and

understanding performances. He refers to his approach as the "performance **perspective** on understanding" (Perkins, 1992, p. 78, emphasis added) and sums up his discussion of the issue as follows: " . . . mental images and understanding performances occur in a kind of reciprocal relationship. Helping students acquire mental images . . . equips them for understanding performances. But also, involving students in understanding performances . . . helps them build up mental images. So there is a kind of partnership between mental images and understanding performances" (ibid., pp. 82-83).

Six years later in his contribution to the comprehensive book describing the TfU project (Wiske, 1998), he goes out of his way to show the grave shortcomings of the "representational view of understanding" and his approach is no longer a mere "perspective" but a full-blown "performance **view** of understanding" (my emphasis). In an extended discussion of the two views of understanding he demonstrates not only the problematic ramifications of the representational view for teaching for understanding, but the strong conceptual and practical independence of the performance view. He stresses that in many cases one understands without having a mental image and that having a mental image is no warranty of understanding (Perkins, 1998, pp. 42-51). What was seen originally as an important perspective added to the dominant representational paradigm of understanding had become a paradigm of its own, dethroning the old one.

Gardner, on the other hand, seems much more favorably disposed to the representational view, and his attitude resembles the "early Perkins". In his book "The Disciplined Mind," published in 1999, he does declare that "one cannot directly examine mental representations," but "viewed up close" the performance approach, "reveals its cognitivist assumptions and affinities through and through" (Gardner, 1999, p. 132). His main concern is to show that the performance view is not behavioristic. The relationship he finds between understanding performances and mental representations is perceived by him as a proof of the matter. He ends his discussion of the issue arguing that "students are unlikely to be able to succeed regularly in responding to new and unfamiliar challenges unless they have altered their initial flawed representations," and that '[t]he acid test of the performance view of understanding is the development of more adequate and more flexible representations" (1999, p. 132). Disregarding these different attitudes towards the representational view, both Perkins and Gardner remained firm believers in the performance view as the high road for defining understanding and teaching for it.

[3] The issue of content in school is a noticeable lacuna in the TfU movement and in the teaching for thinking movement generally. A glaring exception to this rule is Gardner's important book, "The Disciplined Mind" (1999). Lately, Perkins also has begun to deal with the content question. See, Perkins, 2013; 2014.

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To Cheat or Not to Cheat: Academic Integrity across Cultures

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Abstract

Researchers have recently been interested in investigating academic dishonesty in higher education. There is however a dearth of research on academic dishonesty among gifted and talented undergraduates. In particular, academic dishonesty of talented undergraduates across-cultures, has been overlooked. This article reports an unintended finding of academic dishonesty in a study across academically talented undergraduate students in New Zealand and Bahrain. Participants were identified as those attaining an A average in their courses, in each location. Fourteen undergraduates, seven from each country, took part in phenomenological semi-structured interviews to determine their experiences as talented undergraduate students. Students' perceptions of academic dishonesty are compared across cultures through the lens of motivation theories. Findings show that culture has a strong impact on the degree to which such behaviour is accepted. This finding has implications in higher education institutions internationally.

Keywords: Academic dishonesty; Academic Talents; Undergraduates; Cross-cultural; New Zealand; Bahrain

Research on academic dishonesty among university students has shown that academic misconduct is prevalent and has been increasing (McCabe 1999). Academic dishonesty is a critical issue as it affects the learning process, thereby causing students to become less prepared to advance in education or in the workplace (Lupton, Chapman, & Weiss, 2000). Limited research connecting academic dishonesty with academically talented students has been found; in addressing dishonesty, gifted students have been mostly ignored (Abilock, 2009) because higher academic achievement is usually related to lower levels of academic dishonesty (McCabe & Trevino, 1997; Whitley, 1998). However, Geddes (2011) found that gifted students are motivated to cheat by grade point average pressure, peer pressure, and the demands of school workload.

While the majority of studies on academic dishonesty among undergraduates have focused on North American students (Christensen-Hughes & McCabe, 2006), limited research has examined cross-cultural differences in academic misconduct, especially between Middle East and Oceania. Therefore, the purpose of this article is to explore the relationship between culture and academic dishonesty among academically talented undergraduates in New Zealand and Bahrain through looking into achievement motivation theories and Hofstede's cultural dimensions model.

Reflecting the literature and the participants' usage, in this article the terms 'academic dishonesty' and 'cheating' are used interchangeably.

Academic Dishonesty

Academic dishonesty was defined by Nuss (1984) as the behaviour that results in students giving or receiving unauthorized support in any academic exercise or obtaining credit for work which is not their own. Gehring and Pavela (1994) described academic dishonesty as an intentional act in which:

> A student seeks to claim credit for the work or efforts of another without authorization, or uses unauthorized materials or fabricated information in any academic exercise… [or] forgery of academic documents, intentionally impeding or damaging the academic work of others, or assisting other students in acts of dishonesty. (pp. 5-6)

Moreover, academic dishonesty was explained as any deviant behaviour that violates the rules and guidelines of learning institutions (De Lambart, Ellen, & Taylor, 2003) and affecting the quality

and the reliability of assessments (Graves, 2008). Many students believe that cheating is not a problem if it is not affecting others (LaBeff, Clark, Haines, & Diekhoff, 1990). Others claim that academic dishonesty is a high-risk behaviour for undergraduates because when caught they could be suspended or dismissed from university (Rinn, Boazman, Jackson, & Barrio, 2014).

Research shows a significant negative relationship between grade point average (GPA) and academic dishonesty (Antion & Michael, 1983; Crown & Spiller, 1998). Research on college students shows that more capable students are less likely to cheat than less capable students (Newstead, Franklyn-Stokes, & Armstead, 1996). However, since vast numbers of undergraduate students admit behaviours of academic dishonesty, it is likely that some high ability students are also engaging in academic dishonesty especially given the importance of academic performance within that population (Abilock, 2009). According to Geddes (2011), academically talented students were pressured to cheat by grades, GPA, peer pressure, and heavy workload and not due to their lack of academic abilities.

Gifted and Talented Undergraduates

Research on gifted and talented university students is important not only to the field of gifted education but also to the field of higher education. Noting that there is no typical gifted undergraduate as there is no typical gifted child, prevalent literature has provided a broad view of what it means to be a gifted and a talented undergraduate. Tolan (1999) stated that gifted adults hold cognitive, emotional, and social characteristics similar to gifted children and different from the general university population.

Motivation

Researchers argue that motivation or drive is at the centre of eminent levels of achievement (Duckworth, Kirby, Tsukayama, Berstein, & Ericsson, 2011; Gagné, 2010; Matthews & Foster, 2009). They credited motivation with determining an individual's ability to respond to talent-development opportunities. Motivation can be referred to as persistence, task commitment, desire to learn, or drive to succeed. Regardless of the approach taken to define it, motivation plays an essential role in helping to understand the difference between potential and performance (McNabb, 2003). Ochse (1990) stated:

> "it is consistently recognized that the creator's most salient characteristic is persistent motivation" (p. 133).

Achievement motivation

As they explain how gifted students' goal orientations are developed, goal theories are important in understanding the achievement motivation of gifted students as suggested by Dai, Moon, and Feldhusen (1998). They also provide a holistic view of gifted students' desire to perform using both intrinsic and extrinsic motivation (Neumeister, 2004b). Three types of achievement goals were proposed by Elliot and his colleagues: mastery, performance-avoidance, and performance-approach goals (Elliot & Church, 1997; Elliot & Harackiewicz, 1996).

Elliot (1999) defines mastery goals as those focusing on developing competence that orient individuals toward success. Mastery goals appear to be negatively associated with academic dishonesty (Rettinger, Jordan, & Peschiera, 2004; Stephens, Romakin, & Yukhymenko, 2010), as students seeking to master any competency would be less likely to exhibit behaviours of academic dishonesty because it would weaken the desired goal of acquiring new knowledge.

Performance-avoidance goals focus on avoiding the feeling of incompetency relative to peers, and are driven by a fear of failure. Performance-approach goals, however, are defined as focusing on achieving competence, and are not driven by a single achievement motive (Elliot, 1999). Research on achievement goal orientations and gifted individuals is limited, and the findings are mixed. Ainley (1993) reported that gifted students had higher scores on both performance and mastery goal measures than other students.

Socio-cultural Perspective

Many studies have discussed academic dishonesty among different countries with limited studies comparing Middle Eastern to Western countries. Culture, however, does have a strong impact on individual ethical attitudes and behavioural intentions (Christie, Kwon, Stoeberl, & Baumhart, 2003; Swaidan, Rawwas, & Al-Khatib, 2004).

As suggested by Magnus, Polterovich, Danilov, and Savvateev (2002), students in collectivist cultures are tolerant toward cheating because helping other students to cheat during exams is accepted and possibly encouraged. McCabe, Feghali, and Abdallah (2008) reported that Lebanese students had significantly higher levels of academic dishonesty than American students, arguing that Lebanese students behaved how they were raised to behave, working together to navigate difficult tasks. Similarly, Williams, Tanner, Beard and Chacko (2014) found that culture influences business student perceptions of academic misconduct, as students from the United Arab Emirates (UAE) were significantly more likely to report engaging in academic misconduct than students from the United States (US.).

Hofstede's cultural dimensions

Hofstede's (1980; 2001) cultural dimensions provide the fundamental lens for understanding cultural differences and obtaining deeper understanding of cross-cultural research. Hofstede (2001) argued that important cultural differences can be captured by observing the extent to which each culture differs with respect to three dimensions: power distance, uncertainty avoidance, and individualism-collectivism.

Power distance (PDI). Power distance is defined as the degree to which less powerful members of a society accept and expect that power is distributed unequally (Hofstede, 2001). The issue at hand is how should a society control inequalities among its people. Hofstede claimed that people in high power-distance-societies accept an unjustifiable hierarchical order. In societies with low power distance, people strive to equalise the distribution of power and demand justifications for any inequalities.

Uncertainty Avoidance (UAI). Uncertainty avoidance is defined as the extent to which members of a certain culture feel threatened by ambiguous or unknown situations, thereby creating certain beliefs systems to help avoiding these situations (Hofstede, 2001). According to Hofstede, countries with high uncertainty avoidance maintain rigid systems of belief and behaviour, and are intolerant of unusual behaviour and ideas. Lower uncertainty avoidance countries, however, have a more relaxed attitude in which practice counts more than principles.

Individualism/ Collectivism (IDV). The strength of the relationship between the individual and the group is reflected by individualism or collectivism. This describes the degree to which the individual's interest and identity overcome the group's (Hofstede, 2001). In collectivistic cultures, individuals act and identify themselves primarily as members of a group (i.e., they tend to think in terms of 'we' instead of 'I') whereas in individualistic cultures, these ties are looser.

Table 1 shows the differences between students from New Zealand and Bahrain measured on the four dimensions. It is worth noting that Bahrain is not represented in Hofstede, Hofstede, and Minkov's (2010) countries scores. The scores for Bahrain that are outlined in the table below regarding Hofstede's dimensions were based on the scores for Kuwait, Saudi Arabia, and United Arab Emirates, to reflect Bahrain's possible scores. These countries, along with Bahrain, Qatar and Oman are all members in the Gulf Cooperation Council (GCC), in which they share historical and religious backgrounds that created mutual visions (Gulf Cooperation Council, n.d.). Scores reported by Hofstede et al. (2010) were identical for Kuwait, Saudi Arabia, and United Arab Emirates on *Uncertainty Avoidance* and *Individualism/Collectivism*. However, for Power Distance, the scores varied slightly across the three countries, and therefore the three scores were averaged to represent Bahrain's on these dimensions. The numbers in brackets are the country's index scores. It is therefore

hypothesised that due to cultural differences in three of the four dimensions (i.e., PDI, UAI, and IDV), New Zealand and Bahrain are likely to have differences in term of academic dishonesty.

Table 1: New Zealand and Bahrain scores on Hofstede's Cultural Dimensions.

Cultural Dimensions	New Zealand	Bahrain
Power Distance (PDI)	Low (22)	High (92)*
Uncertainty Avoidance (UAI)	Low to Medium (49)	High (80)
Individualism/Collectivism (IDV)	High (79)	Low (25)

Note: This table was adapted from Hofstede et al. (2010)
* PDI Mean reported: Kuwait and United Arab Emirates =90, Saudi Arabia=95.

Method

This study adapts a qualitative method approach in order to provide in-depth understanding of academically talented undergraduates' talent development. Semi-structured interviews are often preferred over structured interviews, as rigidity might cause discomfort and formality between the interviewee and the researcher (Punch, 2009). Although interviews in this study were semi-structured, a standard interview schedule was developed to provide consistency between interviews held at different times and in different locations, as well as to reduce the likelihood of interviewer bias (Powney & Watts, 1987).

Nevertheless, an unintended finding was introduced by the first participant in Bahrain regarding academic dishonesty. This was a new aspect to the research which the researcher wanted to explore more between both samples. An additional question was added to the schedule for the participants still to be interviewed. The participants who had already been interviewed in New Zealand were emailed the additional question, with all replying in detail.

It could be argued that because phenomenology brings forth people's lived experience, each would do this according to their standpoint, from where they perceive the phenomenon (Sadala & Adorno, 2002). The authors also noted phenomenon as something that shows and hides itself. It is the researcher's role to realise and make sense of the meaning units, which in this case was academic dishonesty in Bahrain. The question was also emailed retrospectively to each participant in the New Zealand sample. Guidance was sought from senior advisors at the university in New Zealand and who deemed that as ethical permission had been obtained to ask questions relating to talent development, then a relevant issue raised by a participant could be included in the study. The audio files were transcribed and verified by the researcher. Participants were given the opportunity to check their transcripts for accuracy. All participants have been given pseudonyms.

Participants in this study were seven undergraduate students from a university in New Zealand and seven from a university in Bahrain, making up a total of 14 participants (9 females). All students had an A grade average, majoring in Art, Engineering, Science, Law, and Business, and were in the age range of 19-23 years old. Participants from New Zealand were enrolled in the Faculty of Engineering (3 students) and the Faculty of Arts (3 students), with one student doing conjoint Arts and Engineering. Students were given the following pseudonyms: Jamie, Jason, Peter, Christine, Joana, Sally, and Melissa. Participants identified themselves as NZ European/Pakeha, with one identified as NZ European and Māori. In Bahrain, four students attended the Faculty of Engineering, two the Faculty of Arts, and one the Faculty of Business Administration. The participants were given the following pseudonyms: Abdulla, Ahmed, Fatima, Rana, Reem, Noof, and Noora.

In New Zealand, an administrator at the faculty of Art and Engineering emailed eligible students the research advertisement and provided them with the researcher's contact information. No data about the eligible students was revealed to the researcher. Another method for locating potential participants was an advertisement posted around the campus on each faculty's advertisement board,

and on the university's social media website (namely Facebook). The final selection of seven students occurred based on their age, gender, major of study, and GPA, to allow for maximum variability. In Bahrain, due to time constraints, the researcher was not able to gain the Faculty Deans' consents to approach the targeted students via e-Mail as was the procedure in New Zealand. Students were therefore approached through social network outlets. Although the participation was open to students from all faculties, those enrolled in the Arts or Engineering Faculty were targeted to increase comparability between the New Zealand and Bahrain samples.

Individual in-depth interviews were carried out at the campus of the university in New Zealand, and in a public location that afforded the interviews an environment of confidentiality in Bahrain. The interviews were carried out in English and were audio recorded.

Findings

Analysis of semi-structured interviews revealed main themes related to motivation and academic dishonesty. However, as mentioned earlier, aspects of academic dishonesty were identified as an unintended finding.

Motivation

Participants' high self-expectations, interests in learning, and personal goals fostered their achievements and motivated them to attain excellence. In New Zealand, Peter had personal expectations that helped in developing his abilities: "keeping up what I've already achieved. You know there is a little bit of expectation, but it is not external". Melissa also asserted: "I'm often kind of wondering what it is that pushes me to work so hard and to get good grades, and I think a lot of it is just personal satisfaction".

Jason however, regarded education and high academic abilities as reflecting maturity; "I want to be an adult and to grow up, and part of being adult is being educated, I think".

In Bahrain, four participants argued that having personal goals makes them focused to achieve. Fatima expressed: "the more goals I set for myself the more motivated I get, and I always try to put my goals in front of my eyes". Noof, however, reported having high academic standards for herself, reflected by external awards: "I can't really wait to hear them saying at the graduation ceremony: Noof with first class honours".

Academic dishonesty

Cheating was raised as an issue by the first interviewee in Bahrain; it was then added as a question to the remaining participants in Bahrain. The word 'cheating' was used, as that was the term used by the first student in Bahrain to describe the practices, which elsewhere in this study will also come under the umbrella of academic dishonesty and academic integrity.

In New Zealand, all participants reported being against cheating. Sally believed that "cheating in academics degrades the work others have done". Peter and Joana viewed it as negatively impacting learning in the long term: "inadvertently giving someone a quick answer will actually hinder them in the long term," Peter said. Joana similarly added: "Imagine if engineers started building bridges and risking people's lives because they don't understand the basics because they have just copied answers from their friends".

Two participants reported on the risks of cheating; and Jason commented:

> The risk outweighs the benefit quite heavily. Being caught cheating would mean a blemish on my academic record for the rest of my life and probably expulsion from the course, academic suspension, etc. This seems like much more trouble than simply studying hard and getting the grade I deserve.

All the New Zealand participants acknowledged that group work in assignments and sharing

ideas are acceptable. Joana reported:

> If you work together on an assignment and you could honestly redo the questions by yourself the next time, this would be akin to going to ask your professor for help.

Sally and Christine, who agreed on the benefits that group-work brings, had difficulty in defining cheating in assignments. Christine noted:

> I'm not sure whether this constitutes cheating - we all worked in a big group with each person contributing in order to find the best way to answer the questions, and this included swapping answers and reasoning for them.

Those students reported not allowing others to 'copy' their work, instead they 'helped' them by giving guidelines or explaining the context. Jamie reported:

> I have neither copied off anyone nor have I let anyone copy me. I have given assistance to other students who were having trouble with specific parts of assignments, but never let them copy my work verbatim.

Jason was the only New Zealand participant who reported a cheating incident in exams during high school: "I hid notes in my pencil case. I believe I did this because I was quite young at the time … I was interested in obtaining a good mark so I could pass the class". He however argued that this has differed at university because his motivation has changed:

> I wanted to perform well in order to avoid reprimand from teachers and parents. In my university studies my motivation comes from my own expectations and the knowledge that if I perform poorly the person most let down will be myself.

In Bahrain, only one student stated he was against cheating. Two students allowed others to cheat from them at school, and one of them continued the practice at university. Four other students cheated at school, and two still do at university. Abdulla, who was the only one against cheating stressed:

> I hate it. I think that you just do what you can do, cheating! Why would I put myself in a situation where I might get caught for something that is not worth it? … I used to tell my friends I'm not going to help you in the exam.

Ahmed, and Reem reported only allowing others to cheat from them at school and at university, as they described it as 'helping others'. Ahmed was the first student who mentioned cheating in the interviews:

> I know many students of high GPA who cheat in exams… I think that exams don't reflect the real talent or abilities as opposed to assignments and projects. There aren't equal opportunities; many would say 'we'll sit next to him and copy the exam'... helping people, when I feel that they need it, I'd do so.

Reem added:

> I don't like to cheat from others, but I like to help. At university I don't do it; it is more restricted. But at school I used to help them as much as I could, I see it from the sense of helping others, not cheating.

Four participants—Rana, Noora, Fatima, and Noof—reported cheating at school and allowing other to cheat from them. Rana reported:

> I was a teenager and had other things to do other than studying. Sometimes I cheated; I tried not to, but when there was an opportunity I did … I would allow others to cheat from me to help them … I'm not doing this anymore because we are grown up for such things, and we must study alone and get high marks by our own hard work.

Noora mentioned that she cheated at school only with her friend: "She was very good academically but during exams she got nervous and couldn't remember anything. I used to show her my paper, and at the same time I'm not good at memorising maps so she helped me back". Noora also asserted that at university she has no time for cheating in exams, and her perception of cheating has also changed: "I feel that I studied enough and I'm going to do my best, and even if I didn't get a good grade this is my work and this is what I deserve".

Fatima and Noof were the only participants who reported cheating at university. Fatima admitted: "I cheat when I need to, this is maybe every cheater's philosophy, but now I know this is unethical and I'm being honest with you". However, she mentioned that cheating now it is less frequent "at university on a scale of 10, I would say it is 3".

> Noof considered her cheating as ethical because she only checked exam answers:
> I don't really cheat, not like those who depend on cheating. My close friend is superior academically too and we sit next to each other in the exam. Each one writes her own answers of course, but before we hand in the paper we just check if our answers are correct.

A disparity, therefore, was found between students from the two countries regarding cheating. Six Bahrainis declared they had cheated in the past and still do by either allowing others to copy their work or themselves copying from others. Students who allowed cheating considered it as 'helping' their friends.

In New Zealand, however, students were against cheating and found it degraded others' work and was not beneficial for long-term learning. However, New Zealand participants admitted uncertainty about defining cheating in collaborative work as all work submitted in individual assignments at their university is required to be the student's own work.

Discussion

Motivation

Participants in this study reported being motivated by personal goals and expectations whether these goals arose from interest and passion in knowledge or from external purposes. Gagné (2010) focused on the importance of motivation within the *Differentiated Model of Giftedness and Talent (DMGT*) in developing one's talents. New Zealand participants reported having more intrinsic motivation behind their effort than their Bahraini colleagues, such as fulfilling potential and feeding curiosity. Bahraini participants appeared to have more extrinsic motivation, specifically introjected and integrated regulation motivation, shown in their aim for pride and thinking of achievement as representing one's values.

To explain the differences between the two cultures, a socio-cultural perspective that focuses on motivation as a socially developed construct, instead of being solely located within the individual (Rueda & Moll, 1994), can help. New Zealand participants were motivated by personal goals of fulfilling potential and by having pleasure in satisfying their needs of knowledge. Triandis (1995) noted that in individualist cultures individuals are encouraged to be motivated towards mastery aims, and this was found among New Zealanders in this study. In contrast, Bahraini participants' motivation towards pride can be explained by the collectivist nature of culture. Because in collectivist cultures individual success is usually transmitted to group's success. As success by an individual is not the prime aim, an individual can identify with success by the achievements of the group. The group's pride in their collective success is a means of maintaining their sense of belonging to that group. This finding also parallels Engin and McKeown's (2012) conclusion about Emirati undergraduates having extrinsic motivation as a stronger motivator than intrinsic motivation due to the Emirati collectivist culture.

Academic dishonesty

Six Bahrainis reported cheating in exams, with some continuing the practice at university, whereas none of the New Zealand university participants reported the practice. New Zealanders, however, reported collaboration in assignments, and whether such collaboration is permitted under that university's guidelines for academic integrity is debateable. Among participants from both countries, students knew cheating was dishonest, but they nevertheless reacted differently.

Student cheating might be linked to students' view of their abilities and gifts. One Bahraini participant, who reported cheating at university, stated the difficulty of acknowledging her academic

gifts. It is suggested that it might be problematic for those who cheat to acknowledge that their grades put them in the gifted category when they realise that some of their grades were gained by copying from someone else's exam script. Studies that examined the relationship between self-concept or self-esteem and dishonesty found these two variables to be negatively associated: the lower the self-concept or the self-esteem, the more likely that the individual engages in dishonest behaviours or academic dishonesty (Błachnio & Weremko, 2011; Dai, Nolan, & White, 2002; Mazar, Amir, & Ariely, 2008). However, no study examining the impact of dishonest behaviours on self-concept was found. In addition, as the above studies were cross sectional, causal or directional associations conclusions cannot be made.

Hofstede's (1980, 2001) dimension of individualism/collectivism could also explain the cross-cultural variations in academic dishonesty. New Zealand's participants believed that learning is one's own responsibility, and cheating does not help in self-development. These beliefs are embedded in individualistic cultures where people are autonomous and prioritise their own goals and interests over others' (Triandis, 1995). On the other hand, that Bahraini participants come from a collectivist culture that emphasises cooperation might explain why the majority reported cheating only with friends. In collectivist cultures, feelings of commitment and responsibility to others reduce one's autonomy (Triandis, 1995). Bahraini interviewees also argued that they 'helped' their friends as opposed to having 'cheated'. This notion of permitting academic dishonesty to help others in collectivist cultures is supported by Chapman and Lupton (2004).

Another Hofstede (1980, 2001) dimension that explains differences in academic dishonesty in the two countries is uncertainty avoidance. For example, Cohen, Pant, and Sharp (1993) found that individuals in low uncertainty avoidance cultures (such as New Zealand) apply a wider ethical framework in their decision-making. In this study, New Zealand participants viewed cheating as unethical, degrading one's work, and resulting in non-honest grades. These participants also reported the risks of academic dishonesty and suggested the risk of being caught would discourage any attempts to cheat. This view differed from the Bahraini participants, who were not discouraged to cheat and who sought justifications for their unethical actions. This aligns with Diekhoff, LaBeff, Shinohara, and Yasukawa's (1999) findings when they compared Japanese (high uncertainty) and American (low uncertainty) students and found that Japanese were more likely to justify their cheating behaviour and were less discouraged by shame or punishment. As Hofstede reported, Japan is seen as a country with high risk avoidance. This is also supported by Salter, Guffey, and McMillan (2001), who stated that individuals from a more uncertainty avoidant culture (such as Bahrain) are more likely to engage in academic dishonest behaviours.

Additionally, because students in New Zealand believed that those who engage in academic dishonesty do not acquire sufficient knowledge in their specialist subjects, it is suggested that academic dishonesty is related to goal theories. Previous research found that mastery orientation goals are negatively associated with academic dishonesty (Jordan, 2001; Murdock, Hale, & Weber, 2001; Rettinger, Jordan, & Peschiera, 2004), while performance goal orientations are often positively associated with academic dishonesty (Anderman & Midgley, 2004; Jordan, 2001; Murdock, Miller, & Kohlhardt, 2004).

Cross-cultural differences in goal orientation have been addressed in many studies (Brandt, 2003; Gano-Overway & Duda, 2001; Isogai, Brewer, Cornelius, Etnier, & Tokunaga, 2003; Lee, 2000) and suggest that individuals within individualist cultures exhibit mastery goals as opposed to collectivist cultures where individuals hold performance orientation goals. New Zealand participants worked toward increasing their own competence even if it was accompanied with making errors along the way, which suggests they had mastery goals (Brandt, 2003). Bahraini participants were concerned with attaining positive judgment of their ability (e.g., from their parents) and they avoided negative ones, which places them in the performance orientation goal category. Bahrainis' goals are believed to have increased their possibilities of academic dishonesty. This observed difference would not be surprising if we highlight the fact that education in Bahrain is seen more as a means to future financial success than a journey of insight and understanding. In other collectivist cultures, such as Iran, the

education system is similar to the Bahraini's where grades are seen as a major and only criterion for academic success (Marzooghi, Sheikholeslami & Shamshiri, 2009); gifted students sought to exhibit high ability and avoided a lack of ability rather than development of competence through task mastery. Marzooghi et al. (2009) suggested that students' desire to perform well and achieve high grade point and class rank would prevent them from learning for the sake of learning.

In New Zealand, as stated earlier, students who collaborated in assignments reported that they don't allow others to copy their work; rather, they helped students in understanding the techniques. Students, however, showed a thought-provoking dilemma about whether their collaboration with fellow students is considered cheating or not. Students were confused where to draw the line: When is collaboration permitted or encouraged and when is it deemed to be 'cheating'? J. Stephens (personal communication, February 23, 2013) surveyed 800 Arts and Science students at a university in New Zealand in 2012. He reported that unpermitted collaboration on assignments was reported by 62.8% of students. Meaning two out of every three students admitted a practice that is defined as academically dishonest by the university. This university introduced an Academic Integrity module. On its website, the university outlined that although discussing assignments with others may be helpful, students need to be aware of the limits of receiving and giving help. These 'limits' are unspecified resulting in students' confusion about whether their collaboration is permitted or not. There are strong sanctions against 'cheating' at the university in New Zealand, and students appear unclear whether they are risking their academic futures or not by collaborating on assignments.

Conclusion

Academic dishonesty was an unintended finding, and it appeared that although culture did play a part in moral thinking and actions, so did other catalysts. Students' own definitions of academic dishonesty were crucial when deciding whether to engage in cheating or not. If students do not define an act as cheating, as some labelled it 'helping others', they are more likely to engage in that behaviour. In Arab collectivist cultures, cheating in order to help a friend is a risk you may have to take. In New Zealand, participants faced academic dishonesty as a result of the procedures and guidance set in place by the university, especially those related to permissible and impermissible collaboration in assignments. The university in New Zealand is encouraged to clearly state the limits of collaboration allowable in assignments, as currently the students are in a grey area. They do not want to cheat, and at the same time they do not know whether their current collaborative practices in assignments are permitted or not. In Bahrain, the university could have a clear policy on academic integrity, and have stricter rules against cheating in order to minimise the cheating phenomenon.

If we understand that students in collectivistic cultures are more likely to collaborate on assignments, tests that rely on memorisation might be avoided and instead develop tests which are more challenging and of greater learning value, that acknowledges collaborative work and at the same time recognizes individuals' abilities. As it appears from the study, differences in attitudes of what constitutes cheating and how often it occurs do exist between cultures. Educators in different cultures should realise such differences and understand it in order to prevent cheating. If we miss the fact that each culture is different, we might collide, resulting in enormous moral, economical, and social costs as cheating does not usually end at graduation.

The fact that the sampling frame consisted of undergraduates in one university in New Zealand and one in Bahrain may indicate a limitation to the study, and the results may not be generalizable. As the study followed a qualitative approach, future research is encouraged to examine national samples in both countries both quantitatively and qualitatively.

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Teachers' Pedagogies and Strategies of Engagement

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Abstract

Engagement of students in their learning is a positive approach to enhance their educational experience. Engagement is, however, a broad term with a variety of meanings. When attempting to engage students in order to raise their academic attainment it is likely that teachers' beliefs about engagement will influence pedagogical practices. A review of 720 articles, published since 2000, found six kinds of engagement, with cognitive and emotional engagement being most strongly linked to academic attainment. The review found that studies often focused on older learners, while elementary students were under-represented. This prompted a mixed methods study involving interviews, an online survey of 600 teachers, and lesson observations exploring teachers' beliefs and practices regarding engagement, focusing on those teaching children of 8-11 years. The study identified five categories of teacher, each favouring a particular pedagogy of engagement. Many teachers also believed that no special effort to engage higher ability children is needed. Without recognition that all need to be supported to engage in their learning, some teachers risk failing to provide for more able students. We recommend that there should be theory-guided training to help teachers identify indicators of emotional and intellectual engagement, to help them vary their strategy, and which points to the need to consider all students, including those of high ability.

Keywords: Engagement in the elementary school; beliefs about engagement; engagement practices; ability; creativity.

Introduction

Student engagement generally refers to the extent to which students join in their education, mentally and physically (Axelson & Flick, 2011). It seems self-evident that engagement can produce desirable changes in learning and attainment. Its counterpart, disengagement, not only fails to produce such changes, but can lead to undesirable behaviours. Accordingly, engagement in the classroom is seen as something to be assisted. Recently, there has been significant interest in student engagement, insofar as this is indicated by the number of articles about it in the last decade. Most interest is directed at the older student; much less is on primary/elementary school children. The object of study varies from a macroscopic engagement in school more broadly to a more microscopic engagement in particular activities in a learning event. The context also varies. For instance, it might be a formal lesson in a classroom, or instruction delivered online (Beer, Clark & Jones, 2010). The multifaceted nature of engagement has been noted by, for example, Jimerson, Campos and Greif (2003), and our inspection of some 720 recent articles, published since 2000, illustrated the manifold nature of the notion of engagement. It can relate to the intellectual, physical, cultural, behavioural, emotional and social aspects of education (Table 1). There are also various combinations of these (Davies, 2018). Social and emotional engagement accounted for most interest, closely followed by intellectual engagement. Kandel (2006) argued that constructing understandings needs a lot of mental concentration, which is helped by strong intellectual or emotional engagement. Interest in engagement in certain curriculum areas also varies. For instance, a popular area is engagement in learning science. Engagement in other areas, such as literacy and mathematics, has consistently attracted much less attention.

Here, we take engagement to be an act or state of involvement in an activity (mental or physical), which can vary in intensity from negligible involvement to engrossed flow (Csikszentmihalyi, 1992). The more absorbing states have more potential to support classroom learning and attainment (e.g., Axelson & Flick, 2011; Beer, Clark & Jones, 2010). A willing engagement is commonly assumed to be better than coerced engagement, as it is more likely to be

more engrossing. At the same time, working with willing participants can be less stressful for teachers. For such reasons, teachers may use practices, approaches and strategies they believe will attract students and induce their willing engagement. These could come from, for instance, their training, other teachers, trial and error, experience (both of students and as students themselves), and teaching resources. Their beliefs, conscious and unconscious, could amount to a coherent theory of engagement, or a more limited and fragmented understanding of what engages students. Such beliefs underpin personal pedagogies of engagement (Mestre, 2005). For example, a pedagogy could be based on a belief that learners are inherently reluctant to engage, and have to be coerced by unpleasant consequences for not engaging.

More formal theories of cognitive and emotional engagement focus on psychological need satisfaction (e.g., Ryan & Deci, 2000) and goal achievement (e.g., Anderman & Patrick, 2012), with some overlap when the goal is to satisfy a need. For practical purposes, these can be subsumed under an umbrella notion of personal relevance theory (Newton, 1988). In this, motivation to engage stems from the perceived relevance of an act (mental or physical) to satisfy some personal need or advance a goal. There may be a need, for instance, for novelty, competence, an understanding of the self, affiliation, autonomy, or to promote some long-term aspiration. An action which appears to offer one or more of these tends to attract a willing engagement from predisposed students. For example, opportunities to be creative can offer some autonomy, and so can be engaging (Cremin et al., 2006). Motivation and engagement, however, are not synonymous: engagement is the act and state of involvement, motivation is the stimulus for that involvement. Some educators may not distinguish between motivation and engagement, but there can be practical value in separating antecedents and their consequences (Reschly & Christenson, 2012).

Table 1: Categories of engagements: descriptors & definitions.

Category of engagement	Description:	Example from the research literature:
Intellectual	Intellectual engagement is sometimes also referred to as 'cognitive' or 'academic' engagement, related to a student's absorption with intellectual tasks.	'A serious emotional and cognitive investment in learning, using higher order thinking skills (such as analysis and evaluation) to increase understanding, solve complex problems, or construct new knowledge' (Willms, Friesen and Milton, 2009, p.6)
Physical	Physical engagement has been described in terms of a student's active physical participation in lessons due to the teacher planning activities which involve motion or engagement in physical activities.	This can be a student's participation in 'hands on activities with physical movement' (Wiesner-Groff, 2012) or defined as a student's engagement in Physical Education lessons where, 'engaged students persist in active and effortful attempts to master the knowledge and skills they encounter and exhibit a preference for and enjoyment of physical activity' (Bevans et al., 2010).
Cultural	Cultural engagement is often defined as whether students of all cultures feel accepted and welcomed in the learning environment (Hess, Lanig & Vaughan, 2007).	Harper and Quaye (2009) argue that cultural engagement involves both students and the educational institution, 'students should not be chiefly responsible for engaging themselves ... but instead administrators and educators must foster the conditions that enable diverse populations of students to be engaged (Harper & Quaye, 2009, cited in Trowler, V., 2010 p. 5)
Behavioural	Behavioural engagement has been defined as: a. participation in school-centred activities, such as extracurricular activities (e.g., Fullarton, 2002);	Fredricks et al. (2004, p.62) noted that, 'In general, these definitions do not make distinctions among various types of behaviour, such as participation in academic and non-academic school activities'.

	b. school attendance (e.g Willms, 2003); c. involvement in learning and academic tasks (e.g., Fredricks et al., 2004).	
Emotional	Emotional engagement related to how a student feels during a particular activity, lesson or more generally with their education as a whole.	This has been described as a student's 'emotional response characterized by feelings of involvement in school as a place and a [provider] of activities worth pursuing' (e.g., Finn & Zimmer, 2012 p. 103).
Social	Social Engagement can be defined as the extent to which a student follows written and unwritten rules of behaviour, for example, coming to class on time, interacting appropriately with teachers and peers, and not exhibiting anti-social behaviours, such as withdrawing from participation in learning activities or disrupting the work of other students (Finn & Zimmer, 2012).	Positive social engagement relates to relationships and interactions; 'relations represent more of a quality of attachment, inclusion, integration, unity, connectedness, or empowerment' (Lamborn et al., 1992. p.16). Social engagement is often described as the opposite of disengagement, and shapes most of the literature relating to this category of engagement.

As less attention has been given to engaging younger children in classroom learning, we were curious about their teachers' notions of engagement, with a view to informing our understanding of these teachers' pedagogies of engagement, and how they relate to their students' abilities. To that end, three studies were carried out, each informing the next. We describe each in turn, and then discuss them together.

Study 1: Eliciting some teachers' notions of engagement

Method

Marton's phenomenographic method for eliciting people's conceptions and beliefs about some aspect the world was used (Marton, 1981; Larsson & Holstrom, 2007). This involves interviewing between twelve and twenty participants. Here, 16 teachers were interviewed (individually, face-to-face, 5 male and 11 female, reflecting the gender balance in the elementary school). These varied in age from 25 to 58 years, and all taught children aged between 8 and 11 years. They were asked open-ended questions about classroom engagement in learning. For example:

- I'm interested in student engagement. What does it mean to you?
- What engages students?
- Can you give me an example of a lesson or activity when the class has been engaged?
- How do you know they are engaged?
- Does engagement 'look different' in mathematics, English, and science lessons?
- In your experience, do children have to be engaged to learn?

Responses could be explored further to clarify and delineate meaning (Punch & Oancea, 2015). The interviews lasted about 30 minutes. Notes were taken and transcribed to provide a data pool of 'utterances'. The data pool was sorted into groups or (to use Marton's term) 'categories of description' representing dissimilar notions of what engages children in learning in the classroom. As the sort progressed, new groups evolved, and earlier groups were re-sorted to produce self-consistent categories. Each group was given a descriptive label, its attributes listed, and the group exemplified to form a category of description. Each category describes a conception or notion of engagement.

A study of this kind is intended to collect notions of a construct, but it can never be said with certainty that all notions have been found. The appearance of new categories tends to decline as the number of participants increases, but it is always possible that additional participants might add another category. At the same time, the prevalence of a particular notion amongst teachers in general may not be the same as its prevalence in the sample interviewed. Nevertheless, the collection of categories can usefully inform discussion about teachers' beliefs, and also prepare the way for the next stage of the study.

Results

Five groups of teachers' conceptions of engagement evolved from the iterative sort of the data pool. They are listed in Table 2.

Table 2: Categories of teachers' conceptions of engagement.

Category:	Description:	Example from data pool
1. Fun and exciting	Teachers in this category claimed to use fun and exciting lessons to engage their pupils.	Teachers in this category talked of using 'fun (approaches) so the children's imagination runs wild', and mainly saw the onus of responsibility for engagement as being on the teacher, e.g., 'You have to work hard to think of fun activities for them to do or there's no point'.
2. Problem solving	Teachers in this category claimed to use 'problem solving' activities to engage children.	These teachers described how lessons involving 'problem solving' induced the most engagement: 'I start with a problem or misconception and they have to try to unpick it'. There was a general feeling that children were engaged when activities were challenging, e.g.,: 'Problems that stretch them engage them'.
3. Using rewards	These teachers claimed to engage children through the use of rewards.	Teachers spoke of how rewards induced children to engage in learning: 'With the super star award-reward system they all seem to be fairly motivated'. These teachers talked of how children were motivated to engage due to the particular reward system they used, e.g.,: 'they're desperate to be at the top of the leader board so they will stay on task and get it done'.
4. Practical, hands-on activity	Teachers in this category claimed to engage children through practical or 'hands-on' activities.	Teachers seemed confident that this approach engaged the whole class: 'anything that is practical and hands-on they are more likely to take an interest in', and 'anything that's got practical things [engages]'. These teachers felt practical activities were more interesting and interactive, e.g.,: 'More hands-on activities, especially with very young children, they need something sensory or you can talk at them all you want but they will be less engaged'.
5. Independent or child-led activities or topics	These teachers described lessons where the children worked in self-directed ways and with minimal support from the teachers as being the most engaging.	One teacher recounted an activity where, 'the children were really independent and focused on their design', and talked of how a lesson had to be, 'something they were interested in' in order to be fully engaged. Choice regarding the activity or topic was felt to boost engagement, e.g.,: 'If they pick their own topic, it motivates even the ones that are less motivated'.

All these teachers implicitly or explicitly acknowledged the needs of the learners, yet there are variations in their responses in terms of where and with whom the onus of responsibility lay in meeting these needs. Some teachers appeared to focus more on cognitive needs, while others spoke more about emotional needs. Comments regarding cognitive engagement could be grouped into two broad categories, reflecting the importance of:

1. An appropriate level of challenge for all children; and,
2. The ability of topics/activities to stimulate further enquiry.

Regarding emotional engagement, teachers' comments formed three categories reflecting the perceived importance of:

1. The general emotional wellbeing of children as influenced by home life;
2. Transient emotions of the children influenced by physical factors, such as hunger, illness and fatigue; and,
3. Transient emotions of the children triggered by events in school.

Responses to: 'Do children have to be engaged to attain?' revealed that a significant proportion of teachers felt that highly able students did not need to be fully engaged in order to learn. Responses included:

- 'Yes I think so. Only the very bright children seem to be able to pull it out of the bag and do well when they haven't really totally engaged, but I think they can only do that for so long, so even if they can do it in my class it would be rare for them to do really well ... without fully engaging in the lessons'.
- 'No. If they are really capable ... some can be disengaged but have enough fluency to just pick it up when they need to.'
- '95% of the time, the exceptions are the ones who are super high ability and regardless of what happens in the classrooms they'll do it, they know it already'.

Study 2: A broad survey of teachers' notions of engagement

Method

The first study identified some notions of engagement, but did not indicate their prevalence amongst teachers more generally. They were used to construct a questionnaire aimed at gauging their prevalence, and at relating the notions to personal attributes and circumstances. This questionnaire was presented online throughout England to teachers like those interviewed in Study 1 using Google's Survey Monkey. As well as being available to teachers independently, it was posted on various teacher group sites on Facebook (these groups being aimed at teachers of children between 8 and 11 years in England), and was open for seven days and terminated when 600 teachers had responded. Online surveys can supply a large number of respondents, but can risk inappropriate participation. We found no indication of this. Seventy-eight left their details to be considered for the next stage of the study. Survey Monkey provides some descriptive statistics, but we also looked for patterns in the data.

Results

The survey found that the teachers were distributed amongst the five categories as in Figure 1. An open question was available for teachers to respond to: *Do you have any other comments on your views about pupil engagement?* Fifteen of the 600 respondents left a comment, but none suggested other categories, and only five comments, less than 1%, could be taken to imply that strategies might vary with context. Clearly, the most common was the first category, *Fun/Exciting*, while the least was associated with using *Rewards* to attract engagement.

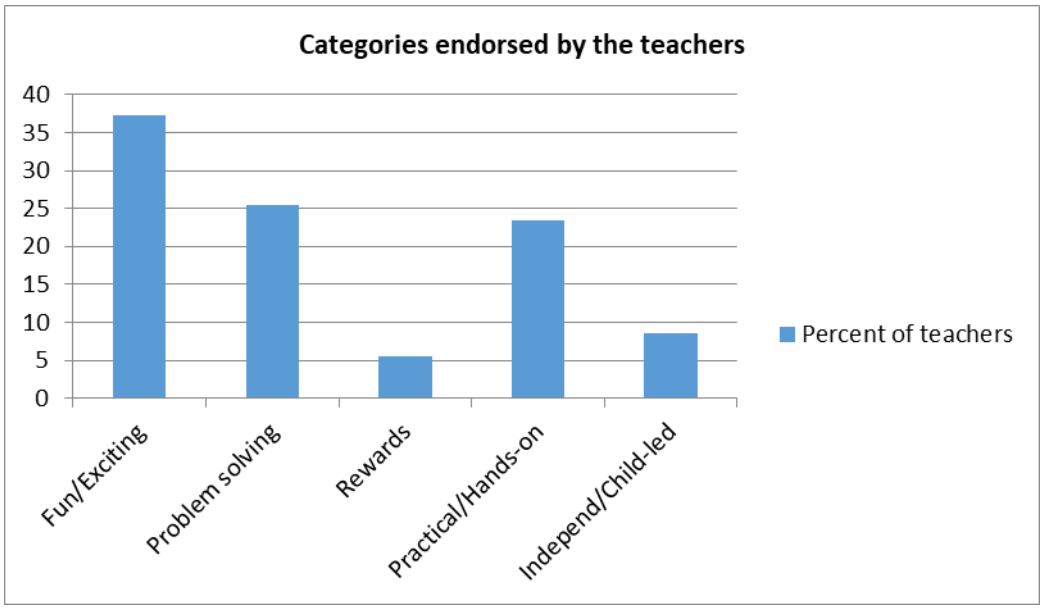

Figure 1: Engagement categories endorsed by the teachers.

Most teachers felt their knowledge of engagement originated from their 'on the job' experience. However, the survey indicated that their preferred category depended on both job satisfaction and teaching experience. For example, Rewards teachers were characterised by lower levels of teaching experience and job satisfaction (71% having taught for ten years or less, compared with the overall average of 58%, and 26% expressing low job satisfaction compared with 17 % overall). Teachers in all categories were generally of the view that the teacher's demeanour was relevant, often seeing 'seriousness' as not being conducive to children's engagement in learning. They also tended to agree that children have to be engaged to achieve, but felt that this was less so for high ability children (see Table 3). The survey data, however, indicated some bi-polarisation of views: while the majority agreed with the statement, a significant minority did not. This was particularly noticeable with Types 1, 3 and 4 teachers, many of whom presumably saw generating engagement via fun/excitement, rewards, and hands-on activity as unnecessary stimuli for those of high ability. On the other hand, Types 2 and 5 teachers, favouring problem solving and indpendent activity, were more in agreement about the need for engagement, regardless of ability[3]. The latter approaches, of course, depend on the intrinsic attributes of the learning activity to prompt engagement, while the former approaches largely rely on the attachment of external attributes.

Table 3: Relationship between engagement and attainment: Teacher Type 1 = Fun/Exciting; Type 2 = Problem solving; Type 3 = Rewards; Type 4 = Practical/Hands-on; Type 5 = Independent/Child-led. The higher the mean score, the more the teachers agreed with the statement (on a scale of 1-5).

Teacher Type	**1**	**2**	**3**	**4**	**5**
Statement	**Children have to be engaged to achieve**				
Mean score	3.93	3.83	3.88	3.71	3.62
Statement	**Higher ability children have to be engaged to achieve**				
Mean score	3.34	3.54	3.43	3.28	3.55

Study 3: Engagement in practice

Broadly speaking, teachers' beliefs influence how they teach (see e.g., Richardson et al., 1991; Stipek et al., 2001), but they must also respond to the expectations of school managers and parents, and are constrained by for, instance, resources. As far as the planning and delivery of a lesson is concerned in the UK, the content is generally prescribed, but there is some freedom in how it is taught[4]. Given that student engagement is commonly seen as promoting learning and attainment, teachers' beliefs about it could be reflected in their practices. We felt it would be worthwhile to observe lessons of a sample of teachers who had volunteered in the online survey for further involvement. The aim was to judge the extent to which these teachers taught in ways that reflected their beliefs about engagement.

Method

English and mathematics are 'core' subjects in the English National Curriculum for young children. One teacher for each category of beliefs, from diverse locations in England, was observed teaching an English and a mathematics lesson to children in the age range 8 to 10 years. Observations took place during mornings as English and mathematics are generally taught then. Notes were taken and lessons were recorded on an iPad™ using the application, VEO™ (Video Enhanced Observation), which enabled events to be studied later. Observation of student-student and student-teacher interaction was from the back of the room to reduce the likelihood that observer activity would distract the children (see Reiss, 2000).

[3] The frequency patterns of responses of Types 1, 3, and 4 teachers and those of Types 2 and 5 teachers were, in statistical terms, significantly different ($p<0.01$, χ^2 test).

[4] Freedom is not always complete. For instance, in England, a government education inspection agency may expect to see reading taught with an emphasis on phonics, and mathematics taught with an emphasis on 'mastery'. Such expectations tend to change over time.

Judgments of the children's engagement in learning were facilitated by a schedule of ten indicators, five for students' emotional engagement and five for their intellectual engagement:

Emotional engagement

1. They enjoyed today's lesson
2. They respected the teacher
3. They worked well with peers
4. They found the lesson exciting
5. The interaction between the teacher and child was positive

Intellectual engagement

6. They asked relevant questions
7. They found the lesson interesting
8. They checked their work for mistakes
9. They achieved the learning objective
10. They tried their hardest (within the context of the lesson)

These indicators were adapted from a variety of established engagement measures (Fredricks & McColskey, 2012). Each was rated on a Likert scale of 1-5 by the observer (one of the authors). This 1-5 scale acknowledges that engagement can occur at different levels and is not simply present or absent. Twelve children were selected for observation by each teacher. They comprised four the teacher judged as, 'less academically able', four as 'average', and four as 'highly able'. Two boys and two girls were in each ability group.

The reliability of an observational tool is often described as its ability to be used by different observers, and yield similar results (e.g., Coolican, 2004). Therefore, one of the teachers was simultaneously observed by a teacher with over 20 years experience teaching similar children. The reliability coefficient (indicating the level of agreement between the two observers) was 0.86 which is generally considered to be satisfactory (Coolican, 2004). Validity can be defined as an instrument's ability to measure what it is intended to measure (Coolican, 2004). The indicators used here had already been robustly tested for their validity (Fredricks & McColskey, 2012). Nevertheless, the samples are small, and the lessons, teachers and schools are different, so caution is needed when interpreting the results.

Results

Brief outlines of the lessons follow, with a comment on the children's engagement.

Category 1: Fun and exciting

The English lesson had children consider persuasive forms of writing to produce an advertising poster for an object likely to attract children's interest. The mathematics lesson had groups of children explore multiplication using a game-like activity.

The emotional engagement was one of fun and excitement in both lessons (both scoring 4.6 out of 5, on average). For example, 'They enjoyed today's lesson', and, 'They found the lesson exciting', were scored at 4.8 and 4.0, respectively. The intellectual engagement was rated as 4.0 and 3.9 for the English and mathematics lessons, respectively.

Category 2: Problem Solving

In the English lesson, groups of children were set the task of creating and performing a dramatic scene about street life during the Great Fire of London, some four centuries ago. In the mathematics lesson, pairs of children had the task of showing how multiplication algorithms function.

Both lessons involved problem solving in that the children had to find their own ways of doing the tasks and finding their own solutions. The emotional engagement (4.6 and 4.5, on average) was similar in both lessons, while the intellectual engagement was, on average, 3.9 (English) and 4.3 (mathematics).

Category 3: Rewards System

The English lesson used a story board activity in which children wrote sentences with adjectives under pictures. The mathematics lesson had individual children plot points on a grid to reveal a shape. The teacher referred to the reward system regularly throughout the lessons. Rewards (stickers attached to a display board) were given to those who remained on track.

The average emotional engagement was rated as 3.8 (English) and 4.2 (mathematics). The average intellectual engagement was rated as 3.5 (English) and 3.9 (mathematics). Interestingly, the higher ability children did not ask for stickers, but the lower ability children often did so, and they clearly valued the rewards and engaged with the task in order to obtain them. For the higher ability children, 'They found the lesson interesting', was rated much lower than for the other children (e.g., English, higher ability: 3.4; others: 4.3). They were, however, quietly compliant, and the teacher could safely give them less attention than the rest of the class.

Category 4: Practical, hands-on

Offering some form of hands-on activity was a key strategy of this teacher. The English lesson had a starter activity using Kung Fu Punctuation in which children use martial arts-inspired movements. In the mathematics lesson, children explored the notion of symmetry by making shapes with their bodies to be photographed by a partner. Lines of symmetry were then drawn on the photographs.

On average, engagement levels were rated as: emotional, 4.3 (English) and 4.5 (mathematics); intellectual, 3.9 (English) and 4.0 (mathematics). There were times when the higher ability group seemed to be bored and inclined to find interest off-task. (Hands-on or practical activities were also used by other teachers, but they were incidental to the approach, not central to it.)

Category 5: Independent, child-led

The English lesson provided an opportunity for independent, child-led activity. The children researched an author of their choice in order to produce a biography. In the mathematics lesson, the children practised adding fractions. Both offered some autonomy in ways of working.

Engagement levels were rated as: emotional, 4.3 (English) and 4.5 (mathematics); intellectual, 4.2 (English) and 4.7 (mathematics). Generally, higher ability children responded well to this approach with uniform scores of 5.0.

Discussion

We cannot say that we have identified all the notions of engagement in learning that teachers have, but the phenomenographic study gave a picture of at least some of them, and the survey pointed to their prevalence. An online survey, however, is only open to those who are digital-media competent, and who take part in surveys, but the background data did suggest that the sample of teachers was diverse. The lessons observed, although few, did show that the teachers' conceptions of engagement were not detached from action, but were reflected in their practices. There may, however, be teachers who have multiple notions of engagement. There were only slight indications of this; less than 1% indicated that strategies might change with context: one of these wrote that, 'it depends on the cohort', and two pointed out that children vary in how they respond to a strategy. When there is a strategy, we are likely to have detected the predominant one the teacher tends to use, at least when teaching English and mathematics. With these limitations in mind, we offer some thoughts on the findings, and, drawing on Bassey's (2001) notion of relatability, suggest that teachers and teacher trainers will be able to relate them to their own experience.

Pedagogies of engagement

We have distinguished between notions of engagement, and ways of inducing it. These teachers tended to reveal the former through the latter. Here, engagement generally referred to children's behaviour that was on-task in such a way that it enabled mental resources to be committed

to learning. It was noted that some teachers may not distinguish sharply between antecedents (motivation) and consequences (engagement), perhaps reflected in the views of those who believe engagement is not necessary for achievement. How they thought engagement might be achieved varied. We identified five beliefs, which are, in order of prevalence:

1. Generating fun and excitement;
2. Challenging children with problems;
3. Providing practical activity and hands-on experience;
4. Providing autonomy; and,
5. Rewarding engagement.

Importantly, the observations of teachers' lessons, although small in number, showed that these beliefs can be reflected in practice – that is, they can be seen as pedagogies of engagement. But, are these pedagogies well-founded?

Each of the pedagogies could be seen as guiding teachers in making activities relevant to children's needs and goals. *Fun and excitement*, for instance, offers pleasurable mental stimulation; successful *problem solving* offers the satisfaction of competence; *hands-on experience* may satisfy a need for novel, direct experience of the world, or for competence in it (Piaget & Inhelder, 1973); *child-led* action offers satisfaction of the need for self-determination (Ryan & Deci, 2000); and *rewards* could satisfy a need for achievement, or enhance self and public images. To the extent that a given child sees these as personally relevant (and that is not always the case, as when the able children were not interested in collecting rewards), an activity adjusted accordingly could motivate engagement. The observations suggest that these pedagogies can be effective, but more for some children than others. At the same time, some areas of the curriculum and some kinds of learning may not lend themselves readily to these strategies. For instance, hands-on experience is not always feasible, and generating excitement can hinder analytical thought (Newton, 2014). It might also be argued that an over-reliance on material or token rewards risks encouraging inclinations that are activated only by extrinsic stimuli. A lack of variety in approach may also lead to satiation and boredom, and misses the opportunity to engage more children more of the time. Providing some autonomy in learning, however, can satisfy a fairly wide range of needs and goals, but less than 10% of the teachers in the survey favoured it. Where the curriculum is tightly prescribed, teachers may be less likely to use such an approach. Particular pedagogies (1, 3, and 5) tended to include a belief that high ability students did not need to be 'engaged' in order to achieve. It was particularly evident in the 'rewarding engagement' pedagogy where the strategy was less attractive to such children. Oakley *et al.* (2002) pointed out that such learners can be quietly disengaged and in need of mental stimulation. Two-thirds of the teachers in the survey believed that their beliefs came from 'on-the-job experience' (which may include personal experience as a student). This could explain the narrow preferences: a more or less successful approach has evolved from experience, and the teacher continually applies it. But learners are different, and while there may be some generalities, there is a need to allow for that variety.

Astin (1984, p. 519) argues that 'the quantity and quality of physical and psychological energy that students invest' produces learning in direct proportion to that involvement. In short, engagement is central to learning and achievement. The lesson observations, however, suggested that popular strategies can induce greater emotional engagement than intellectual engagement. (In the extreme, children may have fun yet learn little.) The optimum balance is unclear, but teachers need to be aware of the distinction. Only about 10% of the teachers in the survey thought that their knowledge of engagement came from teacher training, and only 4% thought it came from on-the-job training. Usefully, there is evidence, although indirect, that teachers' engagement strategies can be enhanced through training (e.g., Devlin, 2005). There is clearly a need for programmes which include this crucial aspect of a teacher's work. We suggest that these focus on:

1. What engagement and associated terms, like motivation, pedagogy of engagement, emotional and intellectual engagement, mean.
2. What can attract engagement in learning; personal relevance, need satisfaction and goal achievement, creative activity, and the role of teacher enthusiasm.

3. A recognition that perceived relevance can change with student, age, ability, and curriculum context, and that these need to be allowed for.
4. A range of strategies that exploit these attractions, and an avoidance of over-use of any one.
5. Understanding that some pedagogies are extrinsic (i.e. the attraction is attached to the topic, e.g., 'Fun', 'Rewards'); others are intrinsic (i.e., the attraction is within the approach, e.g., 'Problem-solving', 'Practical/hands-on', 'Independent' activity), and that they are not mutually exclusive.
6. Practice in selecting, developing, differentiating and applying strategies aimed at inducing engagement.

Conclusion

Engagement in education is seen as central to success, but the concept is a complex one. As far as engagement in the elementary classroom is concerned, teachers vary in what they believe will induce it, but each has a preferred strategy. This varies from formulating a potentially mundane activity in a way that makes it fun, offers activity and direct experience, or a challenge, to allowing some autonomy. Each of these can offer the student some satisfaction of a psychological need. There seems to be a tendency to rely on one need, ignoring individual differences in students and the likelihood of need satiation and consequent boredom. An important instance of this is the response of children of different abilities to a strategy. Those of high ability, for example, are at risk of neglect, and fail to engage in learning in ways that recognise their ability and maximise their learning.

These teachers claimed that their notions of engagement came largely from experience, and not training. We recommend that teacher trainers give the matter their attention, developing notions of engagement in learning, of sources of motivation, and of strategies for inducing engagement in diverse groups of students. One of the more effective approaches observed was to give children some autonomy in learning, and therein lies the potential for encompassing creative activities which need and reward it.

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Norwegian Wood: The Language of Poetry and Song

Peter Leyland
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Language is visceral. Language can be so bursting with an emotion that it explodes as a meaningful language. All good texts have something in them that resists being understood. The meaning lies in the words themselves, in the poetry of the language, the rhythm, the intonation. Trust the language. Trust the images in it. Let the language work for you, set the images free. May Brit Akerholt*

Introduction

This article evolved from a paper I recently gave at the European Society for Research into the Education of Adults (ESREA) in Bergen, Norway. The conference theme was on artful language and narratives of adult learning. The specific focus of the article is on the question of language and its relation to adult learning in what I can only describe as 'a post-modern way'. In other words, it is a pastiche or a multiplicity of ideas that I have been meeting with over a year working with adult students who are learning about different areas of poetry in my WEA courses. This is a group of about a dozen who have one important thing in common, an interest in and a love of the reading of poetry, especially aloud. Some of them are former teachers. One is a librarian, another is a vicar, another a retired civil servant; and one who is now 84 is a woman who "found herself" through courses with the WEA.

I had taken over this student group from a tutor who was moving. It was already beginning to go its separate ways and I had to work hard to rebuild it to create a climate of meaning and belonging. I had not taught poetry to adults before but had always loved it since my university days. I began with *The Poetry of War*, followed this with *Poetry of the Renaissance*, *Introduction to Modern Poetry*, *Modern Poetry and Beyond*, and finally *Romantic Poetry*, a very eclectic mix. I had developed a style of inclusive teaching favoured by the WEA as referred to in the work of R. H. Tawney and described in Lawrence Goldman's essay *The First Students in the Worker's Education Association (WEA)* (1995). It is with the last two courses that the article exemplified. In brief, the Worker's Education Association was founded in 1903 and a central aim was to encourage lifelong learning among adults. From the outset it was based upon democratic principles and the relationship between teacher and student was a partnership in which the syllabus was negotiated between them. In his introduction to *A Ministry of Enthusiasm* (2003:1) S.K. Roberts says that in its early days it was conceived as 'a meeting of minds between university teacher and skilled working-class learners in which both parties gained in intellectual development' and that the principle of equality in learning remains until this day.

The Argument

When I learned the subject of this year's ESREA conference I came across three quite distinctive articles about language. First, what is the morally appropriate language in which to write or think? asks Arundhati Roy in her *W.G. Sebald lecture on Literary Translation* (2018). We hear about 'fake news' and 'alternative facts' and the second is where Michiko Kakutani in The *Death of Truth* (2018), argues that language can be transformed into a way of consolidating and maximising power over people. Kakutani says in a preview of the book, *The Guardian* 2018, that this Orwellian scenario has recently been appropriated by President Trump. The *Washington Post*, she says, calculated that he had made "2,140 false or misleading claims during his first year in office" (7-8). She reminds us of Orwell's dictum that "political chaos is connected with the decay of language" (10-11), and she says

that the world now feels disorientated by the stream of lies issuing from the Trump White House. Orwell's *Newspeak*, the language by means of which Winston Smith, his protagonist in *Nineteen Eighty-Four* (1949), is subjugated to the will of The Party, is referred to and the manifest lies propagated by Sean Spicer that Trump's inaugural crowds were the 'largest audience' ever are thoroughly nailed down.

In the third article, *How the English language is taking over the planet* the Polish writer Jacob Mikanowski criticises the English Language for its cultural dominance, and yet he grants that it was the preferred language of freedom during the uprising in Soweto, South Africa, in 1976. Mikanowski goes on to argue that, "Every language draws a circle around its speakers creating a distinctive worldview through its grammar and vocabulary" (2018:10). Despite the criticism implied by his title, and many would fault the English language for its cultural dominance and its abuse by people such as those within Trump White House, I would argue that English can create a worldview which favours freedom of expression and an abiding respect for humanity, a 'morally appropriate language' as Arundhati Roy asserts. As a teacher of literature, I think that it is nowhere better illustrated than in the English language of poetry and song.

Autobiographical Narrative Research

The Story

What follows is an autobiographical piece of narrative research which I will use to support this view. I am emboldened to use this methodology by a recent reading of Elizabeth Hoult's *Adult Learning and la Recherche Feminine* (2012). She is researching what makes adult learners resilient and uses autobiographical research methods which include a study of her students, a member of her immediate family, and herself. In her research she uses the metaphor of a snake shedding its skin to describe her own throwing off of the masculine ways of knowing which she says, "prevent us from reaching deeper, more compassionate ways of understanding the human condition " (2012:186). There is another methodology, she says, a more feminine one which "gives prominence to fictional, mythical, poetical, and nakedly autobiographical discourses, and it deliberately marries the scholarly and the poetic" (Hoult, 2012, 186-7). So, with a grateful nod to Elizbeth Hoult, I will tell you the story of an episode in the life of an adult tutor.

My group of adults were now ready to tackle what I felt was my most ambitious course, the aforementioned *Modern Poetry and Beyond*. This gave me lots of space to develop ideas such as *Performance Poetry, Ballads and Balladeers,* and *The Rise of Female Poets*. For the first, well I had grown up in the Liverpool of the sixties where Performance Poetry had a huge following and where *The Mersey Sound* of Henri, McGough and Patten was published as *Penguin Modern Poets 10* (1967), For the second, The Rise of Female Poets has been said to start with Sylvia Plath and I had been on poetry courses at Ted Hughes's cottage at Lumb Bank near to where she is buried, although she never lived in the house itself. There I had experienced the poetry of Liz Lochhead among others and had even written some of my own. For this research piece, however, I am going to focus on *Ballads and Balladeers* as this is where my idea for the paper began with the title of the well-known Beatles' ballad, *Norwegian Wood*.

In English the ballad has a long history. 'Originally a song intended as an accompaniment to a dance', Drabble, M. (1987: 35) the ballad became in broadside form a way of criticising people or institutions, and later as "single, spirited poems in which a popular story is graphically narrated" (Ibid). Two major collections were made in the C18 and C19 by Thomas Percy and Frances Child. My students were given information on this and then were encouraged to read aloud a variety of ballads and listen to some modern interpretations. One of these was *Sir Patrick Spens*. This is the story of the loss of a number of Scottish lords at sea and it and it is a ballad that contains a darkness at its heart as many ballads do. Why do these fine knights led by Sir Patrick set off so boldly and then die in a shipwreck? It is only when we reflect on the meaning of the balladeer's comment: *"Last night I saw the new moon clear with the old moon in her hair/And that is a sign since we were born that means there'll be a deadly storm"*, that we realise that Sir Patrick has misjudged the tides.

In the 1960s a number of songwriters used the traditional ballad form in popular songs. The Fairport Convention recorded Sir Patrick Spens, and Nobel Laureate, Bob Dylan, used the question and answer structure of another traditional ballad in order to mount a searing attack on the way man's carelessness can cause calamities. *A Hard Rain's a Gonna Fall* (1963) is an adaptation of *Lord Randall*, the story of a man who has been poisoned by his lover. Dylan turns it into apocalyptical song which recalls the broadside tradition of the ballad:

> "And what did you hear my blue-eyed son?
> And what did you hear my darling young one?
> I heard the sound of a thunder, it roared out a warning
> I heard the roar of a wave that could drown the whole world."

The students responded well to this and the other aspects mentioned. I encouraged my students to connect poetic themes and images to their own experiences and insights. For example, some recalled the Indian Ocean Tsunami of Xmas 2004 and the Japanese earthquake of 2011 that caused the meltdown of three nuclear reactors. They said that the course had encouraged them to think critically about poetry in general. One student was amazed at the broad range of poetry introduced which included Bob Dylan, and another said she felt pushed out of her comfort zone in a positive way. A third student said that they had enjoyed overcoming anxiety about reading poetry aloud and that all poetry could be called 'performance poetry'. Finally, and I will quote this fully, one student said:

> I have learnt a lot and yearn for more, not in a technical way…but in social history, the way the world and the people, the environment evolves. The arts all combine, poetry, literature, painting in all its forms entwine giving for myself greater insight into the world we now live in.

This leads me to return to Elizabeth Hoult's (2012) study of resilient adult learning. Hoult says that her challenge in her study was to find a way of presenting resilience in a way that evoked the elusive and energetic quality of the experience of transformative learning while still obeying the rigours of the academic system in which she worked. She further writes that she found the work of Linden West helpful here, how he argued that his own autobiographical writing had been conducted in ways that are closer to the work of the novelist, poet and storyteller than to the social scientist in *Beyond Fragments* (1996: 32). Issues of life, death love and survival, Hoult argues, are better served by the language of poetry than by the cold vocabulary of data analysis (2012: 143).

I now sensed that I had reached a point where students in my poetry classes could directly engage with the dilemmas faced by living in the 21st Century. For me personally this had involved how to deal with the isolation I had faced upon reaching retirement age and I sensed that my students, most of whom were retired too, were there because they also felt this. The very last day of the course took place during one of those sudden snowstorms that often mark the middle of an English winter and this coincided with an OTLA (Observation of Teaching and Learning Assessment). I had come prepared to discuss with my student group the course for the next term so I pressed on with my plan. The WEA method is to negotiate the curriculum with the class and then try it out. This is what was observed:

> Students and tutor planned together for follow on courses by means of a guided discussion using sample anthologies which the tutor had made available to browse and a prepared grid drawn on the flipchart, focussed around specific poetic themes, which the students then vote on democratically. The tutor continuously adapts his course to suit the needs and interests of the group and when planning the next course, he was open minded and willing to include biographies of poets and to explore the social context as well as the actual poems. (Session Observation Report 27/02/2018).

In Hoult's terms I felt I had managed to connect the transformative nature of poetry with the students' needs for their present and future courses. We eventually decided on *Romantic Poetry*. The group had shown an interest in this during our discussions and it was an area that I felt passionate about, having loved Keats and Wordsworth when I was a student, and so in the six months between the end of *Modern Poetry and Beyond* and the beginning of *Romantic Poetry* I prepared an outline *Scheme of Work* and then set about writing the details. Or did I? Well no, not really. In the meantime,

I attended the European Society for Research on the Education of Adults (ESREA) conference in Turin, I read extensively, visited Bergen with my wife for a holiday, and taught adult courses on *Post Modern Novels* and *Canadian Literature.* It was about the end of September that I started to write the course and by October 6th I had the opening line:

'Bliss it was in that dawn to be alive/But to be young was very heaven'

This as some of you will know is Wordsworth's reflection in *The Prelude* (1805) on the events of *The French Revolution* of 1789 and the way those events challenged the ideas of *The Enlightenment* in favour of a new cultural model of feeling, of nature, of imagination and childhood. Wordsworth had travelled to France at the beginning of the revolution. He returned determined to write his poetry in 'the real language of men', a poetic theory that he had put forward in his Preface to *Lyrical Ballads* a book which he had published with Coleridge in 1798.

My course followed Wordsworth with Shelley, Keats, Female Romantic Poets like Anna Seward and Felicia Hemans, and finally John Clare. The study of the work of Shelley, is a gift to revolutions in language and ballad forms, so I will describe the origin of one of his poems. *The Masque of Anarchy* (1832), is a ballad which is a devastating critique of the events during The Peterloo Massacre:

I met Murder on the way - /He had a mask like Castlereagh

The Peterloo Massacre happened in Manchester, England. In 1819 when cavalry charged a crowd of 60,000 people who were demanding reform of representation in parliament. Fifteen people were killed, and hundreds were injured. The 200th anniversary of the massacre was approaching and film director, Mike Leigh, had recently produced a film about it, featuring Maxine Peake in the role of Nellie, matriarch of a poor hardworking family and mother of five. Peake in an interview describes how she had encountered Shelley's poem in 2015 and given a performance in Manchester reciting its 93 stanzas from memory to 2,000 people. She felt at the time 'as if hope has started to grow again. It felt as if there was a door opening for people who wanted a better, fairer way.'

With my class I didn't expect them to read all the stanzas but our discussion of the work of Shelley led to a profound discussion of the role of poetry in political contexts and this was reflected in their later comments on what they had learned. I also received some additional evidence of the value of political poetry when I came across the work of American poet laureate Tracy K. Smith. Writing in *The New York Times* (2018) Smith explores why political poetry has become important again. She begins with the destruction of the world trade centres in 9/11 and the poetic rage this caused in poems like Frank Bidart's *Curse* (2002); she goes on to discuss how American poetry has moved from venting rage to a more nuanced reflection on the wrongs in American life. (2018: 2). She cites Wordsworth's theory from his Preface to the *Lyrical Ballads* that "poetry is the spontaneous overflow of powerful feelings" (2018: 5). She talks about the outrageous injustice evoked by the violent imprint her country has made on black bodies through the ages and quotes from Evie Shockley's poem "supply and demand" to show that we should do more than simply think about this. Although we might not hear or even agree, she says, the 'I' in the poems is speaking to America. To return to my poetry classes, those reading Shelley or listening to Bob Dylan can be in no doubt that the poet's 'I' I is speaking to them.

Student Involvement

When introducing *Romantic Poetry* to the students I had mentioned John Clare, a poet who was local to the East Midlands region where I was teaching. Clare was a rural poet who wrote of lost love and lost innocence. He was an unknown quantity for me because in the University Degrees of the 1960s when I was a student he barely featured. It is only more recent scholarship that has brought him to critical attention.

I referred earlier to Lawrence Godman's essay in *A Ministry of Enthusiasm* which refers to the WEA method of teaching. Goldman is writing about the work of R. H. Tawney with the first

students of the WEA. He describes Tawney's experimental, inclusive, and non-lecturing method of teaching his classes, and he quotes Edward Stuart Cartwright, a class secretary to one of Tawney's classes in Longton. 'The tutorial class,' Cartwright says, "has made for something more than mental training, it has made for the development of the human spirit; and for many of us opened the door to a wider and deeper life" 2003: 49). The connection with the comment from my student quoted above who 'wanted greater insight into the world we now live in' is clear.

I decided that my students, having in themselves that desire to learn and widen their horizons, should be asked to bring and share their local knowledge of John Clare with each other and with me. I prepared an outline of Clare's life on a flipchart and copied two of his poems. I asked them to do the same if they could. The results were very positive: a number of the students brought in copies of poems by Clare and a wealth of biographical detail. I managed the session by facilitating the sharing of those who had brought items, and by guiding the story of Clare's life with the prepared notes. The session was stimulating and reflective, engaging all students. In my tutor report I made the following comment: *An activity that worked particularly well was in the final session where I used the strength of the group's interest in local Northants poet, John Clare, to guide the content and structure of the session, in effect giving the class self-direction.* Self-direction in adult learning is something I have absorbed myself through previous studies of adult education, particularly *Self -Direction in Adult Learning* Brockett and Hiemstra (1991). Eduard C. Lindeman said in *The Meaning of Adult Education* (19260 that adult education is life rather than subject centred, that the experience of adults is the richest resource for their learning and that they have a deep need to be self-directing. I have found this true in my experience as an adult educator, from teaching science in the 90s to teachers who were required to deliver *The National Curriculum* to teaching literature in the present day to adults who just want to know more about novels and poetry.

I think that a curriculum for adult learners should be designed around what motivates them to further learning. Houle in his work on motivation in The Inquiring Mind (1961) suggested that adults could view learning as an end in itself and that they were intrinsically motivated. (Houle in Brockett and Hiemstra 1991). There is an example of this intrinsic motivation in my own family. In 1984 my mother, having retired as a hospital clerk and with no formal qualifications, joined a short course on family history at the extra-mural department of Liverpool University. She carried out extensive research on the subject, undertaken largely at the city central library, but which included visits to churches, branch libraries, cemeteries and St Catherine's House in London. The research generated numerous false trails which were followed up and eliminated, the setting up of an informal support group and the creation of a network of correspondents. It resulted in the completion of a family tree that went back to 1722.

My mother is a good example of the resilient learner identified by Elizabeth Hoult (2012), and I think that my students shared this resilience too. I wished that I had used a tape recorder to record their views as they completed the Student Learning Record, but in lieu of that I will give you some of the comments which I have agreed with them and which I think reflects the spirit of the course:

Student 1: *Informative, engaging and very interactive with exchange of views*

S2: *The course gave me a much-needed experience of the life and times of the Romantic Poets studied and it has acted as a spring board for further study*

S3: *Very enjoyable, esp. open atmosphere of free discussion (as opposed to "sitting in rows and being lectured" model.) Group worked well together.*

S4: *The course is very well run and organised in such a way that all the group have a chance to express themselves: this is done with great skill*

S5: *I think this gives me a certain discipline and structure to explore poetry and the wider context, which I need. I also enjoy the participation of other students.*

S6: *Very inclusive – I have felt part of it throughout, despite being less well educated in this area than the other participants*.

S7: *Well-motivated and thoughtful group made the course a pleasure as well as an excellent learning opportunity.*

These adult learners highlight the value of connecting rich literature and discussions to their own lives. Returning to Hoult's (2012) point about 'resilient learners', I would argue that these learners, some of whom were expressing reservations about the way they had been taught in the past and their own perceived lack of understanding of the subject, had found a way to move forward through "the language of men" to a greater understanding of how poetry could impact upon their lives. Self-expression, creativity, and reflective thinking can emerge when teachers work to facilitate a climate of connection, meaning, and belonging. From the start of any course, teachers can begin to research their learners' interests, challenges, and life goals.

Developing the narrative

So what next? Clearly there was now a great responsibility to take the group further. In my last paper *Togetherness - in times of conflict can we reconnect with our creative selves?* Turin (2018) I showed evidence that through reading literature we can find answers to the existential challenges in our lives. In her book Elizabeth Hoult says that the act of reading itself can be creative. Books are an "escape route in which possible other ways of being can be imagined and lived through." (Hoult, 2012: 88). Many of this poetry group had shown an interest in international poetry and I knew there would be a conference in Norway in 2019. I had been reading a novel called *Norwegian Wood* by the Japanese author Haruki Murakami. The book's title is taken from the Beatles' ballad mentioned earlier. There is also a film of the book made by the Japanese director Tran Anh Hung. When he hears the Beatles track of the film/books title Watanabe, the story's protagonist, has a vivid flashback to his student days, remembering the period's political and sexual revolution.

To continue this article in an autobiographical narrative spirit, when I visited Norway in July I was looking for ideas that I could input to my group on modern international poetry, and sure enough the country that had produced playwright Henrik Ibsen gave me one. While there, quite by chance, I came across a flyer advertising a TV interview with internationally renowned author and playwright Jon Fosse, at Litterahuset. I had heard the name, Jon Fosse, but knew little more about him. Nevertheless, I headed for that bookshop in Bergen and once there was shown the footage by the helpful sales assistant.

Fosse's writing is described by Beatrice M. G. Reed, Assistant Professor of Nordic Literature at Volda University College as 'existential, universal and poetic' and now, looking at some of his work in translation, although I did hear him read in Norwegian, I can agree with her. The language is very spare, repetitive and rhythmic. His translator May Britt Akerholt in her introduction to her English translation of his poems has put it better than I can, and I used a quotation from her introduction to *Jon Fosse Poems* (2014) at the beginning of the article (2014: 9). She writes about language 'bursting with emotion' yet also about texts which 'resist being understood'.

Poetry can be both those things. Fosse in the video that I watched describes a poem as 'a glimpse that disappears quickly' and that a poem 'should not mean but be'. If we look at the example of his poem *Snow Song*, it seems to be about a reflective moment in time, telling about how sitting and looking at a mountain calms him and makes him feel good. Like Wordsworth's view of Tintern Abbey, as I mentioned in the Copenhagen paper referred to above, it is one of those 'spots of time' which can heal and restore:

To sit and look at a mountain/does me good/calms my heart

In the Newspeak of Twitter there is no room or encouragement for such meditative thought. The author, Caroline Taggart, in her book, *New Words for Old* (2015) says that the founder of Twitter, Jack Dorsey, explains his creation as 'a short burst of inconsequential information' and 'chirrups from birds'. A tweet, Taggart says, is about twenty words in length. The social networking researcher, Danah Boyd defines Twitter as 'social grooming and peripheral awareness – persons wanting to know what the people around them are thinking, doing and feeling'. I would argue that the Twitter of social networks, politicians and the media uses language reductively to diminish our horizons. I think our lives can be made richer by reflecting on the lives we lead through the language of poetry and song which is rich in ideas, metaphor and narrative forms, and which can lead us to those moments in time as in Fosse's or Wordsworth's poems where we encounter ourselves.

Conclusion

In her book *Becoming a Reflexive Researcher* Kim Etherington (2004:75) says that telling and retelling one's story helps a person create a sense of self and meaning, and I think that telling the story of the poetry class has done this for me. The pieces of the mosaic which I defined in *Togetherness in times of conflict can we reconnect with our creative selves?* Turin (2018) have come together in the development of a dynamic which I found among the students in this group. The value of the reading of poetry aloud was referred to extensively in the student comments and I think that the *musicality* in the language of poetry, which I have used the ballad form to illustrate, is one of the reasons for the group's success. I also emphasize my reference to Wordsworth's 'spots of time' when I was trying to define the benefits we can derive from readings of literature at key points in our lives, Copenhagen (2017: 1). Then, using autobiographical narrative as suggested in Clough's *Narratives and Fictions of Educational Research* (2002), I was looking at how literature might help us in dealing with bereavements, loneliness, sadness and the fear of ageing. Now, I am looking at how it might help us to deal with the world of Twitter, the *Newspeak* of the 21st century, where those short bursts of 'inconsequential information' can distort our perceptions of reality. The language of poetry and song can create a worldview that is revolutionary, musical, emotional and perceptive. This worldview can connect us to others who share our concerns about dealing sensitively with the business of living in the 21st Century. Adult Education is a doorway to the space where those concerns can be shared.

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About the Author

Peter Leyland, B.A. (Hons) English. MA. I am a teacher, writer and researcher in the area of English Literature and adult education. I was born in Liverpool in the 1950s and completed my degree in English at London University in 1972. I then did an Advanced Dip. Ed. in Science at Cambridge Institute and went on to become a teacher of science to primary school children. In 1990, I became a Primary Science advisory teacher and in 1994 completed an MA in Education. Following this, I taught in 9-13 middle schools, co-ordinating courses for Gifted and Talented children. I published a book, 'Be a better Gifted and talented co-ordinator' in 2006. In 2007, I retired from the classroom and began working as a tutor for The WEA (Workers' Educational Association) in my first subject, English Literature. Since then I have written and taught numerous courses on novels and poetry to adult groups.

“We Are All Relations”: An Indigenous Course Requirement (ICR) Experience

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Abstract

This mixed-methods study asked students, faculty, and staff what their experiences were with an interdisciplinary Indigenous Course Requirement (ICR) in its initial implementation in the 2016/17 academic year at The University of Winnipeg. Although participants had suggestions for how to improve course content, development, delivery, and support, there were more positive reactions to the ICR experience than negative. Themes that emerged from the positive learning experiences were the importance of relationships, respect, and a desire to work together towards reconciliation. Challenges that participants indicated were the pressure on Indigenous students to take on the role of token authority, lack of support systems and training for engaging in sensitive issues. There was consensus that racism and lack of knowledge exists and that education and relationships are key to changing stereotypes. A major challenge will be continued student opposition to ICRs.

Keywords: Indigenous Course requirement (ICR); Indigenization; racism; reconciliation; Truth and Reconciliation Commission (TRC); United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP)

Background

The University of Winnipeg (UW) is a medium-sized urban university with a student body of about 9,400 students where 13% of the student population self-identify as Indigenous (UWinnipeg Fast Facts, 2017). In the fall of 2016, The University of Winnipeg put into effect an Indigenous course requirement (ICR) as an interdisciplinary prerequisite for graduation for all university students (Indigenous Content Requirement, 2017). The goal of the ICR at UW is that all students across all disciplines learn basic knowledge about Indigenous people and culture (Indigenous Course Requirement, 2016). This is a brief history of how the ICR came into effect at UW. Students played an integral role in the process, and eventual implementation of the ICR and these are some of the events that led to the ICR inception.

In a ceremony in the fall of 2012, Wab Kinew, then director of Indigenous Inclusion at UW, presented Lloyd Axworthy, then President and Vice-Chancellor of UW, with a sacred Anishinaabe pipe as a “way to build bridges between the Indigenous and non-Indigenous communities” (Axworthy & Kinew, 2013). At the time, Idle No More movements marched their way onto main streets and front pages of newspapers across the country, reminding everyone “that this country began with co-operation between Indigenous and European peoples” (Axworthy & Kinew, 2013). The response garnered divided reaction “making supporters of some ‘average Canadians’ and drawing vehement and occasionally, vitriolic opposition from others” (Axworthy & Kinew, 2013). Indigenous peoples were standing up not only for themselves but for the benefit of all Canadians. Kinew and Axworthy (2013) saw the beginning of a new relationship and committed to “work toward mutually beneficial solutions. Let’s be divided no more.”

In February 2013, racist graffiti in a UW washroom targeted First Nations peoples, and disparaging comments about Idle No More appeared online. Axworthy and human resource officials took the actions seriously, expressed their apology, committed to revising the University’s respectful workplace policy, required staff to take workshops, and offered a seminar by Wab Kinew. The Aboriginal Students Council applauded the response indicating that Aboriginal students were not the only ones experiencing discrimination on campus, and that learning about mutual respect would benefit everyone (Graffiti at University of Winnipeg, 2013).

In 2015, *Maclean's* published Nancy Macdonald's article entitled "Welcome to Winnipeg: Where Canada's racism problem is at its worst." The city and University took these accusations seriously and again committed to working on what they recognized was indeed a problem. Although both Axworthy and Kinew had left the University by 2014 and 2016 respectively, the established commitment of Axworthy and Kinew's work combined with racist incidents on campus collectively contributed to the years of 2015-17 bringing major curricular changes to the University.

In 2015, the Truth and Reconciliation Commission of Canada (TRC) released the 94 Calls to Action to redress the previous wrongdoings to the Indigenous peoples of Canada (Truth and Reconciliation Commission of Canada [TRC], 2015). This was in an effort to rebuild relations with First Nations peoples (TRC, 2015). To incorporate Indigenous knowledge into coursework acknowledges that UW is located on Treaty One land in the heart of the Métis Nation (Indigenous Course Requirement, 2016) and takes the TRC's calls to action seriously.

The University of Winnipeg Student Association (UWSA) was aware of the political, social, and local climate and initially formed the ICR concept in response to national and local events. Through informal and formal discussions, debates, and research the UWSA proposed the course to the University's Senate. The new course requirement, first proposed during Axworthy's presidency, was approved by the Senate in November 2015 and in the fall of 2016 was implemented for all undergraduate students (Indigenous Course Requirement, 2016) with the support of Dr. Annette Trimbee, who succeeded Axworthy as President and Vice-Chancellor. In the 2016/2017 academic year, 27 unique courses with a total of 46 sections were offered across 9 different departments.

This study reports student, faculty, and staff response to the first year of the implementation of the ICR. The overarching research goal of the study was to learn about student, faculty and staff perceptions and experiences of the University of Winnipeg's Indigenous Course Requirement (ICR). In 2018/19, the course offerings expanded to include 78 courses in 17 different departments.

Data Collection and Recruitment

Multimodal data were collected during the winter of 2017. Data were collected through individual faculty and staff interviews, student surveys, and focus groups with students. Faculty and staff were recruited through direct contact with departments that offered ICR courses. Student survey participants were recruited through a mass email to all UW students that had taken an ICR course. Focus group participants were also recruited through the mass email that went to the same pool of students that received the survey invitation. This study received ethics permission from the University Human Research Ethics Board (UHREB).

Sample Size, Participants, and Research Analysis

Data were collected from three different stakeholder groups that were all directly impacted by the implementation of the new ICR courses: faculty, staff, and students.

- 10 faculty and staff from six departments participated in the individual 30-minute voice recorded interviews. The staff that were included in the research, were directly involved in assisting students in issues pertaining to the ICR courses.
- 164 students responded to a survey invitation sent to 1,230 students who had taken an ICR (13% response rate).
- 19 students participated in one of three 60-90-minute focus group discussions.

The data collected was analyzed using a method of hand coding. While reading the transcribed interviews and surveys, themes that emerged along with corresponding quotes were organized according to categories. Categories were added as new themes emerged. The Results and Discussion section highlights the prominent themes that emerged from the study.

Results and Discussion

ICR Student Experience

The purpose of this study was to learn about faculty, staff, and student perception and experience of UW's Indigenous Course Requirement (ICR) that was implemented in September of 2016. Findings revealed that there is room for improvement in course content, development, delivery, and support, but there were more positive overall reactions to the ICR experience than negative. Although there were definitely polarized views on the ICR experience, more students indicated they had an experience that ranged from neutral to "wonderful." Neutral responses included students indicating that the class was the same as any other university class with nothing exceptional or unusual, to one of the best classes they took. Although some student experiences ranged from support in principle of the ICR, they stated they would like a stronger pedagogical approach. A few students expressed an antagonistic resistance going into the course and a very negative assessment of it going out.

Some of the positive emotions that students experienced in relation to the ICR experience included: understanding and respect gained in the course, the desire and need for reconciliation, support for the ICR, and gratitude for the doors it welcomed for honest conversations. The ICR garnered enthusiastic support from the majority, but also "vehement and vitriolic opposition" from a minority. People experience cognitive dissonance when new information that they learn is not psychologically consistent with their previous knowledge (Festinger, 1962). Frimer, Skitka & Motyl (2017) explain that cognitive dissonance causes discomfort and people avoiding exposure to information that creates a personal psychological clash is a self-defense mechanism. Further, "People have a fundamental need to feel mental synchrony with others" (Frimer, Skitka, & Motyl, 2017, p. 1), and for some, the ICR course was an experience of cognitive dissonance. For some students, the dissonance resolved into acquiring and owning new knowledge that changed their thinking and action. Others left their ICR course in a stage of anger and even hatred. Some of the negative emotions that students experienced in relation to the ICR experience included: outrage, disappointment, feeling silenced, and seeing no need for more reconciliation.

I report on the ICR experience as a "room divided," and placing the positive experience next to its negative counterpart, illustrates the stark juxtaposition of experiences (see Table 1). Illustrating the findings in this way reinforces the binary state that ICR proponents seek to erase.

Table 1: Student responses to their ICR.

Positive Responses	Negative Responses
Understanding and Respect	Outrage
Reconciliation	No need for more reconciliation
Support for the ICR	Disappointment in the ICR
Opened the door for conversations	Silenced

Understanding and respect.

Students of all ethnic backgrounds expressed appreciation for the understanding gained by taking an ICR course. Students enjoyed learning about their own culture and sharing knowledge about their culture with other students. Because people often "get the wrong idea" (student) about Indigenous culture, Indigenous students hoped that with the learning, "other's perceptions may change about my culture" (Indigenous student). Students expressed appreciation that this gap was being addressed:

I love learning about First Nations people, my people. Any knowledge is worth the time. (Indigenous student)

I am an international student and have not learned much about the history of Canada. With the Métis history course, I learned how Manitoba was formed and then how it was taken and the history hidden and retold. It showed me how words can be twisted to fit whatever outcome you might

want and that a person should be careful when reading because it might not be the full story. (International student)

For many non-Indigenous students, taking the ICR course was an eye-opening experience. They learned things for the first time and with an open learning attitude:

I think one of the most eye-opening was, you know, when you're taught it in school you always think we were the first ones here when in fact we weren't; you know, the Europeans. I didn't realize there was over eight million Indigenous people in North America when Columbus landed the boat. So, it was really quite an eye opener, you know, and being an older student, I had no knowledge. (Settler student)

Taking the ICR course helped students gain respect for Indigenous knowledge and that there are many ways of knowing and expressing knowledge. Students realized that there are many viewpoints of the world and that the European way is not the only perspective. Respecting each other and different worldviews were essential to learning with and from each other. A settler student explained:

When I received an essay back, it was pointed out in my feedback that I had provided context for the matter and addressed it from a Euro-centric viewpoint. It was true, and I hadn't thought of it that way. I appreciated the feedback and the opportunity to consider how I could have written it differently.

By taking an ICR course, students also learned to be careful of stereotypes: "The ICR course has taught me to be careful of stereotypes. Learn the history and the people before making general assumptions or agreeing with others on careless and uneducated thoughts and comments" (Settler student). An International student said: "we are on treaty land, and we should be respectful of that."

Outrage

Some students entered the ICR discussion with antagonistic emotions. Students indicated that they felt it was a waste of time and money and did not appreciate being forced to take a class they did not want.

My most vivid memory was dealing with the outrage leading up to it. On three occasions I saw non-aboriginal students arguing to aboriginal people nearby about how the requirement was 'stupid' and 'a waste of time.' On the first day, the people in my class seemed very angry that they had to take the course. I remember the room feeling very divided. I felt uncomfortable for the aboriginal students. (Indigenous student)

Some students expressed resentment about feeling forced to take a class they did not choose to take. "Forced" was a word that came up in many of the negative student responses. Because they felt forced, they went into the course with a negative attitude, which made it difficult for them to learn. They did not appreciate having to pay for the class that they thought was unnecessary. They felt it was unnecessary because they had already learned the material or had no interest in learning it. Although it is important that students acquire a certain knowledge base about Indigenous history that impacts current practice, the goal of the ICR was not forcing knowledge.

For some students, taking an ICR course came with extreme negative emotions:

"It was a horror show of confusion and incomplete information" (Settler student).

"I thought it was stupid going in and still thought so after I was done" (Indigenous student).

"The whole course sucked" (International student).

"Blame white people for everything" (Settler student).

"What I now feel is that we should have assimilated the Indigenous peoples by force" (Settler student).

"It WAS indigenous land. But not anymore. This land belongs to Canada and its rightful citizens" (Settler student).

Reconciliation.

In recent years in Canada, reconciliation has been a much-discussed topic. Vivian Ketchum (2017), an Indigenous woman from Wauzhushik Onigum Nation, said: "Reconciliation is an ugly word." She continued to explain that many lofty words have been said and discussed, and much money spent to try to understand what reconciliation is, without any action coming of it. Sometimes reconciliation starts with an acknowledgement of past wrongs and a willingness to listen.

In this research, I acknowledge that we are once again talking and discussing reconciliation, with the humble hope that we learn how to move into action. Taking an ICR gave students the opportunity to think about reconciliation in a concerted way. They realized that we all have much to learn about reconciliation, that reconciliation and Indigenization are a complicated process, but students were willing to engage, think about it, and take action where necessary. An Indigenous student defined reconciliation as:

> recognising that there are unforgiveable histories that have become intertwined through direct action, and now direct action is required by an oppressive party, by a colonial party, to find out what their place is in solving the problems that can be solved and in encouraging healing in areas where there is, potentially, unhealable damage.

About the ICR, an International student said:

> It helped me understand that reconciliation is something we all must work at. It is a constant and living process. There are many ways to get there and we all can have a hand in it. While it did help me see the big picture it showed me how I can do things day to day to help.

No need for more reconciliation.

Evidence of the long and arduous process ahead, foreseen by some students, is exemplified by the following student quotes. Some students felt that taking an ICR course was "a complete waste of time and money," and that reconciliation is not necessary.

A student that did not provide ethnic identity indicated:

> I thought myself liberal before taking the course. But when I was shown what actually happened, I realized we are only prolonging the inevitable. We need to cut the b…s... And force them to adapt to modern way of life. They will die out in a couple hundred years if we don't. And I don't want people to keep dying and living a shitty life on the reserves. That's not fair to them.

An Indigenous student indicated: "Enough reconciliation has taken place." A statement like this could mean two things: there is nothing more that needs to be done, or enough talking has happened and it is time for action.

Support for the ICR.

Both settler and Indigenous students supported the ICR and recognized that they had a role to play in reconciliation and that implementing the ICR is a good step forward in education and reconciliation. Many indicated that it was a "wonderful idea." All degree programs have requirements and prerequisites that are associated with cost and time. Since students are required to take a humanities course, the ICR course fulfills more than just one requirement, which some students acknowledged. Passages like the following evidence support for the ICR:

> I think that the ICR was a great decision. I think it's extremely important that everyone is aware of Indigenous life in the past, present, and future. (Indigenous student)
> I think it's a wonderful idea. As a white settler living in Treaty 1 territory, I know far too little about the context of this area and the Indigenous peoples of Turtle Island. (Settler student)

Many students agreed that the ICR should definitely be mandatory because there are still many issues to address regarding Indigenous peoples of Canada. An Indigenous student said: "I would say it exceeded my expectations and became one of the best classes I've taken in University."

Disappointment in the ICR.

Many students wanted to interact with the material and with their professor and were disappointed when their expectations were not met either because the interaction was uncomfortable or did not happen at all. An Indigenous student said:

When we got our syllabus for the course, [they] had written that we were going to have a ceremony with an elder which I immediately – like this is amazing, that's awesome. …Never. So there was no interaction. It was honestly just like [they] talked about it, we just watched these… videos, we went home and that was the course…that definitely was not what I wanted to do.

An International student explained:

> I just wish we'd had more class discussions; I mean, I understand it's a big class, so that's kind of complicated. Even then, I wish [they would have] had more time to talk after class, because we watched videos – [they] read off a PowerPoint – I just wish there was more interaction.

Aboriginal Student Services Center

ICR opened the door for conversations.

The ICR opened the opportunity for conversations that students wanted to have, but did not have the venue or vocabulary to know how to go about engaging in dialogue. The learning in ICR courses went much further than just classroom and book learning. Students talked about having conversations outside of classes about what they learned. Those conversations took place at home, over drinks in the bar, or in the hallway. Active learning was going on in many places.

An Indigenous student said that taking the ICR course gave him the vocabulary to talk with his grandpa about his culture:

> and that was something that we were, kind of, missing. Like, we knew we were Métis and like, we went to some events, but we lacked the vocabulary to talk about, like the complexities of the politics of our history and it, kind of ... it's something where now he's using that vocabulary. So, on a level, like a personal level, it really built this stronger connection to who I am and who my family seeing ourselves as who we are.

The ICR also gave non-Indigenous students the vocabulary to correct faulty perceptions:

> When I'm out in the world it made me stand up. When people say things that are inappropriate I correct them. If you can learn racism you can unlearn it. (Settler student).

Most students talked about the professor as playing a pivotal role in making the ICR class a good or bad experience. Students went into the class with a range and mixture of emotions including hesitant, dreading the course, looking forward to, and not knowing what to expect. Students expressed appreciation for the welcoming environment that was created in ICR courses. They appreciated it when professors were competent at relaying information, able to manage classroom dynamics adeptly, and sensitive to students who may experience discomfort in participating in unfamiliar ceremonies or exercises. Professors were responsible for either opening doors for engagements or silencing.

Silenced

Some students felt discomfort when they felt their voice was not heard. Some felt that their professors were biased and not open to hearing views that did not fit with their worldview. One student explained: "The group discussions were terrible because I felt I couldn't have my opinion without being bashed. Maybe the teachers shouldn't be biased and open up to non-Indigenous opinions without making students feel bad. Offer explanations to those opinions" (Settler student).

Tension was palpable in student comments. About the opinions that settler students may want to express in class and sometimes did, an Indigenous student expressed annoyance about questions that she thought were ignorant:

> And I think it's really annoying to think that profs are okay with allowing these ignorant comments to be made, because the whole point of the course is to educate them. And if someone openly says an ignorant comment about an Indigenous person, how come you're not going to address it? It's really been frustrating, because I love the traditional lifestyle. I always felt that I was attacked in courses (Indigenous student).

Some students expressed criticism of the classroom environment, teaching methods, and strategies. They talked about teachers not being prepared to teach the course, about bad teaching, discomfort in knowing how to offer opinions, feeling like not all contributions were welcome, and disappointed when professors did not allow time or space for interactions.

Some students indicated that although they may have good intentions, professors were not prepared to work with sensitive material that needed to be handled carefully. Several students suggested that the way the content was presented was through a colonial lens, which caused deep frustration. They noticed that professors did not have the skills to manage classroom dynamics that sometimes became tense. Even the lack of enthusiasm or care for the content caused frustration.

> And so I think the ways the profs are teaching, is very unprepared, because I feel like they're doing it with good intentions, but in the way they're presenting, the information is really kind of just thrown out. (Indigenous student).

> It was awful. If you're going to make a class required, PLEASE assign good profs. Literally none were good. All bad teaching. (Settler student).

> But I did notice that there was like a lot of backlash cattiness in those group discussions. And I didn't see the – the prof wouldn't really address it, they just kind of like brushed it off, and it really daunted me. (International student).

Faculty and Staff ICR experience

Most students and professors seemed surprised that the ICR experience went as smoothly as it did. Students had expected the ICR class to be more painful and professors expected more backlash. In conversations with professors, I heard many positive perceptions of students and their engagement. Findings revealed that the faculty and staff experience came with unexpected surprises as well as challenges (see Table 2).

Table 2: Faculty and staff responses to their ICR.

Surprises	Challenges
Anticipated backlash an exception	Pressure on Indigenous students
Engaged students	Tension in the classroom
Relationship building	Negative student evaluations

Anticipated backlash an exception

The surprises that faculty and staff indicated were that the anticipated backlash was an exception, students demonstrated exceptional engagement in the discussions, and were keen on forging relationships. Some professors anticipated a hostile response from students, but were pleasantly surprised by students that came with a learning attitude.

> Well, I wondered if there was going to be some backlash particularly from students in dominant social locations, white students in particular, and I've been happy to see that, for the most part, people are just super-engaged, you know, and they want to learn and they don't want to repeat the mistakes of the past. (Indigenous professor).

> My first impression is that there is far less pushback than expected. (Settler professor)

Some professors took the opportunity to discuss the ICR at the beginning of their course by opening the floor for an open and honest dialogue. Students being able to feel free to say that taking the course was not fair, gave professors the opportunity to field questions and comments openly rather than students feeling like they needed to repress their honest emotions about the topic and the requirement. This openness led to positive change and an openness to be a part of the class with an open mind.

Engaged students

Not only was there less backlash than professors expected, they also found that students were more engaged than they anticipated. Professors expressed that students seemed genuinely interested in learning and came prepared to discuss contemporary issues.

> So the second and third-year students are in there because they want to be and that is awesome (Indigenous professor).

> As much as students – particularly settler students – might not have a background in Indigenous politics, they are paying attention to what's going on in the media and just what's going on in general, so they are much more informed and aware than I expected them to be when they came into class. (Settler professor).

Relationships

Faculty and staff talked about the importance of relationships. A staff member said: “I don’t think that there’s an unwillingness to engage with tough topics; I think it’s a respectful approach that places the importance of relationship first in these conversations.”

Faculty talked about the original relationship between Indigenous peoples and settlers. The Two Row Wampum Belt was symbolic of the original agreement in 1613 in between some Indigenous and European peoples on Turtle Island. It was a commitment to mutual friendship, peace between nations, and living together as brothers and sisters (Venables, 2009). That original relationship was to last forever “as long as the grass is green, as long as the water flows downhill, and as long as the sun rises in the east and sets in the west” (Powless, 1994, p. 21). A settler professor said:

> Whenever we're talking about contemporary issues, I encourage them [students] to shed what you've learned over time of Indigenous people being subordinate to Canada, and remember that original relationship. And we talk about two-row wampum and how do you think things should be today if we were to keep that original relationship intact?

(Two Row Wampum Belt, 2017)

Faculty talked about the interconnectedness of people. If we indeed are all related, then we all share the responsibility to watch out for each other and work for the good of the whole community. The goal of the ICR was to teach Canadians about:

> the true history of this country, about contemporary realities, and that we're all in this together, so we all have a part to play. The grand goal is to impart knowledge as well as ways of knowing that go beyond the western that serve as a corrective for the knowledge that's been disseminated for hundreds of years. So when you do that, you hopefully help Canadians of all backgrounds and even temporary visitors see themselves as relations, so a lot of indigenous cultures use a phrase that is or sounds like we are all relations; it's not a metaphor, it's not symbolic, it means we are literally all relations (Indigenous professor).

The importance of Indigenous and non-Indigenous relationships, and educating the general Canadian public about Indigenous realities has a long history including intertribal and colonial treaties, the Royal Commission on Aboriginal Peoples, the UN Declaration on the Rights of Indigenous Peoples, and recently the TRC. The ICR was important in establishing ally relationships and extended beyond just classroom material. Events like the Weweni Indigenous Scholars Speakers Series foregrounded the important work being done and provided opportunities for networking and for:

> people from different backgrounds to meet each other – learn about the cool work that we're all doing and build relationships because I think that's a key in indigenization, a key in understanding the world from an indigenous perspective, its relationships. We are all – like we are all related in some way; we're all connected and it's our responsibility to figure out how are we related and therefore what are our mutual obligations, our responsibilities? (Indigenous professor).

Not only were relationships within the classroom and University community important but also beyond the University walls to establish relationships with the wider community:

> With the ICR, Indigenization, I mean we're educating and training the public that lives around us right, so I think that there will be positive impact. In the meantime, I think it would be really beneficial to create more relationships between academia and community. Like Indigenous community does amazing stuff, like grassroots community stuff, the North End is just – it's amazing in terms of community and collaboration. (Indigenous professor).

> Participants talked about relationships leading to building bridges: "So if we can build bridges, you know with the University and talk with them, collaborate, and increase those kinds of relationships, I think that would also help" (Indigenous professor).

Pressure on Indigenous students

The challenges that faculty and staff talked about pertained to the pressure that they felt Indigenous students were exposed to as token authority, the tension in the classrooms, and negative student evaluations. Non-Indigenous professors expressed gratitude for the expertise and perspective that Indigenous students brought to the classroom, but were cognizant that this could also make students feel uncomfortable. A settler professor claimed:

> So as a non-Indigenous instructor, I can't speak about it first hand, and so I think students would like to hear that first hand and then they turn to Indigenous students to try to get those stories and that's – they don't always have them, it's not their responsibility to teach, you know, to share them.

Non-Indigenous students and professors leaning on Indigenous students for real-life examples was problematic because it assumed that all Indigenous peoples' experiences are the same. It could put Indigenous students in a bad position in that they felt that they had to explain, or they had to teach the class in some ways.

Tension in the classroom

A challenge that professors did not anticipate was the tension in classrooms. Some professors taught classes that previously were populated by predominantly Indigenous students, but with the new ICR, non-Indigenous students now joined these classes. Previously the classes were safe spaces where Indigenous students could learn about their culture and where their identity was celebrated and

affirmed. The reaction of non-Indigenous students to an Indigenous centered classroom was very different:

> "It was, in some cases very negative, because this is the first space they'd ever encountered where the story wasn't all about them and it was hard; it was very difficult actually. They would become very defensive" (Indigenous professor).

Learning about colonialism and understanding history for Indigenous students was a very different process. For non-Indigenous students the history of colonialism felt like a personal attack, even when it was not meant to be. That was something professors had to adjust to:

> their [students'] reaction was different, very defensive, insecure, awkward, threatening and so what would normally have been a classroom situation of empowerment, really wasn't that same way anymore and it was not the same experience for Indigenous students. And also tension within groups, right? So yeah, you're trying to kind of balance these sort of two sides. It was a bit more difficult in that situation. (Indigenous professor).

Added to the tension of different reactions to course content was the fear that students would resent that the course was required:

> "I'm not sure how the University really could mediate that more. I think with time that students will just accept it, like you have to take a science credit, you have to take your Indigenous course requirement" (Indigenous professor). Faculty and staff recognized that "Indigenization requires tough conversations and demands that people not turn away from these conversations anymore, but it also recognizes that for many people these conversations can and will be traumatic" (staff).

Negative student evaluations

Professors indicated that because the course was required, students would go into the course with negative perceptions and therefore evaluate the professor negatively:

> Biggest challenge I faced is because of the type of course it is and it's mandatory. My evaluations per se will go down dramatically compared to a non-mandatory course. There's a lot of students that are actually very receptive to Indigenous issues. There's not all resistance, but the way the course evaluations are set up, if you have one or two who are resistant, that reflects very heavily on your own course evaluations. (Indigenous professor).

Another Indigenous professor agreed:

> We'll see what the evaluations are. When these kinds of things are introduced there's typically a backlash where professors get very, very poor teaching evaluations as a reaction to students feeling forced to do something and sometimes those can come across very racial as well. (Indigenous professor).

Actions Recommended by Participants

As part of the research, participants were asked for suggestions for how they thought the ICR experience could be improved. The following recommendations have been developed from reflections based on the consultation with a substantial, but still limited number of constituents, not as conclusive recommendations emanating from a system-wide program evaluation.

Learning languages

TRC Action 16 states: "We call upon post-secondary institutions to create University and college degree and diploma programs in Aboriginal languages" (Truth and Reconciliation Commission of Canada, 2015, p. 2). Action 10.iv also states: "Protecting the right to Aboriginal languages, including the teaching of Aboriginal languages as credit courses" (Truth and Reconciliation Commission of Canada, 2015, p. 2). Understanding that language is key to culture, participants talked about the importance of Indigenous language instruction.

Indigenous leadership

Many students recommended an increase in Indigenous leadership. They suggested that an Indigenous professor would have given them a more first-hand experience. Having Indigenous professors was very important to students, which they saw as part of reconciliation, but students were quick to add that using Indigenous pedagogy was just as important as being able to speak from personal experience. Indigenous hires in all positions at the University would be an active way to illustrate reconciliation: not only more tenured professors, but staff positions such as librarians, administrators, food service, and security.

Relationships

Participants expressed a strong desire for relationships. Content covered in classes was impetus for conversations, and there was an eagerness to have conversations in informal settings, to learn from each other, and to establish friendships in keeping with the understanding that "we are all relations". Like the workshops for ICR professors, workshops could be organized for students, staff, and mixed faculty, staff, and students, where everyone would be welcome to engage in dialogue.

Pedagogy

Professors talked about a project-based approach in their pedagogy, where students were given the opportunity to develop their own creativity by doing a project based on a topic instead of writing a 10-page essay about it. When students worked in groups or clans, professors encouraged students to bring their strengths to the projects.

Inviting Elders into the class was beneficial in teaching students understanding and respect. Students wanted to hear more personal stories, experiences that happened to individuals. Storytelling and humour was an effective pedagogical strategy. Students desired more hands-on learning:

> "Sitting in desks in rows, listening to a single person lecture from a textbook while scribbling down notes is not an appropriate way to be learning about ceremony, traditional medicines, or creation stories" (Settler student). Students suggested that art and oral teachings would be helpful pedagogical aids, "instead of just another textbook shoved in my hand. Makes everything feel so dull and painful" (International student).

Instead of the traditional hierarchical approach to teaching, professors encouraged everyone to be open to learning from each other, which also included the teacher learning from students, even though sometimes the teacher was standing at the front of the room. The visual form of a nonhierarchical learning environment was a circle instead of desks in rows. One professor succinctly explained the rationale for this structure:

> We're all learning together. Everybody is on a learning journey. Everybody has specific gifts and challenges. They may be different from the person sitting next to you, and to just recognize and be patient with each other because we don't know what the next person is dealing with (Indigenous professor).

Participants talked about the necessity for support services for students, faculty, and staff that could experience trauma as a result of studying traumatic history. Counselling services could be readily available for students, faculty or staff that were triggered or were hurt by insensitive or outright racist comments made in class.

Training for faculty

Students expressed the need for special preparation and training for educators to know how to deal with issues concerning racism. Since Indigenous education can open wounds and students can be triggered, faculty and staff need to be prepared in knowing how to anticipate and deal with sensitive and highly emotional situations.

Support services

Conclusion

Using multimodal research methods, this study examined student, faculty, and staff experience with the ICR in its initial implementation in the 2016/17 academic year. Findings revealed that although students and instructors had suggestions for how to improve course content, development, delivery, and support, most student participants expanded their learning in a neutral or good and empathetic way that indicated their increased awareness and understanding of Indigenous issues. They appreciated the open conversations and the acquisition of new vocabulary to be able to participate in the dialogue in a respectful way. They applauded the University for the ICR initiative and wished they could have learned these things a long time ago.

Of the student participants, that had negative experiences, some were not opposed to the idea of an ICR, but their particular class did not meet their expectations. Others may have experienced cognitive dissonance that did not resolve in a positive learning experience. Reasons for the less than desirable experience was the sense that students felt forced to take a class they did not want or see as necessary. Some thought reconciliation was a waste of time and assimilation should continue to be forced upon Indigenous peoples, evidence for the necessity of an ICR course. Besides the course content, professor pedagogy was criticized. Students felt that large classes limited discussions and interaction. These students felt professors were biased and not open to hearing a different point of view.

Professors expressed concern about a potential backlash from students especially in "dominant locations," but findings showed a better than expected result. They were pleasantly surprised by enthusiastic student engagement. Disengaged antagonistic students caused concern and professors expressed a gap in knowing how to handle tension in the classroom. Professors expressed gratitude for the ally relationships that were being forged with colleagues. Although most Indigenous professors appreciated sharing the ICR workload with non-Indigenous allies, many students revealed a preference for Indigenous professors for the ICR course, though they also noted that overall good pedagogy was more important.

Challenges that faculty, staff, and students indicated were the pressure on Indigenous students to take on the role of token authority on the Indigenous experience, how to sensitively support students and staff when talking about a traumatic history that triggered profound grief for some and complete indifference or anger for others, and how to manage contentious discussions in class when there was evidence of overt or covert antagonism, racism, and tension. There was consensus that racism exists and that education and relationships are key to changing stereotypes. The ICR was seen as a positive step towards reconciliation but there was much work that still needed to be done. Necessary components to moving forward in a good way included providing students with more information and intent about the ICR, more support services, pedagogical training, and debrief mechanisms for all involved.

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Interview:

Joan Freeman

Taisir Subhi Yamin
The International Centre for Innovation in Education (ICIE); Ulm-Germany

TSY: Can you explain what motivated you to enter the field of gifted and talented education?

JF:

My motivation to enter the field of understanding and helping lively minds to develop has deep roots in my own early observations and feelings. I know that a bright child can get by in the world without an appropriate education. But when high level opportunities and encouragement are absent, achievement is lower than promise and catching up on some early steps in learning can be almost impossible.

Five of my formative childhood years were spent on the Canadian prairies as a WWII evacuee. I changed schools constantly and had to adjust swiftly to each one's teaching and religion, and find new friends. School education was basic. My most potent learning was the year with my younger sister fostered by Christian evangelicals; two Jewish girls in a 'little house on the prairie'. Crucially, what we learned was not so much scholastic as emotional. I was consciously aware that the important thing was to know who I was and stick to it.

I can't imagine anyone in our part of Alberta had heard the words 'gifted child' or had come across Terman's Californian endeavours. I was usually top of my class, even in Sunday School where nary a bible story nor a rousing hymn escaped me and a shower of my gold stars glittered. It was just the way it was, and I was accustomed to it

Yet, being intellectually gifted, as I suppose I was, was unusual where the other children merely did their time at school to leave at 14 to work the land, tend the animals and spread the gospel of Jesus, eagerly anticipating his second coming. I had to tread carefully, though, after my stories were held up in front of the class as examples of good writing and imagination: the boys indicated that I should have known better than show them up.

Other than that, I did not receive any recognition of high level potential. But then, I never experienced any of the complaints which are so often presented today as essential signs of giftedness. I was never ever bored. A shelf in our two room wooden home held the Bible and a Sears Roebuck mail order catalogue on both of which I spent a lot of time. In spring the new calves were there to nuzzle and in the winter when the outside pump was frozen I was busy breaking icicles to bring in and melt for house water. There was fun at interchurch meetings and designs to work out at quilting parties.

Nevertheless, soon after returning to dark stricken post-war England I passed the first national eleven-plus exam and in 1946 proudly took my place in the top stream of an academically selective girls' grammar school. What a terrible shock. I discovered my utter ignorance. What use were my brilliant milking skills? Since then, and from the never ending struggle to catch up, I well understand the negative effects of the lack of straightforward knowledge on a gifted mind. I didn't learn that from reading research papers: I knew it in my bones.

In the mid 1950s, fewer than 10% of the British population attended university. Of all those students, about 5% of us were girls of whom very few studied science. Professor John Cohen, head of psychology at Manchester, believed in my potential and taught me how to reason and avoid jargon. Scientific thought and statistics were regulars on my undergraduate time-table for three years. At Manchester University they say - 'If you can't measure it, it doesn't exist'. I've kept the mind-set but forgotten most of the techniques.

At that time, every female student who married lost her grant, and at Oxford and Cambridge even her university place. But by the time I stepped on the platform robed in black to receive my BSc in psychology I was a wife and a mother. My brave young soldier-doctor husband and my parents were there for me. Baby under one arm (so to speak) and my shiny new degree in my hand, but without the slightest further qualification I jumped straight into the deep-end teaching science at a big rough girls' comprehensive school in South London. It was a social eye opener.

In my teaching in schools (including head of physical education in a convent school), polytechnic and universities I stumbled into the very field which had intrigued me as a small girl - how do bright displaced children like me get on? Alas, as there was neither a UK educational route nor an inspiring mentor, I had to find out for myself.

TSY: When did you start working in this field?

JF:

From school teaching I'd gone back to Manchester university to take a year's full-time course in counselling - and emerged disillusioned. It was not enough; I was hungry to do some proper research involving families. I started by investigating high level music and fine art in primary school children. It was the first time I used matched control groups in school and home visiting which distinctly showed how family encouragement made all the difference to achievement in aesthetic creativity. School efforts had significantly less effect on acievement in spite of the free provision of instrumental and art teaching.

Ping! Fate called. On the train going to a British Psychological Society conference in Edinburgh I met a fellow member who told me of an interesting opening. I went for it and within a couple of months - like being shot from a cannon - I became Senior Lecturer and head of the psychology department at Lancaster University Teacher Training for mature students. Most of them had failed the eleven plus exam for the grammar schools and their education had been modest. They had been in the police, low level management, housewives etc. Life had not always been supportive. But now in their mid-thirties (as indeed I was), they had discovered their latent intellectual strength and had signed up to exercise it and teach. They were all keen. I never had to chase up late projects. Some were brilliant.

After my entanglement with real research, though, I'd been hooked. I wanted to concentrate on the development of high level potential. Research must be scientific and seen to be so. My undergraduate years grappling with methodology and statistics were to come in useful.

Ping! Fate called again. I was approached by Margaret Branch who had set up the National Association for Gifted Children volunteered by their parents. She'd obtained generous research money from the Calouste Gulbenkian Foundation and asked me to use it to examine the Association's 4,500 children. I refused.

Why? ... because I knew that any self-selected sample does not represent the whole population and could not be generalised. Those who enter competitions, for example, are not the same as those who do not. After diligent scrutiny of the literature it seemed to me that the big problem with most research in the area of gifts and talents was its design, particularly sampling - whether too small and not representative . It is not always adequate, for example, to use the general population for comparison as Terman had done in the 1920s - not to mention his substitution of more than half the sample when they dropped out. Teasing fate, I refused the money at the second asking.

My Eureka moment came one night in bed. I sat up. If I took not one but two control groups I could balance those volunteers. Double bespoke controls would give a much more focused and potentially different slant on data. I phoned Margaret Branch and said YES to her third offer - I'll take the money, thank you very much, and do the job.

I set out to find out why some children were identified as gifted while others of identical ability and achievement were not. I took a geographical sample of 70 NAGC children and compared each of them with two closely matched children from the same school class. The first was of identical intelligence and the second taken at random in that respect. In 1974, I did not know I was facing home and school visiting, testing and audio-recording most of those 210 children for the next 35 years. Perhaps it was better not to know.

I found the children's own behaviour and personalities to be highly significant in their classification as gifted. Understanding their upbringing was vital in distinguishing the dynamics. I'd learned from the psychiatrist, Dr Lorna Wing, in her groundbreaking work on autism that knowing a child's everyday background through home and school visits made a serious difference to understanding their behaviours. Data perceived and collected from skilled home visits is different to that of postal questionnaires or (worse) retrospective phone calls as Bloom's team did.

The challenge was to carry out a socio-psychological approach on a statistical base. I am still not aware of any other research which has investigated and compared non-identified with identified gifted children. There were highly significant statistical differences between them. I found that the stereotype image of negative emotions expected in the gifted was not true for the unlabelled gifted. Problems and distress among the gifted were from separate sources, usually family interactions, and significantly more likely to be found in the identified gifted. This long study also drew practical conclusions on how children can take up or even make their own opportunities.

TSY: What kind of major challenges did you face?

JF:

At times, colleagues were explicitly disapproving about me wasting my energy on those 'have-it-alls' while other needier children were crying for my help. Responses to my growing body of publications and presentations which questioned long held assumptions about the gifted were mostly cautiously welcomed but sometimes sneered at. I spent a great deal of breath and printer's ink pointing out that these children too deserved a suitable education.

The parent run UK National Association for Gifted Children (NAGC) had been set up in 1967 on a hotbed of negative myths about the gifted. Indeed, a major argument for its foundation was that if the gifted child did not get the right education he (of course, he) would end up in a life of crime. Gifts, especially artistic talents, are still strangely associated with fragile morality and emotions. To identify the gifted, teachers are still asked to use dreary lists of 'symptoms' such as poor sleep, tantrums, friendlessness, anger, depression and so on. The first step, I felt, was to recognise the children's individual differences without buying into all that.

The major challenge in long-term in-depth research is its insatiable appetite for time and money, not to mention researcher resilience. And it wasn't only money. So much of my energy seemed to be dissipated in struggling through a shifting miasma of others' negativity. My aim was to sort out and present real evidence to authorities. I've made my case uncountable times via a variety of media. Attitudes have definitely changed: something must have percolated.

TSY: How did you become involved internationally?

JF:

The first World Council for Gifted and Talented Children conference in London was held in 1975. This important meeting showed up different cultural approaches in educational ideas, most particularly the dominance of American work and culture. Europeans learned to say 'students' instead of 'pupils', puzzle out grades rather than age (as our children started school younger) and what was K-12? The conference organiser, Henry Collis, a headmaster, eventually accepted my insistence on a research section. Who needed that when it was obvious?

Even now, compared with North America, there is relatively little specific educational provision for the identified gifted children in most of the world, though there is usually some provision within classroom teaching. There have been some valiant attempts to copy American out-of-school programs, notably the Center for Talented Youth. These rose up and died such as in the Netherlands and Spain. Yet that format worked brilliantly in Dublin and Hong Kong. Distressingly, in its five years, the attempt in England (not the rest of the country) of the National Association for Gifted and Talented Youth consumed more than 20 million pounds sterling with nil lasting benefit. In fact, an objective review found it actually had a negative effect on teacher attitudes to the gifted. Understandably, after that Great Spend further government support in this area dried up.

Ping! Fate called again. This time it was Dr. Pieter Span phoning from Utrecht in the Netherlands who told me about his idea of a European alliance. "Would I like to be involved?" "YES!" At that time in 1986 almost all work with the most able was either American or Soviet. While the Americans led the world on theory, the Soviets gained the more practical prizes of chess, Sputnik and athletics. Our guiding group of Pieter Span (Netherlands), Harald Wagner (Germany) and Ulrike Stedtnitz (Switzerland) elected me Joan Freeman (UK) as President of the potential European Council for High Ability - ECHA.

Our explicit vision was to disseminate ideas and experiences on gifts and talents across the familiar West and mysterious East of Europe in a dynamic interactive network. Our premise was that the European approach to high level potential was distinct from the two dominant powers of the USA and Russia which seemed to be more focussed on measurable achievement whether for personal satisfaction or the glory of the nation. Indeed, my 2017 survey with Prof Javier Tourón of Spain has found this still to be the case.

ECHA mushroomed in exciting times - in spite of abysmal exasperating phone and postal communication across the 'Iron Curtain'. In 1988, we launched with our first highly successful conference at the eye-wateringly expensive Hotel Zurich in Switzerland.

In 1989, the Berlin wall came down and fax machines trickled into the East. ECHA set up meetings from Mallorca to Moscow. Our currently highly respected academic journal, *High Ability Studies*, took off under Dr Arthur Cropley then me as Editor in Chief. I wrote our ECHA Advanced Diploma, discussed and confirmed by our Academic Committee, and we congratulated our first graduate. ECHA News was our Facebook: four times a year on the dot.

Job well done. ECHA was healthy and growing steadily in all its networking concerns, membership, meetings, diploma, publishing, the teaching division, active national correspondents ... and money in the bank. I took the decision to step aside as President, and handed over this living, flourishing organism. A big mistake!

Now under Prof Dr Peter Csermely of Hungary ECHA is realising its original aims, notably providing coordinated genuine help to the gifted across Europe. Thanks to Dr Taisir Subhi Yamin I retain the title of Founding President. In August 2018, we had a big party to celebrate our 30th birthday at the Dublin ECHA conference.

TSY: What are your most significant accomplishments and contributions?

JF:

What I sincerely hope I have done, which is so hard to measure, is to help change attitudes in the world of pedagogy towards the potentially gifted and talented; to bring a positive open approach free of social expectations to allow all children to flourish.

I have received honours and presented papers in most parts of the world which always gives me immense pleasure, especially to be with colleagues who are friends. My most precious awards are my elected Fellowship and Lifetime Achievement Award for contributions to psychology from the British Psychological Society. Thanks to generous support from Robert Sternberg, Rena Subotnik and Diane Montgomery. Recognition and respect from my peers means more to me than being elevated to the House of Lords - though I would not turn that down! I am the only person in the UK who has been invited and written four government reports on gifts and talents - gender, research, out-of-school learning and education. I hope all that hard work has made a practical difference rather than collecting refined political dust.

I believe that my 35-year research delving into the developmental psychologies of children negotiating their paths to middle age, whether gifted or not, has been a fine achievement. My investigation and comparison across all that time of unidentified but otherwise matched gifted children remains unique as far as I know. By audio-recording events and responses as they happened - when nobody knew how things would turn out - I captured the twists of chance and showed how different personalities responded to similar events and their very long-term effects. It showed up the unreliability of retrospective studies - memory was *never* identical to reality. It illustrated how events and individual reactions to them can shunt a life course on to a different track at any time, meaning that studies which stop at the end of formal education can be well wide of the mark in life achievements.

Piloting the formation of ECHA is something to be proud of. From nothing whatsoever, our wonderful expanding teams set up dynamic networks across varied cultures. Getting the journal printed in Bulgaria was not without personal risk because we had to drill a little hole in the 'Iron Curtain' to pass payment through - actually US dollars via Vienna. Best of all, we shared a lot of fun over delicious dinners and flowing wines in Utrecht, Zurich, Moscow, Pavia, Budapest, Hamburg, London, Vienna, Sophia, Lisbon, Barcelona - and on and on - with people who worked in harmony and became dear friends. Thank you to them all.

I am very glad to be involved in European networking as a Board member on ECHA's Talent Support System instigated by Prof. Dr. Peter Csermely, ECHA's excellent President. It has a base in Budapest and a team under Cszilla Fuszek to see to the more than 1,500 rapidly expanding Talent Centres and Talent Points mostly within Europe but spreading as far as India and Peru. We aim to be of real practical value to the thousands of young people who find the system a wonderful resource.

I run a very successful single-handed private practice. In fact, I am still the only Chartered (Licensed) psychologist in the UK dedicated to working with potentially gifted and talented children. Families come to me from all over the world, flying in from Hong Kong, Pakistan, the Arab world and from all over Europe. Unbelievably, a few have even come from Canada and the USA.

In my one-to-one practice over many years, I have developed my own techniques of assessment and advice. Although I use an intelligence test as a basis, I build a dynamic image of a child on it. I am highly disciplined in Carl Rogers' approach of "Unconditional positive regard" - even for two year-olds. Sincere listening and laughing at each other's jokes makes for a good relationship with my little clients. Sometimes parents overhear us singing songs together. They often tell me they are amazed at what I have discovered and can suggest after just a couple of hours. I have been asked to teach others my personal method and to set up in business, but have been negligent for which I'm sorry.

I've published a great deal. I had been a regular contributor to parenting magazines before I published my first book in my late 20s, a high school science text, *Human Biology and Hygiene*. It became a national standard for 26 years. I wrote it in pencil around the lives of my two toddlers, though by the time it appeared in print I had four little ones under five and a half. Then a Master's and a Doctorate at Manchester University. In my academic teaching I have supervised and examined with honesty many studies. My other 16 books are texts on education for UNESCO and commercial publishers, as well as many hundreds of lay and peer-reviewed papers. I've made national and international TV programmes, appearing frequently enough to be stopped in the street as a famous face. Prof Hans Eysenck himself (the world expert admitting his envy) once told me I was an extreme extravert.

For sure, I've had good luck and bad, eagerly grabbing whatever looked promising and running hard with it. I was able to leap ahead in my career without much planning or climbing slippery institutional ladders. Sometimes my actions seemed to thwart common sense like marrying my beloved Hugh and producing a bouncing baby boy just before finals. But I reaped the rewards of more than half a century of a great marriage and a bustling happy home. Hopefully (in Dr Donald Winnicott's terms) I was a "good enough" mother. Organisation has been key. Grit too. Now I feel the warm breeze of change on my face ... what next?

Profiles of Creativity:

Douglas P. Newton

Professor of Education, Durham University, Durham, UK

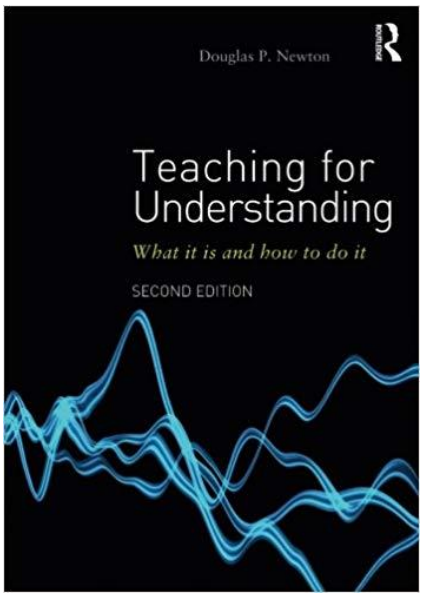
Douglas P. Newton, *PhD DSc*, teaches and researches in the School of Education of Durham University, UK. His interest is in supporting purposeful thought in education, such as understanding and creative thinking, and he is a member of the Durham Commission on Creativity. He has also described how moods and emotions interact with cognition in ways that direct and shape such thought. His very successful book, *Teaching for Understanding*, is now in its second edition (Routledge, 2012), and his highly praised book, *Thinking with Feeling* (Routledge, 2014) has also been well-received.

The source of my interest in creativity

It's difficult to look back and pinpoint exactly the source of an interest, but I recall that, as a small child, I was given a Rupert Bear book each year. Rupert Bear is a character in a comic book which had (and still has) stories of the adventures of an anthropomorphic bear and his friends. I recall eagerly turning the pages to find the stories about 'The Professor', who did nothing but invent marvellous devices in his own private workshop in his castle, largely for his own amusement. I wanted to be that professor, (and, oh, how I wish that academic life was so simple!) But, I suppose that's what partly attracted me to science, and, after university where I studied physics, mathematics, and geology, I became a physics teacher. For a number of years, I happily tinkered with the equipment in my physics lab, and made devices to help my students understand those notoriously contra-intuitive concepts of physics. I suspect that this inclination towards 'What if?' thinking was a part of my nature, and it led to a Guinness Science Award for a way of teaching electronics. For a time, as a teenager, I had also wanted to write science-fiction, but was strongly advised to aim for a 'real' career, or, at least, one for which I would be paid. Never quite giving up on the idea of writing (at least, non-fiction), I later wrote several books aimed at teachers like me, such as *Making Science Education Relevant*, and *Teaching with Text*, all long since out of print. Inclinations, of course, can only show themselves when there are opportunities, and more of these came when I joined the Education Department at Newcastle University. When teaching

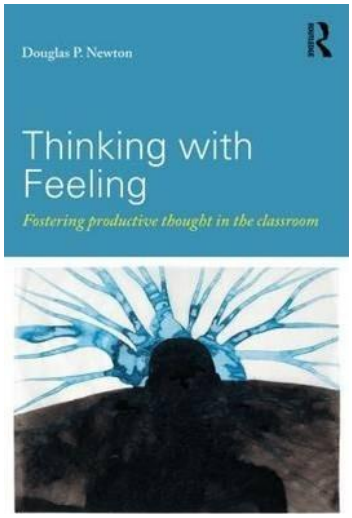
science and technology to trainee teachers, I found that many students were, at best, apprehensive. Their experience of school science had not been a happy one, and I again had to find approaches that would engage them, reverse their antipathy, and produce understanding. Creative teaching was essential, and, as is the nature of new ideas, not everything was perfect at first, but it led to many books for teachers and education specialists and, jointly with a colleague, an Esmée Fairbairn Partnership Trust Commendation for the courses.

Following strands of thought



Like most academics, I tend to have parallel strands I try to take forward and, when I'm lucky, they come together. I was always interested in the construction of understandings. In my schooldays, what mattered for examinations was acquiring information, applying algorithms, and showing a little understanding. When teaching, what we are usually interested in is helping students construct understandings like those of significant thinkers in, say, science or history. We can draw students' attention to the connections we want them to make, and we can direct it away from what is not relevant, but the students still have to make the mental connections themselves. This led to a book, *Teaching for Understanding*, the first edition of which appeared in 2000. In it, I took the view that understanding is, in essence, a re-*creative* process in which the learner attempts to reconstruct the mental connections and relationships that had been made by someone else. I see the creative process as this and then some, going beyond deliberately reconstructing someone else's idea from the bricks and mortar supplied by the teacher, to a process in which students supply more of the bricks and mortar themselves. What they build may not be new to the world, but it is their own construction, and the process can be very rewarding. This, for me, was a natural progression in interest to what most people see as creative thinking, although it rarely went as far as that in my schooldays, or, for that matter, in most of my own undergraduate days.

Shared interests



In 2003, I moved to Durham University where one of my roles was to be a mentor to a number of colleagues with very diverse subject specialisms. Conversations to explore their interests found one common thread: a shared interest in creativity, but as it appeared in their own subjects. Together with my wife, Lynn, who was already at Durham, we established what turned out to be a large research group to study notions of creative thinking across the curriculum. Creativity is one of those words which has both commonplace and specialised meanings. One of the most important findings was that teachers' notions of what counts as creativity were based on misconceptions. Regardless of the subject, what they thought of as opportunities for their students to think creatively often amounted to providing artistic activities, writing poems, or

doing craft work following detailed instructions. They saw few opportunities to be creative in, say, thinking mathematically, historically, or scientifically. Although governments urged these teachers to foster creative competence in their students, even the examples those governments provided reflected the same misconceptions – creativity is something which happens in the Arts, or appears after following detailed instructions. Teachers often saw some subjects, like science and mathematics as little more than fact-learning and skill acquisition, and were, therefore, beyond the reach of creative opportunity. In an environment in which success in tests is paramount, as it has become in the UK, anything new has to be assessable. (And anything not assessable tends to be ignored.) The assessment of creativity (or recognition of creativity, as I prefer) was, therefore, also on my mind. I was particularly impressed by Teresa Amabile's work on her consensual assessment technique, and found that by dividing the task into assessing novelty and plausibility separately, my trainee teachers became more able to apply the approach successfully.

The School of Education, Durham University

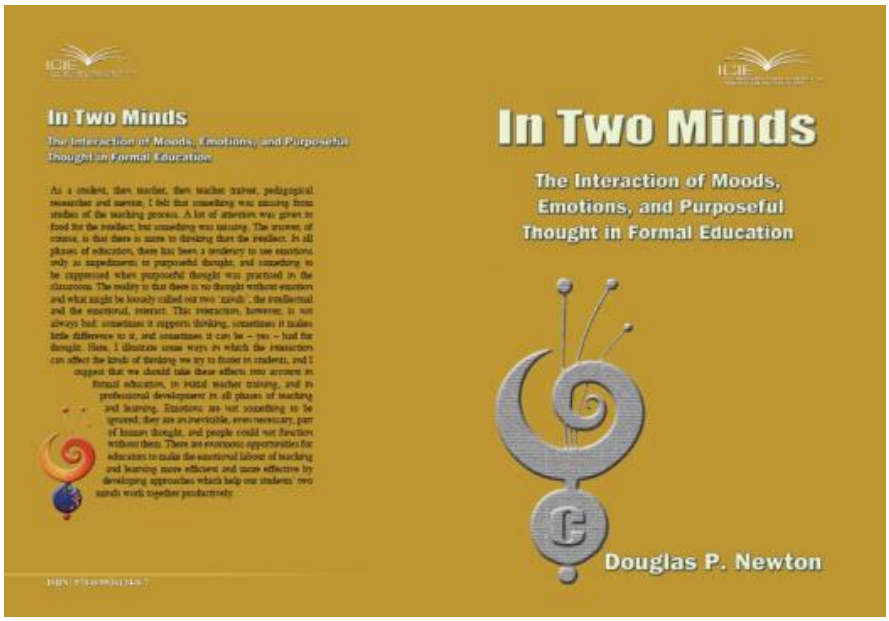
With a friend and colleague, Dimitra Kokotsaki, a music education specialist whom I've often worked with, we made the task simpler by ranking students' creative attempts (such as a musical jingle for a mobile phone) into a diamond formation, with what was subjectively judged to be the most creative at the top and the least creative at the bottom. While this does not directly assign numerical grades to the students' work, this ranking strategy is very useful for formative assessment. As far as our team was concerned, these were very productive times in which we published many articles, and finally synthesised them in a book, *Creativity for a New Curriculum* (2012) (edited by Lynn Newton) in which we tried to change misconceptions, encourage more creative thinking across the curriculum in schools, and exemplify effective practice.

Few things about people are simple

I think we have a tendency to talk of the creative process as though it is a single, pure kind of thought. Creative thinking is complex, and it can call on many kinds of thinking,

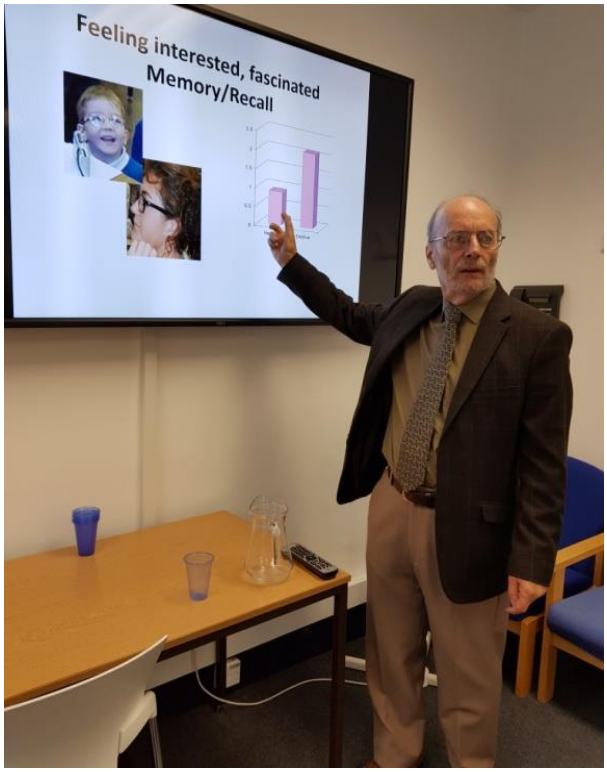
including critical thinking. But it has to do so at the right time, in the right way. I've noticed that, when people think creatively, there can be a strong tendency to think critically too soon – they kill ideas almost as soon as they are born. There can be a real conflict between these two kinds of thought, and, perhaps, this tendency leads some adults to believe that they aren't creative. In a group of people tasked with solving a problem, it takes only one who cannot suspend doubt to bring everything to a premature end. As I explored this interaction, I reflected on the range of purposeful thought involved in creative thinking. It can involve every kind of thinking we have, including recall, reasoning, understanding, critical thinking, decision-making, and wise thinking, and the role each of these plays can itself be complex. Curiously, they not only contribute to creative thinking, but some also depend on it. For example, I looked at this symbiotic relationship in some detail in connection with decision-making where alternative courses of action may have to be imagined, constructed, and developed. What I found striking about decision-making is the way it draws on unconscious thought processes, and makes its conclusions felt through emotional responses.

People often comment on how their thinking depends on their moods and emotions, so it's surprising that we can be so blind to their effects in educational contexts. A lot of useful research has been done on this interaction in recent years, and it has made me think again about some of the ways I teach. How often do we try to ease our new students into a course by setting them some 'pleasurable', collaborative, creative task as soon as they sit down? This, however, needs minds at ease, ones which feel safe enough to engage in free-rolling, 'What if?' thought. But new students' natural apprehension and caution makes their thought careful and deductive, not creative. Only later, when they feel more relaxed do they feel able to engage in creative thought, and that's when the task could be worthwhile. But, not all moods and emotions are bad for thought: the right emotions at the right time can support productive thinking. I find this interaction a fascinating one. I suppose it's because it teaches us so much about ourselves - we are not the cognitive machines we like to think we are. Such thoughts led me to write *Thinking with Feeling* (2014) and *In Two Minds* (2016) in which I try to bring together cognition and affect as it influences learners' thinking.



But the interaction between moods, emotions and purposeful thought continues to be the elephant in the classroom – something many teachers pretend isn't there. The trick is for teachers to manage them in ways which make them mutually supportive. One or two can do it intuitively, but many could benefit from giving it conscious thought. I was very pleased

when Dr Taisir Yamin kindly invited me to give a keynote talk on the subject at the 15th ICIE conference in Lisbon in 2017. Over the past few years, I've taught about purposeful kinds of thought on a Masters' programme, many of these postgraduates being practising teachers from around the world. Like me, their interest seems to come from what they learn about themselves, as much as what they discover about teaching and learning. Given their interest, Lynn and I are planning a book which will, we hope, bring the ideas together.



Teaching: *An instance of E*motional Labour

Still more threads

Purposeful creative thinking, no longer seen as the reserve of the genius, talented or exceptional thinker, is complex in many ways and some models of it tend to smooth over its complexity. Many years ago, Einstein pointed out that the most difficult part of the creative process is the first step, constructing the question. Problem-finding and its clarification is an aspect that is rarely exercised in classrooms. Very young children tend to do little else but incessantly ask Why? What happens to this craving for understanding when the children start formal education? Can they still ask questions? Are these worthy of our (and their) attention? Most of the time, we provide children with problems to solve but we rarely expect children to find them for themselves, or help children explore them. With a PhD student, Prathibha Abrams, we have been exploring this for some time, and, perhaps unsurprisingly, found that children can ask some useful questions that are open to investigation, given the chance and a situational mental model to think with. The problem may be less one of having children ask questions, but of giving them a descriptive understanding of the situation to set the ball rolling. Of course, creative thinking in the classroom can have a tendency to produce the unexpected, so the next problem is to find practical ways in which teachers can work successfully with the unexpected. We also have to be realistic and recognise that purposeful thought of the kind we want to see in the classroom is unlikely unless we make an effort to engage students. This is the study of another of our PhD students, Lucy Davies, who has

found that teachers base their efforts to engage students rather narrowly on their own past experience, often without giving it much conscious thought. The enticing engagement offered by the freedom inherent in creative activity tends to be overlooked.

Working with Doctoral Students: Prathibha (left) and Lucy (right)

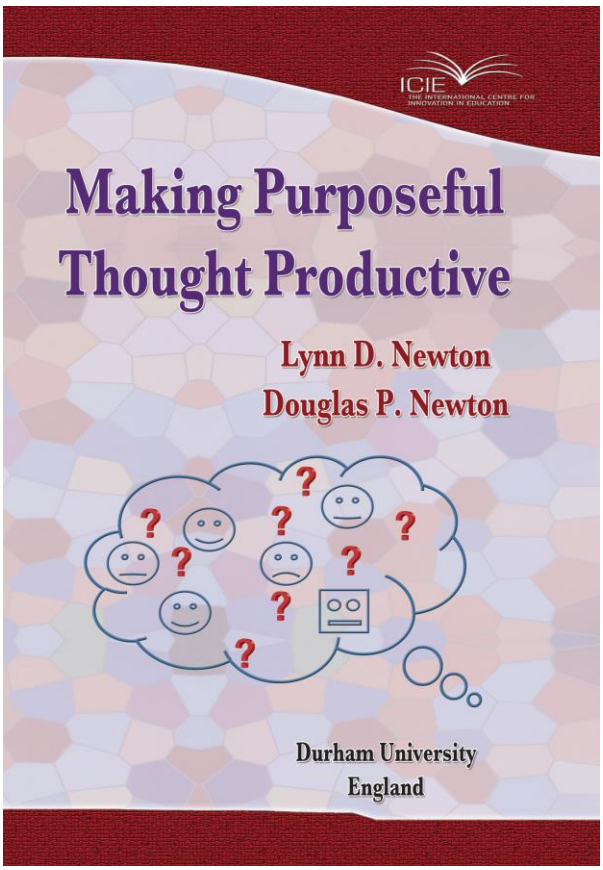
Until recently, my attention has generally been on students and how to enhance their thinking. Understandably, attention is now turning to preparing students for a world in which artificial intelligence will deal with what is routine, and people will do what can't be reduced to an algorithm. In a changing world, teaching must also change if it is to meet these expectations. My thoughts were re-directed and refreshed when one of my colleagues, Simon Rees, asked me to work with him on a book on creative teaching. The creative teacher is someone who can respond successfully when past and current practices are no longer effective or appropriate, an interest now being explored by another doctoral student.

Book planning with Simon

At the same time, I'm working with Lynn and a group of colleagues in the University's *Durham Commission on Creativity*, a project supported by the Arts Council for England and Durham University, and which hopes to make recommendations in the near future about how creativity may be promoted and advanced in education and the workplace, and how it may contribute to people's lives more generally. Simon's reminder of the importance of the teacher's creative teaching is timely.

Challenges

There are several challenges for those who seek to understand the creative process, and want to see it supported in education. There is a tendency in the UK to see value in creativity, but only to *urge* teachers to foster it in their students. Words are not enough: it needs training, examples of good practice, and a school environment which favours it. When teachers and schools are judged only by examination grades awarded for memory and dexterity in algorithmic manipulation, creativity is likely to receive little more than lip-service. Perhaps it's the same elsewhere. Another challenge is the inertia of the past – concerns in schools still tend to be like those of my schooldays. While I would be the last to throw out useful practices, I think there is still a need to re-focus the notions of creativity amongst teachers, school managers, and policy makers. Even now, after several years in which creativity has moved up education's list of concerns , 'the creative arts' are still being equated with the field of creativity as though creative thinking in other domains, like the sciences, mathematics and engineering, does not exist.



Most, possibly all, areas of human endeavour are open to creative thought. The struggle against misconceptions is proving to be a long one. A third challenge is to have people believe in their potential for creative capability. Students often warn me that they're 'just not creative', as though the capacity is innate and immutable. While, we would not want them to think that they all will be able to invent some device everyone will want, or bring about a paradigm shift in the way people think about the world, they should be at least inclined to apply whatever creative competence they have to help solve their everyday problems and make decisions. At the same time, we must also recognise that the world and its people are complex. In much of the West, the 'What if?' world of creative thinking tends to be associated with individuality, freedom, and even a means of support for Western-style democracies, but we should bear in mind that it is not seen like that in all cultures. Global business and the movement of people bring together those with very different values. Where creative competence is to be fostered in classrooms, approaches which accommodate such differences would be helpful. Such challenges will need to recognise the evolving field, and in particular, what being creative means in different contexts, and the extent to which it is, for instance, embodied or embedded.

Looking back

As far as the topic of creative thinking is concerned, I am particularly pleased that I eventually took a broader view and embedded it amongst other kinds of purposeful thought, like its close relative, understanding. I also believe it is useful to take a more holistic view of states of mind (and body), integrating aspects such as thinking and emotion. We do not switch on one mode of thought or another and switch off every other kind of mental activity. Creativity is neither simple nor occurs in a vacuum. With the burgeoning of artificial intelligence and robotics, creative thinking may be the most distinctive activity left for the human mind. We need to look ahead and plan for it, and also prepare teachers to be creative and meet the rapidly evolving needs of their students.

I recall from my schooldays, my history teacher telling the class that a day without learning something new was a day wasted. For a while (a very short while) I set about deliberately learning something new each day. Of course, he did not mean filling minds with the facts that I was trying to collect, but with understandings. Looking back, I think I've been lucky to have the opportunity to play around with understandings and alternative worlds, rather like the Professor in his castle in the Rupert Bear books of my childhood. I also had the opportunity to close the circle and tie the aspirations of the child to those of the adult by going beyond merely talking about creativity, to engage directly with it in the inventor's world. Some time ago, I saw a large, expensive, and intimidating device used to diagnose medical problems associated with fluid flow. After some playing with ideas and odds and ends of discarded objects (with, of course, plenty of suspended critical thinking), I constructed and patented the small, cheap and recyclable Uflow meter which can be used anywhere. I feel I can speak with authority now about the enormous and addictive satisfaction which comes from the creative processes. But, I still don't live in a castle.

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Belle Wallace
Reflecting on My Life Experiences

I dedicate this to my life Partner, Harvey Adams, and to my son, Sam

I grew up in an impoverished district in South Wales (UK) in a large family used to hunger and poverty, often short of money for even basic necessities, but overflowing with loving and laughter. I won a free scholarship to the town's grammar school. The scholarship to a grammar school was the result of an intelligence test administered at the age of 11+ years. This meant that the 'top' 10 to 15 percent of children went to a special school supposedly for academic high fliers at eleven years of age. Thrust into a 'middle-class' professional, articulate milieu, I was from a 'disadvantaged' background and was submerged in a 'culture of silence'. I had no voice in the social milieu of the daughters of doctors, teachers, lawyers and the like. My education fell neatly within the framework of the Freire's 'banking' concept, it was a series of acts of: 'depositing, in which the students are the depositories and the teacher is the depositor. Instead of communicating, the teacher issues communiqués and makes deposits which the students patiently receive, memorise and repeat' (Freire, 1998a, p72).I had a good memory which resulted in my 'high level of academic achievement' according to my school report.

But I nursed a secret … I could tell stories …

In my junior school, when I was about 8, Miss Marget asked me to tell stories to the class while she tallied the weekly register. My father had been a British soldier in West Africa before he died of malaria; and he had told me many stories about Africa, so I created my own African world so that he still lived in my mind; and I vividly remember the stories I told my class:

> 'My Dad lives in darkest Africa in the sweltering-hot rain forest, and he rides his giant, white elephant to the villages along the river bank. He looks after the orphan children, and the giant, white elephant carries his bag of medicines with his trunk....

When I left my primary school, Miss Marget gave me a thick book with a red cover and urged me to write my stories down. She asked me to visit her when I published my first book!

With my 5 younger sisters, sitting by the coal fire every night, I would tell stories that grew out of the flames of the firelight: fairies bathed in blue light would defeat dragons with red fiery breath; and ghosts would leap out of burning caves with strange voices to terrify my youngest sisters who squealed for more! On reflection, my leadership skills began to emerge early as the eldest responsible for the younger ones.

A new, young teacher, Miss Terryl, arrived at my grammar school: she recognised that I had a talent for writing stories. She invited me to write stories especially for her to read and critique. With her I received the acknowledgement that I was a worthwhile emotional and thinking being, searching for meaning, albeit to often ill-formulated questions! She was in every sense a mentor, the barrier between teacher and learner invisible. It was this living-learning experience that gave my life its

direction – to understand and to promote the dynamic processes that bring life, reality, vitality and a sense of personal worth to any learning-teaching interaction.

On leaving school at 17, my urgent priority was to earn a living, and a 2 year fee-free course at a teacher training college was the fastest route, and when I was just 19, I was invited to remain as a lecturer in theology. But in my search for self-understanding, I discovered the philosophy of Carl Jung, and identified with his theory of the collective unconscious, the universal symbolism of dreams and mandalas, and the power of every human being to evolve throughout a life-time. Consequently, I changed my career direction and in the early 1960s began teaching in a new, large comprehensive school in a socio-economically disadvantaged area. I was appointed as the school counsellor and I also taught biology. The Principal encouraged me to create a lively syllabus to inspire youngsters with a 'living biology'; so we had great fun – planting trees, studying microscopic creatures, hatching chicks, breeding pink hamsters, searching for wild flowers which were plentiful then. It was easy to identify those learners who needed extra support, but it soon became obvious that there were many learners who could answer questions even before I had finished asking them! And they gave such extended and knowledgeable answers! What to do with these learners? And I didn't have the luxury of a computer website! Nor did I have advanced science equipment!

I organized these fast learners into research-discussion groups, with advanced reference materials and films borrowed from the county library, realising that they could teach themselves! But I had to learn a new role – I needed to reduce my teacher control and be a catalyst, a mediator, a questioner. It was the springboard for my lifelong career – discovering gifted and talented learners, and enriching and extending the curriculum to meet their needs.

In 1970, I pursued my interest in psychology and studied part-time at the University of London. I was exploring the archives of the journal *Education for the New Era*, founded in 1921 by Beatrice Ensor, a theosophical educationist and London school inspector. Ensor believed that the aim of education was to understand the creative development of human beings and their ability to tackle problems which were threatening civilisation. This prompted me to research the creativity and problem-solving ability of my 'fast learners'. At the same time, I was invited by the Senior Psychologist for Essex County (UK), to participate in residential curriculum enrichment courses for learners perceived to have high potential. These experiences cemented my career path as I realised that there were no 'high achievers' from backgrounds such as mine. We were catering for the 'tip of the iceberg' – for the learners who were easily identified by teachers as 'high achievers'.

I was appointed as full-time Adviser for Gifted and Talented throughout Essex in 1978 … the first post of its kind in the UK and I even had the freedom to create my own job specification! But I also felt the weight of the responsibility! I organised work-shops around the county, persuading teachers to set challenging, open-ended problems so that they could *discover* their pupils' gifts and talents. I also had the freedom to travel to national education conferences and the Essex G/T projects became well-known.

1981 was a critical and particularly creative year! I started the journal *'Gifted Education International'* (first published by AB Academic: currently published by SAGE). My aim was to search for news around the world for developments in the field of gifted and talented, and early contributors included pioneers like Dorothy Sisk, Bruce Shore, Joe Renzulli, Joan Freeman, and Erica Landau. In the same year, at a national conference, I collided head-on with Harvey Adams! Harvey had been appointed to develop a gifted and talented programme for the county of Cleveland in northern England, and he ransacked my brain with searching questions! And I had to think deeply and clearly to justify the 'what, why and how' of my work in Essex. Harvey was also tall, dark and handsome … and we became life partners.

Dorothy A. Sisk, John Senior, and I have recently edited The SAGE Handbook on Gifted and Talented Education (November 2018). The Handbook includes a chapter fully explaining the theory and practice of TASC (Thinking Actively in a Social Context) which I thought would be my final and

definitive Swansong! But I am honoured by the invitation from the Editorial Board of the International Journal for Talent Development and Creativity (IJDTC) to reflect on my life experience. https://uk.sagepub.com/en-gb/eur/the-sage-handbook-of-gifted-and-talented-education/book258590

Very early one morning I had a phone-call inviting me to do a lecture tour in South Africa on Creativity … I was assured that I would have multi-racial audiences despite the existence of Apartheid. The impact of South Africa was raw, stark and overwhelming: brilliantly colourful with cascades of bougainvillea; but socially, emotionally and politically complex with a mixture of resilience and submission, a kaleidoscope of despair and hope; and profoundly challenging in its need for change.

Visiting the then segregated schools for African children took me back to my early stories about my African families … these were the children of my imagination! And now, in reality, they were singing and dancing to welcome me. Crowded in their ramshackle, tin-roofed schools, this degree of disadvantage and deprivation completely overshadowed and wiped out my own sense of alienation in my education. My heart swelled and I knew had to stay!

Anthony Barrett, Head of the Education Faculty in the University of KwaZulu/Natal, created a post for me, and again I had the freedom to create my own courses centred around Creativity, Giftedness and Talent Development. In 1984 Harvey obtained a post in the Department of Psychology and joined me. The University had repeatedly declared its defiance of Apartheid and its wish to enrol students regardless of race, but the poor conditions and teaching in schools for African children, leading to very low attainment, precluded entry to university. Harvey and I took up the challenge and we raised the funds to establish a Curriculum Development Unit with the aim of finding young people of high potential, and bridging the gap in their achievement to enable them to access university education. We also developed masters' degree courses for school principals, inspectors and curriculum planners.

About this time, I was invited to join the Executive Committee of the World Council for Gifted and Talented Children (WCGTC), and this experience enabled me to understand international developments in the field of G/T.

Harvey and I developed a problem-solving framework based on the work of Vygotsky, Sternberg and Bandura … it came to be known as "TASC: Thinking Actively in a Social Context". I

have written widely about TASC, its aims and practices, and refer readers to my latest article in the *SAGE Handbook on Gifted and Talented Education* (2018) and the video tutorial filmed by SAGE Publishers.

In 1993, I was thrilled to be invited by a South African publisher to produce a school series of English second language texts and readers based on TASC problem-solving and thinking skills. I was being paid to write stories! I was able to appoint 4 writers to help with this mammoth task and we called the series '*Language in My World'*. My writing had a real living purpose, and it was joyously and exhaustingly all-consuming: it was the first time that African children had books in colour; books that mirrored their reality and interests. Over 3 years, we wrote student texts for Grades 1-12, matching these with 12 teacher texts and 24 reading books for the first 3 grades.

I can recall so many memorable and moving moments: dancing and singing the praise tribute with Zulu teachers at the conclusion of training days; laughing, joking and scrunching together under the thorn bushes for personal toilet; sweating profusely in the hot humidity of summer heat in tin-roofed classrooms; seeing children respond to creative opportunities with wide open smiles and trusting eyes. The most poignant moment derives from a particular feedback session in which a group of very able students were reflecting on their progress. One student said, 'I now believe that I belong in my own country, and that I can lead change.' At that, the group of young adults burst into the wonderful close harmony of Zulus singing a round of 'Communication! Oh yes, Communication!' He has since become a national leader promoting change in the workplace for thousands of workers.

The years I lived and worked in KwaZulu/Natal taught me a great deal about joy and laughter despite crippling disadvantage; about love, friendship and sharing although there were few resources to share; about resilience and determination to succeed, surmounting all obstacles.

On returning to the UK at the beginning of 1999, I received two wonderful invitations. Dr Michael Stopper, the County Co-ordinator for Gifted and Talented in the Education Authority of Lincolnshire, invited me to join his Support Service for Gifted and Talented learners; and, Sue Mordecai, chairperson of The National Association for Able Children in Education (NACE), invited me to be a member of the National Working Party, of which I was later elected President.

With formal access to schools, I spent several months observing what was happening in my local schools and reading the national curriculum guidelines to understand current classroom culture and conditions for teaching and learning. I found many good teachers trying to 'deliver' a national curriculum that imposed set content and narrowly articulated 'levels' of attainment that had to be achieved, or the school would be publicly 'disgraced' and put into 'special measures'. Classrooms had changed – there was far greater evidence of a wide variety of children manifesting 'behavioural' problems and of children experiencing learning difficulties. Startlingly, there were many classrooms where the learners had grossly underdeveloped home language, and had few experiences of active, formative learning in the home. Teachers reported widespread fragmentation of families and the dramatic increase of carers for children separated from their parent(s). It was stressful to realise that many schools needed to provide breakfast clubs and extended after-school care.

The next challenge had presented itself … it was to work nationally and internationally to present the TASC Framework as a vehicle for differentiating problem-solving and thinking skills across the curriculum … this challenge continues!.

I often reflect on the meanings of 'developing' and 'developed'' world, and contrast the material poverty and emotional richness of the Zulu culture with the material affluence and emotional poverty of the many classrooms I visit in the so-called developed world. In 1999, I had set myself the task of sharing the meaning and practice of TASC with international colleagues. Currently, the TASC framework is used internationally and teachers are reporting that learners are engaged and motivated because they are creatively engaged in solving problems they identify as important and significant: they have ownership of their learning, and they work collaboratively to support each other in their learning.

I invite the reader to view the TASC tutorial video made by SAGE Publishers in September 2008.
http://journals.sagepub.com/doi/suppl/10.1177/026142940802400302

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Enrichment, Talent Development, and Creativity: Tributes to the Exceptional Contributions of Dr. Belle Wallace

John Senior
Deputy Editor & Senior Reviewer Gifted Education International (SAGE)

Whatever form Creativity manifests itself it seldom does in such a powerful form as that extraordinary creative talent known as Belle Wallace.

I attended a course early in my teaching career focussing on 'Gifted and Talented'. I met Belle, listened to her views on education, gifted children, creativity, challenge, pedagogy, epistemology and what now (decades later) is called, 'self – efficacy'. My life was changed.

In the 70s, I was invited to participate in the residential enrichment courses for gifted and talented children. It was not only the students who were carefully selected for the courses; the teachers had to also pass the Belle test!

Over the years I have been in touch with this amazingly persuasive, creativity. Belle has that rare skill of congregating talent together. I have learnt that to see a creative idea is not in itself enough, one must make the creative happen!

I have had the joy of working with Belle on what has proved to be a challenging and rewarding project producing the SAGE Gifted & Talented Handbook. Together with Professor Dorothy Sisk, myself and Belle as Editors, she has brought together an astonishing collection of the great and creatively challenging thinkers involved with the Gifted and Talented agenda.

Her creative drive has transformed many teachers' and thousands of children's lives. In my case that creative powerhouse that is Belle Wallace has taught and supported my thinking, most notably around enriching the curriculum, and the vital importance of asking the learner *what* they want to learn, and further *how* they want to learn.

Profiles of Giftedness: Part Three

Thank You Belle!

Michael Shaughnessy
University of New Mexico, Senior Editor *Gifted Education International*

When a comprehensive history of contributions to the field of gifted and talented is written, the name of Belle Wallace will figure prominently. Since the 1970's Belle has been at the forefront of advocating for gifted and talented children.

One of her most significant and creative contributions is her establishment of *Gifted Education International,* For 35 years, Belle tirelessly and meticulously edited a fine journal which has provided a venue for scholars across the world. She has continually reviewed books that have contributed to our knowledge base; and also written prolifically with regard to providing thinking and problem-solving tasks for gifted children. Her framework TASC (Thinking Actively in a Social Context') is used throughout the world, and her creativity shines through every publication as one sees pictures, charts, graphs and other instructional tools being used to convey and communicate key ideas.

Belle has creatively reached out across the world to establish contact especially with scholars who are writing in their second language, for whom she has been a gentle mentor. Belle foresaw the international relationships that could be established; and long before fast e-mails, she was sending correspondence on a daily basis, offering support and a sensitive ear to young educators worldwide.

'Belle's garden'

Belle is always a welcoming, congenial hostess whenever one is in England. She shares her knowledge, and her love of her English garden, as well as a delicious English breakfast that one will never forget!

It is certainly difficult to pin point any single creative aspect that has contributed to her success. But one feels that the stars were in good alignment when they nudged Belle into the field of gifted and talented. I am very proud that Belle invited me to be Senior Editor of GEI from January 2017.

Belle as My First Boss and Mentor

Elizabeth Mattson
Writer and trainee Psycho-therapist

I met Belle in 1994 – the year of South Africa's first democratic elections. It was a heady time, with a sense of freedom and possibility in the air as everything was changing around us. Belle's textbook project, Language in My World, was part of the visionary drive that was animating the New South Africa and, as a newly-qualified teacher, I knew I was lucky to have landed a role on her writing team. But exactly how fortunate I was to have Belle as my first boss and mentor was something it would take me decades to fully appreciate – something I'm still discovering and valuing to this day as I trace so many of my skills back to the intense, revelatory learning of those three years.

In 1994, after decades of apartheid, and with political power struggles escalating violently in KwaZulu-Natal, there were times when hope felt fragile and uncertain. But it's impossible to feel daunted in Belle's company – the sheer force of her vitality galvanises those around her and her unwavering faith in the resilience and creativity of the human spirit always wins through. Along with her steady determination and dedication, it's this quality of courageous hopefulness that I admire most in Belle. When someone believes in you, anything is possible. And Belle believes in everyone!

Anyone who meets Belle knows immediately that she is one of a kind. For those who know her only 'on paper', it's difficult to convey the multi-sensory experience of being with her – the radiant smile, the musical voice, the colours and textures of beautifully-designed clothes and jewellery, the piercing blue eyes that make you feel truly seen, understood and appreciated. Something of this beautiful spirit shines through in all Belle's work, and I love to think of how many lives she has touched through her books, her journal, her teaching and training and, quite simply, her presence.

I am inspired by Belle Wallace

Jacobus Maree
Department of Psychology, University of Pretoria, South Africa

I first learned about the work of Belle about 17 years ago when I was involved in a career counselling project in an impoverished part of the Limpopo Province of South Africa. My co-researcher and I had just received funding to recruit gifted learners to study at the University of Pretoria. On approaching our Dean, Professor Jansen, for funding to invite Belle as a visiting Scholar, he replied: "By all means … Just bring her here!"

Our friendship began. I am inspired by Belle's stated aim to enable educators to change the circumstances that disable instead of enable their learners. Her work in the Kwa-Zulu/Natal Province

of South Africa superbly demonstrated how the trio of constructs of creativity, giftedness, and talent development can be integrated to promote self-actualisation and the inspiration of disadvantaged learners. Her career life-story movingly reveals how she successfully mastered what she had suffered herself.

Today, Belle's and Harvey's contributions are legendary. Their contributions range from establishing a Curriculum Development Unit to identifying young people with high potential, to enable them to access and achieve at university, to developing masters' courses, and to developing the world-renowned problem-solving framework known as TASC (Thinking Actively in a Social Context).

Above all, Belle is living proof that change can be facilitated against the greatest odds. She is a living example of a creative change agent par excellence who tirelessly works towards promoting the common good; from our African perspective, promoting the aims of compassion for humanity and communal self-help (*Ubuntu*, and *Ujamaa*). *Belle, we are indebted to* you.

Thinking Actively in a Social Context (TASC) Approach to Learning

Michael Stopper
Formerly County Coordinator and of Lincolnshire's Gifted and Talented Student Support Service (UK)

In 1999 I had the good fortune to hear that Belle had returned to the UK and was now living near Lincoln. Knowing of her reputation and her passion to help able children to fulfil their potential, I invited her to come and share her wide expertise by joining the Service. To my delight, she agreed to do so.

Lincolnshire was one of the few Local Education Authorities in England at that time which had a full-time officer with responsibility solely for Gifted and Talented pupils, with an additional post for support work in schools. Belle's contribution to Lincolnshire's national profile was a legacy that was unmatched in my experience. Within an essentially rural county, fulfilment of individual potential was not considered an education priority.

Through her innately calm and gentle though persistently-determined manner, Belle brought about increased expectations and broader academic horizons within her school clusters. In particular, she implemented her TASC approach to learning which offered creative problem-solving opportunities for the most able, as well as providing the metaphorical 'rising tide that raises all ships'.

Whether providing emotional support for an individual child, resolving parental concerns, recommending challenging enrichment and extension curriculum materials, or offering professional development and training for colleagues, Belle demonstrated a deep knowledge and understanding of her subject which she shared generously with all whom she met. That she was able to undertake this exacting work whilst continuing with her academic interests and responsibilities elsewhere, testified to her levels of energy, passion and sense of mission.

It has been a privilege to have had the pleasure of working with an advocate for the Gifted and Talented of such distinction and to regard with admiration the professional lifetime that Belle has devoted to their interests.

Outstanding Leadership

Sue Mordecai FRSA
Past President / Trustee of NACE

I was a school adviser with responsibility for gifted and talented children, and I was given a book entitled *The Education of Very Able Children* by Belle Wallace. That book guided my thinking and actions and I still treasure it, although it is rather worn now! Soon after reading Belle's book I listened to her speaking at a conference, and was captivated by her enthusiasm and passion for education. We became firm friends and colleagues through our membership of the National Association for Able Children in Education (NACE).

Belle became the President / Chair of NACE and I subsequently followed her as President. During Belle's time in office NACE thrived because of her outstanding leadership. Belle understood the bigger picture nationally and internationally and her political acumen was important at a time of uncertainty in British education. We were extremely fortunate to have in Belle someone who could combine a powerful intellect with an understanding of how to translate research findings into pragmatic solutions in the classroom – a rare gift indeed. And it is this quality that underpinned her highly successful programme TASC (Thinking Actively in a Social Context) and the subsequent publications of TASC classroom practice.

When Belle relinquished the presidency of NACE, she left a strong legacy. She had established a sense of purpose and direction, effective networks, a financially sound organisation, a growing membership and through her NACE was respected in the education world. Throughout the years I have known Belle I have never failed to be inspired by her passion and energy, her integrity and wisdom, her research and scholarship, her clarity of thought, her generosity and sense of purpose. Belle has always pushed the boundaries of our thinking and enhanced our ability to make a difference to the education of children. Thank you, Belle.

Positivity and Optimism

Diana Cave
Senior teacher responsible for Science and TASC in a large Primary School in Grantham, Lincolnshire, UK

My first encounter with Belle was in 1999. We had a 'staff development hour' on 'special needs', and the dull, wintry skies through the window were banished immediately by Belle's passionate and thought-provoking presentation on identifying more able children and TASC. Belle influenced the rest of my career and continues to provide a guiding light in my life.

Her enthusiastic determination to improve opportunities for all children through thinking skills and problem solving was infectious. We began working together on a TASC project with a small group of children. It was hugely successful and consequently, a whole-school implementation was being planned. Belle's expertise, her willingness to work alongside staff, her encouragement to reflect and re-think provided a supportive framework for staff that had previously been scarce. Levels of positivity and optimism rose for both children and staff. Creative solutions to problem solving became highly valued, motivation increased and we had more fun! Teamwork grew in importance and the ideas of all children received increased respect. Thinking Actively in a Social Context had benefitted each and every one of us … intellectually, socially and emotionally.

For me personally, the inspirational impact of this fabulous educator was simply a beginning. Without doubt, she generated the most powerful stimulus to my career development. The generosity with which she gave her time, advice, encouragement and support through my post-graduate studies enabled me to become a better teacher, leader and mentor to colleagues. Professionally, my gratitude to Belle was, and will always be, beyond measure.

Supreme Ability to Connect

Harvey B. Adams
Formerly Professor of Educational Psychology, University of Natal, SA; Regional Consultant for Extended Education, UK

I first saw Belle at a national conference in 1981. She was to present on her recent publication *'Teaching the very able child'*, which is still available some 35 years later, and her enrichment / extension courses in Essex. Belle burst upon the assembled participants like a whirlwind: clearly already well-known, she moved rapidly around the room greeting colleagues and worked her way through her internal 'shopping list' of people to corner for a chat. Some months later we found ourselves around the same table at a meeting in London. Belle had just launched *Gifted Education International,* and had to leave early, but as she was leaving ‘our eyes met across a crowded room!'. At first we arranged to collaborate professionally... later to meet socially. Belle then left for a Sabbatical in South Africa. I joined her for a brief vacation and as we strolled along a beach we discussed the many and urgent needs of education in South Africa. I flew back, expecting to see Belle again when her Sabbatical ended. But fate took a hand, and 3 months later I joined Belle on a 'temporary' contract.

Over next 15 years we worked together in KwaZulu / Natal on courses for potentially very able African children, and introduced new Creativity, Giftedness and Thinking Skills elements to teacher training as well as new Master of Education degrees. Belle's supreme ability to connect (now called 'social networking'), absolute determination to see projects through to completion, and sheer inexhaustibility, led to comments about 'the blonde tornado'. An enduring memory of that era was in 1993 at the unveiling of a statue of Gandhi in Pietermaritzburg by Archbishop Desmond Tutu. Nelson Mandela was in attendance, and just after the event, a band started up, and Belle, a born dancer, started a solo 'jive', only to be joined by Madiba himself, with his now well-known characteristic movements.

Designing Empowered Curriculum: Thinking Preferences, 3D-Briefing and the Adult Learner

Christine Boyko-Head
Mohawk College, Hamilton ON, Canada

Abstract

At the 16th ICIE conference in Paris France, Giovanna Corazza encouraged participants to avoid early closure in their research: "Keep going" he enticed, "ideas can transcend across time, geography and cultures". This paper discusses an emancipatory, emergent research project at Mohawk College, Ontario, Canada that explored leadership skills, learning behaviour and cognitive preferences in higher education students. By avoiding early closure**,** this project morphed into a rich enquiry into enhancing 21st Century employability skills, and differentiating post-secondary curriculum based on cognitive preference profiles in learners. Overall, the findings indicated how a common language based on cognitive preferences and creative problem solving as well as the application of an accessible debriefing framework might navigate the paradox of diversity in a global, ever-changing educational ecosystem and improve creative-critical thinking, communication and collaboration.

Keywords: Paradox of diversity; 21st century skills; communication; collaboration; differentiated instruction; thinking preferences; creative problem solving.

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PART ONE

Introduction

The changing world of work

The educational landscape in North America has changed. Post-secondary institutions are seeing increased numbers of international, indigenous, first-generation, female, and mature or second career students. There are also more learners with emotional, intellectual and psychological wellness issues than in previous generations (CASA, 2018). The picture of who these students are, what motivates them, and how they learn best, is incomplete, mainly because educators often make key curricular decisions solely on visual observations which, while reflective of students' superficial attributes, leave significant learner distinctions hidden.

Likewise, the employment landscape has changed; cultural awareness has become part of doing business as globalization diversifies the world and industry. In addition, given the exponential growth in technological innovations, new employees need transferable, employability skills as well as content knowledge. However, various reports indicate a serious mismatch between the skills required by industry and the skills graduates have (IBM 2010, 2012). Specifically, the 21st Century industrial ecosystem demands creative-critical thinkers and problem solvers, good communicators and effective collaborators (WEF, 2016, 2016b; OECD 2011). Other researchers point not to a skills gap, but rather an awareness gap in learners and an inability to convey these transferable skills to employers (Harrison, 2017; Markovitz, 2017). Ultimately, whether an actual skills gap, awareness gap, or a communication gap, the consensus is that learners are not demonstrating the transferable skills an evolving industrial context requires.

The Consequence of Change to Education

In order to prepare learners for the current milieu, empowered and effective educational systems are fundamental to the encouragement and generation of student engagement, collaboration and self-awareness (OECD, 2014). These features contribute to learners having autonomy over their learning, understanding the relevance of their learning to their future careers, and a belief in their ability to build competencies and skills even when tasks are challenging (Drapeau, 2014; Freeman, Anderman & Jensen, 2007; Gregory & Kaufeldt, 2015; Yuhas, 2016; Dweck, 2016; Pink, 2009). The value of establishing a culture of self-efficacy through project-based learning, collaborative projects and group interactions prepares learners for employment while making the curriculum relevant through 'real world' competency-development and skills practice.

Familiarity and routine may be the norm of K-12 education; higher education needs to prepare learners for a real-world, employment context that no one can predict with certainty. Adamson's identification of a VUCA (volatile, uncertain, complex, ambiguous) ecosystem is marked in education by a minimizing of what was once common and familiar, and a maximizing of diversity and the previously unknown/unseen. Thus, innovative educational practices provide a rehearsal space for the 21st Century learner who needs content knowledge along with strong transferable/soft skills gained through varied experiences, values, preferences, abilities, motivations, goals, and multiple social, political, economic, religious, and cultural encounters. Within this diverse ecosystem, there exists a high potential for creativity, innovation and personal transformation if individuals are willing to see things differently, question accepted norms, and unlearn in order to relearn diverse ways of thinking, doing and being.

According to Yorks and Kasl (2002), however, there also exists an equally high potential for resistance, tension and conflict due to the same reasons creating the high potential for creativity and innovation. The more diverse the learners, the less likely it is that they will be able to create an empathetic field that enables them to understand the other's point of view, thus blocking the capacity to lead each other toward growth and transformation (Yorks & Kasl, 2002 p. 186).

Post-secondary educators can easily identify markers of the paradox at the administrative level; the impact at the post-secondary learner level may not be as easily recognized or remedied, especially since learner interactions are not faculty monitored and mediated as they are in the K-12 system. The question becomes: how might the paradox of diversity be navigated within the post-secondary ecosystem to minimize resistance and conflict and maximize innovation and creativity?

PART TWO

The 2016/2017 Study

Source of qualitative data

Post-secondary students at Mohawk College in Ontario Canada are required to successfully complete a first year Communications course. At Mohawk College, this course includes a collaborative research project involving an individual written report and group presentation. Consistently, the negative side of the diversity paradox was displayed in written reflections regarding the collaborative exercise. These reflections encompassed unsubstantiated claims against other students and showed minimal personal efficacy, responsibility and learning from the collaborative experience. Finding a way for learners to see the potential in all situations and create a safe forum and framework for important, sensitive conversations became paramount. Thus, an ad hoc solution to a repetitive classroom problem emerged into an action research project spanning multiple semesters, multiple programs, with multiple applications.

To clarify the initiating situation, Student Reflection One is a "polite" example of the work produced by learners prior to the 2016-2018 emergent research project. Learners were instructed to use the 3D-Briefing model of "what, so what, now what" in order to describe the collaborative

circumstances, analyze its significance and relevance to their learning, and plan modifications for future actions.

Learner Reflection One

> One challenge our group faced was initially getting started. We had a very slow start which was in part due to *members not taking time to meet* to discuss the overall project. Another issue we faced was *one individual not being present* for group meetings, which *we felt was unfair* that *this person did not participate equally* with the *rest of us.* In the future, it would be best to set-up group expectations early on in project collaboration so that all group members are aware of *their responsibilities* and what the *repercussions are if they fail to do so* (my italics, 2013).

This sample reflects the responses commonly made by learners. The next two reflections were written after learners were provided with information regarding cognitive preferences in problem solving, explained further in this paper, and the 3D-Briefing framework. The differences between reflection one and reflections two and three are evident.

Learner Reflection Two

In health care, collaborative approaches and being able to work with others are essential skills. For the workplace . . . it is useful to have a balanced team where people from all different types of thinking preferences can come together and apply their strengths. (2016).

Learner Reflection Three

> It was evident that everyone completed the project in different methods and approaches. In the future, I feel like understanding these preferences will help to meet goals, particularly in groups, by understanding that different people have different benchmarks for achieving goals (2017).

The 2016 and 2017 examples suggest a more positive mindset when the 3D-Briefing framework is combined with a common language regarding how people differ in their thinking processes.

Analysing the Data

Analysing these three reflections illustrates how students manifest the paradox of diversity in the learning environment. In Learner Reflection One, written by a student with a 98% average, the narrative reveals a high potential for frustration and conflict in collaborative work. The passage reveals:

a. A rift between group members indicating an "us-them" mentality evidenced by 5 first-person plural pronouns and 4 third-person singular and plural references.
b. Punitive language and a singular, disciplinary response to handling anticipated problems with future colleagues.
c. An accusatory, unempathetic tone toward others signifying the writer's disempowerment, lack of self-efficacy, self-actualization, and learning as success seemed beyond the individual's control.

This reflection typifies the writing done prior to the research project, with other writers being harsher, and even more accusatory of their peers.

In Learner Reflections Two and Three, written by average students, the narratives show a high potential for creativity, innovation and transformation. The passages reveal:

a. Self-awareness, self-efficacy, empathy and transformative growth stemming from the diversity within the collaborative experience;
b. Avoidance of punitive language;
c. Absence of oppositional-pronoun indicators suggesting an "us-them" mentality;
d. Learning autonomy, career relevance, and an awareness of potential competency-development; and,
e. Evidence of autonomous, self-regulated, action-steps through use of singular first person pronouns (first reflection is devoid of such an awareness).

The reflections combining the 3D-Briefing framework with thinking preference language indicate how educational activities can go beyond intended learning outcomes and incorporate socially-just values, beliefs and aims the 21st Century ecosystem requires and an equitable world demands. The three reflections emphasize how language influences and impacts learner attitudes, views and future actions. It also shows how empathetic awareness, leading to equitable collaboration, might hinge on the acquisition of an appropriate, accurate, value-neutral, common language as provided by thinking preference theory, and the application of an accessible conceptual framework as provided by the 3D-Briefing model.

Thus, the first phase in the emergent research project focused on the degree to which thinking preferences' common language might:

a. Minimize the paradox of diversity's potential for resistance, tension and conflict illustrated in the first reflection; and,
b. Maximize the paradox of diversity's potential for growth, creativity and transformation illustrated in the second and third reflections.

PART THREE

Next Steps: 2016/2018

According to Eisner, educators design environments which learners co-create. He writes: "The student always mediates, and hence modifies, what will be received or . . . construed from the situations" (2002, p 47). This is also true of emergent research as participant feedback spreads challenge questions into multiple directions. This project's iterations consistently employed a mixed methods, transformative-emancipatory approach where participants were co-creators "defining the frame through which we construe the world" (Eisner, 2002, p. 215). The identification of an initial educational challenge began with the despondency epitomized in the 2013 Communications class and lead to the more formal research projects between 2016-2018.

The first research study, supported by the Vice President Academics office in 2016, involved Mohawk College's co-curricular Leadership Academy and explored student perceptions of leadership skills, learning behaviour and thinking preferences. Student perceptions of leadership were compared to research regarding industry perceptions (Puccio & Acar, 2015). It was here that the value of thinking preference language first took shape and lead to the second iteration in 2017 involving 117 first-year students across four schools - Applied Health, Engineering and Skilled Trades, Community, Justice and Liberal Studies, Business, Media and Entertainment. The third iteration took place in Winter 2018, involving 120, final semester Electrical Technician students participating in a high-stakes capstone collaborative project. Another iteration, which is beyond the scope of this paper, took place in the Fall of 2018 and Winter 2019.

Creative Problem Solving and Thinking Preferences

Learning outcomes for the Communications course is to enhance learners' 21st Century skills: creative-critical thinking, communication, and collaboration. As already mentioned collaboration posed a serious issue to learner efficacy and anti-oppressive attitudes. Likewise, it is assumed that learners know how to solve problems, how to collaborate with others and how to generate a positive equitable learning environment. The challenges learners wrote and spoke about prior to the research indicated learners needed tools to help them collaborate and problem solve. Thus, the 3D-Briefing model and a variation of the Parnes-Osborn Creative Problem-Solving (CPS) model became part of the curriculum. Learners identified the universal process everyone must go through to effectively solve a problem: clarifying the challenge through research and data collection; brainstorming lots of ideas to solve the challenge; analyzing and advancing a possible solution by developing its components; implementing the idea in a real-world application. While all stages are necessary when problem solving, research into the correlation between individual behaviour and CPS indicates that individuals do not engage with each stage equally (Puccio, Miller, Thurber, Schoen, 2014). Diversity in problem solving within a team can result in the frustrations evidenced in the 2013 reflection. The 3D-Briefing model brought learner awareness and interpretation of these stages to the forefront.

The Foursight Thinking Preferences Assessment tool measured and generated a profile highlighting learners' cognitive tendencies when problem-solving. Measuring preference rather than ability, the profile provides a developmental blueprint to thinking better by enhancing inter- and intra-awareness, communication and collaboration. As a result, the research challenge now asked:

a. How learner awareness of cognitive thinking preferences might impact creative-critical problem solving individually and in groups; and,
b. How an awareness of person and process, expressed through the language of CPS and Thinking Preferences, might impact the collaborative learning experience.

2016/2018 Research Method and Environment

Quantitative data included a pre-assessment online survey developed by the author and a Foursight LLC's Thinking Preferences Online Assessment. All participants were involved in an interactive, arts-based workshop that used a constructivist approach to deliver the Parnes-Osborn CPS model and Foursight Thinking Preferences terminology and content. The workshop emphasized that effective problem solving involves individuals using divergent and convergent thinking through each phase of the problem solving cycle: clarifying, ideating, developing and implementing. The workshop illustrated the value of transcending familiar predilections and expanding abilities in areas we find challenging and thus avoid. Reflecting Vygotsky's "zone of proximal development" (1978), this realization is key to individual learning and growth and has an impact on interpersonal interactions, especially with those who problem solve in ways different from our own. The workshop highlighted five key elements regarding cognitive function and navigating the diversity paradox:

1. We are diverse in the ways we approach challenges and problems;
2. Diversity may cause resistance and conflict;
3. Resistance often originates from incomplete information;
4. Incomplete information may lead to misinterpretations, assumptions and stereotypes; and,
5. Misinterpretations may cause communication and collaboration failures.

Making learners aware of their blind spots regarding diversity, the research highlighted the importance of this awareness to clear communication and equitable collaboration.

Results and Thoughts Arising

In the post-secondary classroom, an internalization of the simple 3D-Briefing framework, combined with thinking preference awareness and language, seemed to consistently help learners create more empathetic and effective learning collaborations and interactions. Learner complaints about their peers disappeared. Reflective enquires showed more self-efficacy and empathy. Providing learners with a vocabulary describing characteristics and actions within the CPS process, thinking preferences demystified collaborative work by reframing personal differences as process differences assuaged through a deliberate minimizing of familiar tools and practices. According to one learner, "thinking profiles really teaches a group of people how to work together and achieve success. These lessons can be used in and outside the classroom" (2018). Understanding thinking preferences helped learners describe experiences appropriately, accurately and reliably. For example:

> Thinking preferences really foretold the way our group functioned. … Our group was made up of two developers, which really brought out structure, organization and planning. … The two ideators were the ones who took on the creative ideas. ... For my next collaborative assignment, I will try to learn a little more from the way my other group members prefer to thinking by expanding my ideas from a different angle (2017).

Reflections were now framed in a professional, mutually understood discourse describing the process with which they engaged rather than the personality types they encountered.

Another important employability and leadership skill, the ability to be empathetic, is displayed in the following learner reflection:

> "Learning about the types of people you are working with. . . can be a great asset in strengthening the team and ensuring that you are not butting heads. By knowing your team, you can maximize everyone's strengths to create equilibrium" (2017).

The application of a shared language to describe the collaborative problem-solving process also addresses the paradox of diversity as displayed in this entry:

> Knowing the type of problem solver I am will allow me to identify what role I can partake in the group. This information has also allowed me to identify the areas I need to work on so I can improve on my interactions with other types of problem solvers in the future. (2017).

Recurring reflections like these showed a high potential for creativity, innovation, self-efficacy, as well as equity and empathy as they minimized the potential for resistance and conflict generated by personal misinterpretations, assumptions and stereotypes.

Differentiated Instruction and Empowered Curriculum

A learner-centric perspective is fundamental to democratic, anti-oppressive curriculum design. Educators need to think about the plural positionalities of today's diverse learners and minimize their reliance on the familiar, or the one size fits all, approach to education. According to Earl, discovering who our students are as learners and as people is key to differentiated instruction (2003). But some consider differentiated instruction, especially at the post-secondary level an impossibility, even a hoax (Delisle, 2015). This may be an accurate opinion if differentiation is only seen as an instructor-driven activity.

In the post-secondary classroom, learner information is limited, superficial and misleading. Consciously, or unconsciously, educators design curricula based on assumptions, stereotypes, their own thinking preferences, and obsolete experiences. Reliable, valid evidence is lacking; thus, "precisely because any single view [in teaching] is partial, it is important, ... to secure other views that provide other pictures" (Eisner, 2002, p 11). Thinking preferences seems to provide educators with that other picture. It gives educators a language for mitigating the major pedagogical challenge of generating learner engagement and motivation. Given that thinking preference discourse, CPS and the 3D-Briefing framework positively affected learners, the research shifted, yet again, to explore how this combination of concepts might impact curriculum development and differentiation at the post-secondary level.

True to the notion of emergent research, parallel challenge questions surfaced:

a. How might creative, caring educators navigate the paradox of diversity and decrease resistance and conflict while increasing creativity and innovation?
b. How do educators minimize their remaining in the familiar and maximize their exploration of the diverse in order to differentiate the curriculum?
c. How might the curriculum be differentiated at the post-secondary level in a way that is evidence-based, reliable and bias free?
d. How might cohort profiles assist educators in moving outside their own preferences while solving curricula issues?

In 2017 and 2018, the Foursight Group Profile was used to redesign the mandatory Communications course delivered to Pre-Health students, (this was later expanded to the Electrical Technician program). Problems with learner motivation, engagement and success were reframed as curriculum design issues rather than learner issues. For example, poorly written, late and missing work is often viewed by faculty as a learner's time-management, organizational or apathy issue. Thinking preferences can alter this view by shifting from the person to the process as it analyzes learners' procedures in completing tasks and where they might be struggling. For example, a learner with an implementing preference might rush through an assignment in order to get it done without taking the time to proof for silly errors; a learner with a preference for developing might submit an assignment in late because they are obsessing over minor details and would rather loose marks than not deliver a perfect assignment. Rather than always defaulting to blaming the learner, another picture can be drawn where process deficiencies heighten curricular disconnects between how students learn and how content is delivered and assessed. For example, Illustration One displays a cohort of pre-health students.

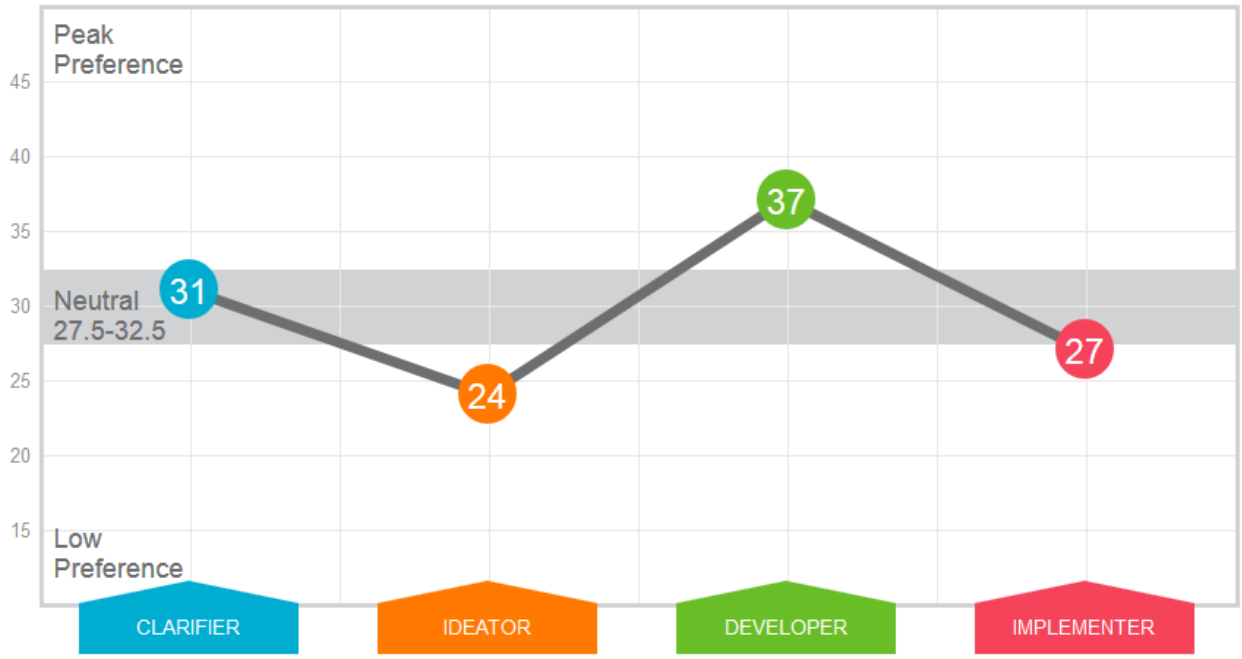
Illustration One: Cohort Profile 2017

This profile indicated ways the curriculum could be differentiated for the class; since most learners were clarifiers who prefer facts, research and data, the course began with health-related, non-fiction and then progressed toward imaginative works. Assessments offered detailed choices (preferred by clarifiers and developers) rather than abstract, imaginative open-ended questions (preferred by ideators). Since there was also a high number of implementers, known for getting the job done, open deadlines existed for assignments. Rubrics were reviewed in class to satisfy the clarifiers and ensure ideators didn't overlook criteria. The profile also indicated that divergent thinking was not an already acquired skill, so brainstorming was deliberately taught and practiced through creativity tools used as warm-ups. Articulation of opinions, and spontaneous creative-critical thinking through speaking and 30 second presentations were integrated into classes through low-stakes role-playing, active learning activities like Think, Pair, Share, and collaborative group challenges. The "What, so what, now what" 3D-Briefing framework reinforced each lesson while active learning activities linked literature's impact to health and wellness. Overall, these changes to content, delivery, and assessment improved the scaffolding of learning and moved learners from the familiar to the diverse, while building confidence, self-efficacy, empathy and an authentic voice appreciating multiple perspective and world views. Meanwhile, individual learner profiles, as seen below, facilitated differentiated coaching by the instructor and self-regulated differentiation by the learner.

Illustration Two: Individual Thinking Preference Profile:

It is important to note that thinking preferences is not about ability. Everyone uses the actions of clarifying, ideating, developing and implementing when problem solving, just not in the same way and, often, our preference for particular actions will *get* in the way. Thus, learners were given tools to strengthen each problem solving stage, which were helpful for stages they were short-shifting due to their preferences. More importantly, their awareness of thinking preferences, combined with their 3D-Briefing thinking framework enabled learners to self-differentiate and maximize their growth.

Overall, as evidenced in their interactions and reflections, person/process awareness altered their attitudes and behaviours toward each other and their own learning potential.



In summary: thinking preferences altered what was taught, how it was taught and why it was taught. Class attendance was high, participation enthusiastic, and classes creatively chaotic with positive, productive engagement. No late essays, extension requests, or make-up assignments were requested. Only two out of 50 students failed to hand in an essay and they took full responsibility for "not taking advantage of the flexibility and opportunities" (learner reflection, 2017) offered by the course. Diversity within groups was no longer interpreted as personal deficits, but as growth opportunities empowering learners with a value-neutral, shared language based on adjectives describing stages in the creative problem solving process.

PART FOUR

Conclusion

Between 2016 and 2018, the research challenge shifted from an exploration of student perceptions of leadership skills to a comparative analysis regarding how learner awareness and language impacts engagement, motivation, self-efficacy and empathy within education's diverse ecosystem. By embracing an emergent research method, learners and researcher extended the challenge questions in directions relevant to scientifically-informed teaching and learning decisions. Empowered, personalized, differentiated education should, as quoted by Tomlinson and Moon (2013), "develop awareness [in students] of which approaches to learning work best for them under which circumstances, and to guide [learners] to know when to change approaches for better learning outcomes" (p11). Fulfilling the OECD mandate to maximize learning, educators need to engage and motivate learners; they need to discover who their learners are, what motivates them, what competencies they have and what they need in order to maximize their learning. Supporting these goals is an awareness of diversity, not as a personal deficit, but as a cognitive preference capable of positive growth and transformation.

Empowered learning is inclusive, diverse, personalized and accessible. According to Carol Ann Tomplinson (2017), it links "students with meaningful learning, enabling collaboration that extends human understanding, and preparing students for a world that will demand of them both reason and wisdom" (p. 15). This research project shows thinking preferences can be an evidence-based tool for differentiating a curriculum which responds to the current educational ecosystem by minimizing the familiar and maximizing the diverse. Providing a shared, value-neutral language that

appropriately, accurately and reliably articulates the learning experience, and by combining it with the 3D-Briefing reflective framework, *all* learners gain vital self and collective awareness. This awareness enhances communication skills, increases positive collaborations while decreasing diversity's high potential for resistance, stress and conflict. This decrease in conflict generates an increase in respect for and understanding of diversity due to a greater, empathetic awareness that avoids early closure due to superficial misinterpretations and dangerous assumptions. Overall, awareness through the acquisition and application of a shared language is capable of increasing the new educational ecosystem's high potential for creative, innovative, equitable and empathetic learning spaces. These spaces can be measured through self-assessment, peer assessment and instructor evaluation because they are based on clear, common descriptors communally understood. Industry and education will no longer have to guess if graduates have the 21st Century skills needed to face the challenges of tomorrow; an unambiguous conversation is all it would take.

> "We are not only a team, now we are a family" (female, International, Electrical technician student, 2018).
>
> "Not only did we work together, but we became friends and that's something to carry with me for the rest of my life" (male, International, Electrical Technician student, 2018).
>
> "I feel like a changed man, excited for what the future holds for me" (male, Electrical Technician student, 2018).

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About the Author

Christine Boyko-Head (*Ph.D.* McMaster) has over twenty years experience integrating the arts and creativity into post-secondary classrooms. A published scholar, playwright and novelist, she has presented nationally and internationally (ICIE Paris 2018, Lisbon 2017), and facilitated professional training in Canada, USA, Israel and Turkey. Between 2001-2011, she taught Integrated Teaching through the Arts for Lesley University's Masters of Education program. A Creative Education Foundation instructor, Design Thinking and Thinking Preferences facilitator, creative curriculum consultant and Ontario Quality Assurance Auditor, her recent *Mind the Gap* project explores applied theatre and anti-oppressive pedagogy enhancing 21st Century skills in post-secondary students. She teaches at Mohawk College, Canada.

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ICIE-Rijeka Annual International Youth Summit 2018

Nana Gulić
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Birth of an idea

In 2016 in Rijeka, The International Centre for Innovation in Education (ICIE) in partnership with: City of Rijeka; Rijeka University; and Primorje and Gorski Kotar County hosted an international conference on excellence in education. Rijeka is Croatia's biggest port and third biggest city with population little less than 200000 people. In Croatia, Rijeka is most known for its acceptance and openness to diversity. Most recently, Rijeka has been chosen as Port of Diversity 2020 by the European Union. Geographically Rijeka is situated where green mountain slopes meet the crystal blue Adriatic Sea. With a great geographical location, Rijeka is becoming increasingly more interesting to international tourists each year.

As co-organizers of the ICIE conference, we felt it was important to include youth voice and ask them what they felt was important when discussing topics of excellence and innovation in education. Hence, we added a youth summit component to the conference and invited youth from the United States, Japan, Germany, Serbia, Bosnia, Slovenia, Turkey and Croatia. At our first Youth Summit we hosted 200 youth from 8 countries. The youth took advantage of the platform given and they clearly and passionately articulated their recommendations for those working within educational systems world-wide. Those recommendations were:

- Engage the youth in the education process;
- Help build connections between an international community of peers and teachers;
- Provide youth with opportunities to personally experience diversity; and,
- Inspire youth to be passionate about learning, social justice, and global initiatives aimed at planetary sustainability.

As a result, we decided that we will establish RAIYS – Rijeka Annual International Youth Summit. Our next Youth summit took place in Rijeka July (2018) and the focus of the activities was peace and creativity. The desire of the organizers was to facilitate relationship building between youth from different racial, religious and ethnic backgrounds and for youth to, learn about different cultures and beliefs, learn from international experts and have opportunities to learn while having fun and contributing to the community they are visiting.

RAIYS became an international, seven-day event for youth 13 to 17 years of age. During the seven days, youth had an opportunity to learn from each other, the adults and the experts from Croatian and international community. Participants, trainers and activity leaders come from many different countries including: Croatia, Germany, USA, Canada, UAE, Israel, Germany, Serbia and Japan. Each day was carefully planned and custom made for each participant, based on their interests. Daily activities included: learning, teaching, socializing, exploring local and international cultures and having fun.

The programming took place in many different locations across the city (museums, libraries, schools, universities, etc.) and was carried out by highly motivated and engaging professionals. In addition, youth had an opportunity to make their own presentations and exchange their knowledge, ideas and experiences. Lastly, social and tourist components of the Summit enabled youth to meet their peers and learn about rich local cultural and natural heritage.

Foundational Framework for ICIE-RAIYS

Faster advancing than any other, 21st century poses new challenges to educators all over the world. Technology, travel, access to information are changing the way we live, the way we learn and how we work. Much of the research in the academia deals with establishing what skills are needed to help students succeed in 21st century and consensus seems to be on academic, productive thinking, communications and technological skills. As we are moving from clearly defined sectors into interdisciplinary approaches and from life-long careers/vocations to fast pace changing working environments there is no denying that creativity, problem solving, productive thinking, leadership and collaboration skills are becoming a hot commodity. This framework is the foundation on which RAIYS was built.

During RAIYS, youth attend large number of keynote speeches, workshops, skill-building seminars, panels on a variety of topics and activities (i.e. social justice, peace studies, arts, sports, science, technology, civic studies, entrepreneurship, etc.). All activities are created to further develop youth's creativity, problem solving abilities, critical thinking and social skills (i.e. self-esteem, leadership, collaboration). For example, students solved problems in math workshop, when they needed to solve math problems and use their results as co-ordinates on a Croatian map to discover Croatian UNESCO sites. In Haiku poetry workshop they needed to collaborate with students from different countries to write haiku poems in different languages and scriptures (Japanese, Arabic, Serbian Cyrillic). Youth Advocacy workshops aimed at enabling youth to pick a social justice issue that mattered to them (they chose women's rights, poverty, discrimination) and prepare a speech identifying main issues and propose solutions, then deliver it at Rijeka City Hall in front of a larger youth audience. The youth summit is organized for youth by youth and as such uses Project-based Learning and Service-based Learning approaches to enable all participants to gain skills in: organization and planning, marketing, media literacy, inter- and intra- generational collaboration, communication, networking, public speaking and teaching.

ICIE-RAIYS (2018) Programme

From July 9-17, 2018. 317 youth and 39 accompanying teachers participated in RAIYS. Youth participants were from USA, Japan, Israel, Germany and Serbia. During the 7 days an opening ceremony was held, 47 themes were covered in 94 workshops, 32 institutions hosted and carried out educational and service learning activities.

Opening Ceremony was held in Trsat castle. In this formal setting, our participants were welcomed by Rijeka Mayor Vojko Obersnel and Prof. Dr. Taisir Yamin (General Director of ICIE). Singing and dancing raised the atmosphere and our participants who came to Rijeka from different part of the world felt welcomed to Rijeka, Port of Diversity (2020).

July 10th and 11th were workshop days held at Rijeka University and Rijeka Technical School facilities. On the 10th, workshops were more aimed at academic skills. Youth were offered many different workshops that were led by top Croatian and international specialists. Topics included: Creative Mushrooms: Creativity and Arts, Science Lab, Pieces of Humanity, Playfulness on stage (acting), Geography math, Mini Mondo (modeling), Video making and animation, Hand Made Shop, Haiku Creative Writing, Colofrul Envelopes art workshop, Stretch Your Brain (creative thinking); LESSAC Method Communication Skills, Drone Racing, Irregular and Regular (math), Red Cross and First Aid interventions, Journalist Convention. Hand made Shop workshop was designed as a creative arts workshop where students used plants specific to Croatian climate to make soaps and small souvenirs. Stretch Your Brain workshop included Evaluation of Potential Creativity activites, where students solved tasks using verbal and non-verbal convergent and divergent thinking. Subsequently, on the July 11th, more focus was given to peace and communication skills.

Following workshops were held: Me2We, Lemonland, Tech4life, Relax Kids, Be Peaceful, March for Our Life, Forum Theatre, Practice Empathy, Super Summit Song, Workshop for Peace, Peace, Robot!, Team Building, Youth Advocacy, Music for Peace, Art and Dance Therapy, What We Have In Common, Colourful Friendship, Microbit Decoding, I Volunteer, Time to Heal the World, Whom to Leave Behind, Embrace Diversity, Peace Behind the Scenes, T-Shirt Making, Key Chain, Music Around the World, etc. March for Our Life workshop was presented by youth from USA who spoke about the student movement against gun violence they organized in their city as a larger country-wide initiative. Peace Robot! Workshop included working with robots and thinking about technology as means to peace. Music around the world participants listened to different songs and analyzed lyrics of songs that catalysts of change used while making history. Forum theatre workshop engaged spectators/workshop participants as actors. In this dynamic process, participants were able to stop and change the performance and in so doing, create stories about acceptance of diversity and explore issues of oppression. This form of theatre has the potential to be very transformative.

During these two days, youth also had an opportunity to present to each other on panels. There were four panels and at each panel 3 groups presented their ideas and projects. Panel topics included social justice education, technology, sports, arts, and business. In addition, we had a keynote speaker, Ms. Katarina Kruhonja from the Croatian Centre for Peace Studies. She spoke about peace from a mediator perspective – as she was a successful civilian peace mediator during 1991-1995 war in Croatia. Thanks to her effort and effort of other mediators, the conflict between Croatians and Serbians living in Osijek was reduced to minimum, when in many surrounding areas, where mediators did not exist, thousands of people died and lost their homes due to conflict between these two groups.

July 12th and 13th were spent in 32 institutions in Rijeka. Thanks to Rijeka Mayor's enthusiasm about this programme and the great excitement of staff at Rijeka institutions, youth were able to visit institutions such as libraries, museums, community centres, daycare centres, schools, ranches, etc. On the July 12th, youth gained "hands-on" experience from the experts. They had an opportunity to try different equipment, be creative and experiment. They had language lessons, used microscopes, TV cameras and TV studio equipment, and made keepsakes using 3D printers. They became journalists, scientists, historians, and actors. Youth participated in sports like diving, water polo, handball, judo, and yoga. In Natural History museum they had a guided tour and had a look at behind the scenes – what do scientist who work at the museum do and how, what does it take to have a museum run. At the Art Museum, the students had a chance to work as museum staff and have a look at art restauration process.

On July 13th, the purpose of institution visits was service learning. Youth had an opportunity to learn, but also to contribute to the community they visited. During service learning component of the programme, youth helped those in need and gave a helping hand. They provided support to dog shelter, food bank, children's hospital, therapeutic horseback riding programme, library, local community centre and schools, old age home.

In the evenings, all the participants were divided into smaller groups and each day their group visited a different place. Visits were meant to serve recreational and relaxation purposes, but also provided youth with an opportunity to learn about local culture. Locations visited were: Rijeka city centre and Trsat; Kantrida stadium and beach; Kostrena trail and swim; Opatija city and beach.



The last two days were spent travelling. All the participants visited Pula in Istria, while the last day closing ceremony was organized by our participants from Israel, showing off their Palestinian culture.

Partners

International Centre for Innovation in Education (ICIE) formally partnered with the City of Rijeka and the Elementary School *Milan Brozovic* from Kastav. The Mayor of Rijeka (Vojko Obersnel) made all the Rijeka facilities and institutions available. He even opened his schedule not only to attend opening ceremony, but his staff Tajana Mavrinac and Doris Sajn helped organize Little School of Politics where he held Question and Answer sessions with the youth participants. Milan Brozovic's (the elementary school) Head Master, Sandra Krpan opened her school to all activities and a large number of staff participated as workshop facilitators and volunteers. The local community Centre Dom Mladih also supported and provided the resources, staff and space to ensure the youth summit's success. Without these institutions supporting the ICIE vision, RAIYS would not have been a success.

The youth summit ended on July 17th, just few days after Croatia won the second place in soccer World cup. As our guests were approaching the airport, the Croatian soccer team was arriving to 30, 000 people waiting to greet them. Just as the soccer team left our nation with hope, so did RAIYS. Seeing these bright, enthusiastic and caring youth eager to learn and meet new people keeps us optimistic about years to come.

About the author

Nana Gulić has a Master's Degree in Social Justice and Equity Studies from Brock University in St. Catherines, Ontario, Canada. Her Bachelor's degree is in Child and Youth Care from Ryerson University (Toronto, Canada). Nana received scholarships for high academic achievement as well as community involvement. The first eight years of her career were spent in child welfare and community building programmes in Toronto. With youth empowerment and engagement as the guiding premise, she worked at the largest child welfare agency in North America. In addition, she created a number of cutting edge programmes focusing on violence and homeless prevention and intervention. In 2012, Ms. Gulic moved to Croatia where she became the school wide child and youth care counsellor at the Elementary School Milan Brozović, Kastav. Soon after, she became involved in policy making with Croatian government and became one of 12 experts on a national-level education reform - committee for children and youth with learning difficulties. Nana has led and participated in a number of foreign students exchange programs, youth-led social justice initiatives, as well as served as a director to international youth summits focused on creativity and peace. Since 2016. Nana has been an active member of International Centre for Innovation in Education (ICIE) community and has presented at a number of conferences world-wide.

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Innovative Education Projects (2):

ICIE-Rijeka Annual International Youth Summit 2018

A Brief Report from an American Teacher

Meredith McLaughlin
University of Wyoming Laboratory School

In 2015, I received a Fund for Teachers research grant to visit and learn from schools recommended to me by the Centar za Mirovne Studije in Zagreb, Croatia. Particularly, I was interested in schools that were still walking the talk of peace, tolerance, and social justice twenty years after a genocidal war. This research grant led me to Nana Gulić and the Milan Brozović school in Kastav, Croatia. Immediately it became clear to me that she and I, as well as our schools, shared an uncommon and inspiring commitment to growing youth leaders who were not only academically excellent, but true humanitarians as well. By connecting our students to one another and empowering them to lead a youth summit, we have been able to realize our fundamental purpose in becoming educators: to get out of children's way and lay the fertile ground they need to create a better and more just society. Because of my relationship with Milan Brozović and Nana Gulić in particular, not only have I taken my students to Croatia, but I have also taken pre-service teachers who have been fundamentally shaped by an experience that has shown them that the most important work we do as teachers is not prepare students to succeed on a test or memorize content, but to foster in youth a sense of efficacy and compassion for the world. I will spend the 2019-2020 academic year in Croatia, where my collaboration with Milan Brozović will continue to stretch us both in our practice and philosophies.

In 2018, I had my second RAIYS experience, and this was also the second time I saw this summit work to permanently change the lives of youth. I attended the first RAIYS in 2016 with 13 students, 12 of whom became Congressional Award for Youth Gold Medal Winners, even though many of them were learning disabled, impoverished, struggled in school, and had complicated home situations. Their experiences as young secondary students at this first youth summit buoyed them through the difficulty of adolescence. They have leveraged this experience to find hope, remember their strengths, and find the courage to lead and take risks. This experience also engrained in them a commitment to public service and showed them first-hand how friendship can cross boundaries of language, age, cultural background, gender, and political identity. Our world needs nothing more than youth who grow up to be adults living by these values.

In 2018, I saw this same experience repeat itself for the six students who accompanied me to Rijeka for the second RAIYS. Before we came, we engaged in a book study of young adult Palestinian literature. However, reading about Palestinians was nothing like meeting them in real life, partnering with them in cultural exploration and service, and learning about the real complexity of their stories. On soccer fields and packed busses, in mosques and churches and synagogues, around cafeteria tables laden with Croatian food, and together in workshops – children from America, Germany, Palestine, Serbia, Croatia, and Japan found multiple ways to value their sameness and celebrate their differences. Most importantly, they became friends.

Perhaps the best moments of the RAIYS were the moments where all did not go as planned. My students had to wait patiently for hours, stay up late when jet-lagged to finish presentations, walk many kilometers, endure heat, and adjust to unpredictability as well as a range of cultural behaviors. They were tired at times. Frustrated at others. Annoyed even. Increasingly we are learning as educators that today's relative luxuries are impeding the development of a key element to success in

life: grit. Students without grit cannot recover from setbacks, cannot cope with unmet wishes, cannot bounce back from failure. Too many young people today are disturbingly unprepared for a life that will be filled with setbacks, unmet wishes, and failure. The students who go to RAIYS with me learn grit. They learn to expand their levels of tolerance for a wide range of human behavior and uncontrollable circumstances and still find the capacity to love and grow. When asked about the trip, the students remember the friends they made and how they laughed. They do not remember being miserable at times.

On a final note, for me personally, I loved watching this next level of evolution in a country I have been coming to since it was embroiled in war, in 1992. Perhaps my favorite moment of the 2018 trip was being on a hot, packed bus. Standing room only. A young Muslim woman who was one of our participants caught the delighted attention of an older couple from Rijeka. They were enamored with her and could not stop asking her questions. By the end of the trip, they'd invited her for food and given up their bus seat for her. This is the Croatia I know and love. A place filled with a generosity and curiosity and regard for others that has allowed it to overcome narrow-mindedness and the dangers of nationalism. When we meet others not like us, and we choose to embrace them with love and curiosity, we break down the false walls of judgment and suspicion. We create a better world. This is what RAIYS ultimately accomplishes, and I feel very blessed to be part of it.

Rowan Ahern, grade 8, and Kai Edwards, grade 9, on their first night in Croatia. They are working late into the night to make sure their presentation, "Pieces of Humanity," goes smoothly the following day at the summit. The responsibility of a presentation for an international audience develops in youth a sense of self-efficacy and duty.

The "Pieces of Humanity" presentation, completely designed and implemented by University of Wyoming Laboratory School students, is a success. Youth from around the world unite to piece together a common message celebrating diversity.

A great benefit of the youth summit is the opportunity to make friendships across age and culture.

American students from Laramie, Wyoming collaborate with Renata Lisac of Lokve, Croatia to share their experiences as March for Our Lives youth organizers and lead an activity focused on the necessity of compromise when moving forward politicized dialogue.

Kai Edwards, 9th grade student from America, completes her news reporting job for the summit. Here she is interviewing a woman at Rijeka's synagogue.

American, German, Syrian, and Japanese students gather at Trsat Castle in Rijeka before delivering their opening message to start the youth summit.

An American and Palestinian swap their t-shirts with messages of peace.

The American delegation with a school from Palestine and local guide during a tour of the city of Rijeka, one of the many cultural experiences offered at the youth summit.

Croatia made it to the finals of the World Cup during the Youth Summit. Here, the American delegation celebrates the Croatian victory in semi-finals with locals at a café.

Congressional Gold Medal Winners and 2016 RAIYS participants with their advisor, Meredith McLaughlin, at the US Capitol Building in Washington D.C. in June 2018. In June 2019, the remaining 2016 RAIYS participants from Wyoming will receive their Congressional Gold Medal. The medal is awarded by the United States Congress to American students demonstrating an exemplary commitment to personal development, physical fitness, expedition/exploration, and most importantly, service. The RAIYS experience for American students was instrumental in them receiving this prestigious award.

About the Author

Meredith McLaughlin is lead teacher at University of Wyoming Laboratory School, a K – 8 public school and national example of best practices in democratic schooling, differentiated instruction, project-based learning, student engagement, outdoor education, and mentoring pre-service teachers. She also advises Force of Altruism, a student-led service club. Committed to teaching since age nine, she believed then and still today that the perspectives and capacities of children are not to be underestimated or undervalued. She is a National Board Certified and award-winning teacher who is actively involved with the Wyoming Congressional Award for Youth and an international youth summit in Croatia.

Connecting the DOT: The Importance of Being Open to Transnational and Interdisciplinary Collaboration

Kenneth L. Reimer
Acting Associate Dean, Faculty of Education, University of Winnipeg, Canada

July 2017: Lisbon, Portugal (ICIE 1.0)

July 1, 2017 was an exciting day for me. It was my first official day as an assistant professor at the University of Winnipeg (Canada). On this day, my wife and I boarded a plane and travelled to the 15th annual International Centre for Innovation in Education (ICIE) conference in Lisbon, Portugal. This is not a bad way to start a new job.

This was my second time attending an ICIE conference, and I was excited to attend and present. Many of my new University of Winnipeg colleagues were also attending the conference, including my Dean Ken McCluskey, Aboriginal Academic Advisor Andrea McCluskey, and Faculty of Education colleagues Philip Baker and Alan Wiebe. Additionally, two recent University of Winnipeg ACCESS program graduates also attended and presented at the conference.

While attending this conference with so many of my colleagues was an excellent opportunity for me, one learns very quickly at an ICIE conference that transnational collaboration is highly recommended. Diverse scholars came from all corners of the globe to attend this annual conference. Mingling, meeting, and connecting with fellow attendees were enthusiastically promoted throughout the four days. From the moment we arrived, attendees were encouraged to seek out potential opportunities for collaboration by the General Director of ICIE, Dr. Taisir Subhi Yamin. Messages endorsing the development of partnerships could also be heard within the conference keynote addresses.

One such example of this came through a presentation titled, “Innovation in STEM” by Don Ambrose (Rider University, New Jersey, U.S.A.). Dr. Ambrose (2017) highlighted numerous strategies that promoted creativity and critical thinking, and stressed the dangers of academics remaining insulated solely within one’s personal area of expertise. Instead, he emphasized the many benefits of multidisciplinary collaboration. University of Winnipeg Faculty of Education Dean Ken McCluskey (2017) provided a similar message in his keynote address titled, “The Future of Gifted Education”. Throughout his keynote address, Dr. McCluskey continuously highlighted the benefits interdisciplinary collaboration as a means of expanding enrichment opportunities for students in our school system.

The spirit of seeking out interdisciplinary relationships seemed to permeate the entire conference, including all keynote sessions, workshops, and even lunch times and coffee breaks.

On the second day of the conference, I met fellow conference attendee Luis Vasconcelos, a PhD. candidate in the Department of Engineering at Cambridge (UK) University. Luis, who is originally from Brazil, asked if he could interview me to learn about the Canadian school system during one of our coffee breaks. I wholeheartedly agreed. This was a brief, fifteen minute conversation. We exchanged contact information, and went on our way.

December 2017: Cambridge, UK (1.0)

Several months later, I was invited to present in Oxford, England in December, 2017. Just prior to leaving, I emailed Luis Vasconcelos and asked if he would be in nearby Cambridge when I was visiting in the country. Unfortunately, he informed me that he has graduated and returned to Brazil. Still, he noted that I should connect with some people he has worked with in Cambridge University's Faculty of Education and Department of Engineering. He provided me with several email addresses, and I wrote to them all. Surprisingly, I received an invitation from Cambridge University's Bill Nicholl to present to one of his classes about inclusive education.

On December 4, 2017, I travelled to Cambridge University and lectured to faculty, staff, and students on the topic of Canada and inclusive education. After my lecture, I was introduced to an ambitious problem-solving tool called Designing Our Tomorrow (DOT), created by Faculty of Education's Bill Nicholl and Department of Engineering's Ian Hosking. DOT emphasizes "empathic engineering" (Hosking, Cornish, Bradley & Clarkson, 2015), and teaches young people about design through authentic challenges. In short, DOT places "real world problems" at the heart of the learning experience provides opportunity for students to act as practicing professionals (Nicholl, Flutter, Hosking, & Clarkson, 2013).

As we continued to meet, I learned that the DOT team had been greatly inspired by the "prism paradigm" written about by Dr. Joe Renzulli and University of Winnipeg Dean, Ken McCluskey (2014). The Cambridge team expressed an appreciation for my passion towards finding inclusive ways to creatively engage at risk students, and we quickly agreed that it would be beneficial to continue to collaborate and work together. After one very exciting afternoon in Cambridge, I found my way to Oxford.

In Oxford, I met Dr. Eric Pool, and project manager from Rochester, Minnesota's Mayo Clinic. Through post-conference correspondence, I shared with him Cambridge's DOT initiative, and he was immediately intrigued. Cambridge University's Ian Hosking, Bill Nicholl, and DOT Operations Manager Melanie Smith, and Mayo Clinic's Eric Pool, all agreed to work together and bring DOT to North America. Winnipeg's largest school, Sisler High School, positively accepted the invitation to have DOT introduced to their students.

April 2018: Winnipeg, Canada

We introduced DOT to over 60 Sisler students in spring 2018. These students learned about "empathic engineering", and experienced real world design tasks by creating products designed to design solutions for complex medical issues they are challenged with solving. The pilot was a resounding success.

We realized that despite our diverse countries of origin and professional backgrounds, we collectively wanted to create an opportunity to give voice to youth, and connect them with world leaders in academic fields of engineering (Cambridge University), education (Cambridge University, University of Winnipeg), and medicine (Mayo Clinic). It was exciting to develop a partnership between the University of Winnipeg and a local high school with the internationally renowned Cambridge University and the Mayo Clinic.

May 2018: Cambridge, UK (2.0)

From May 28 to June 1, 2018, Dean Ken McCluskey, Micro Community Director Andrea McCluskey, and I travelled to the University of Cambridge to present at the Faculty of Education and Department of Engineering. We lectured on topics ranging from the effects of marginalization, Attention Deficit Hyperactivity Disorder (ADHD), Social Role Valorization (SRV), and creative, cooperative environments. We even were treated to a private dinner in Trinity Hall. On May 31, 2018, we established DOT Canada.

DOT Canada (from left to right): Ken Reimer, Ian Hosking, Bill Nicholl, Melanie Smith, and Ken McCluskey

July 2018: Paris, France (ICIE 2.0)

Let us move ahead to July, 2018. I now find myself at the 16th annual International Centre for Innovation in Education (ICIE) conference in Paris, France. It has been one full year since I first met Cambridge University contact Luis Vasconcelos. While Dr. Vasconcelos was unable to attend this year, I was invited to co-present two workshops focused on DOT to ICIE attendees with Cambridge University's Melanie Smith (2018). I also spoke about DOT Canada as part of my ICIE keynote address titled, "Correlational Intelligence: The Science (and) Art of Establishing Interdisciplinary Connections" (2018). In my address, I introduced the concept of 'Correlational Intelligence', which I defined as, "The ability to connect between two or more things (i.e. phenomena, people, products, ideas) in order to acquire and apply new knowledge, skills, and products."

Based on my experiences at ICIE conferences, this topic was relevant, as it was abundantly clear that many conference attendees seemed to have a high rate of correlational intelligence. The conference went out of its way to support this way of thinking, too. Over coffee breaks and lunch, we were all provided opportunities to meet with eclectically brilliant academics from around the world who care passionately about the education of our youth. At first glance, our countries of origin, first languages, and areas of expertise seem to be so disparate from each other. Within a few moments, however, we can connect and become open to making connections and exploring the potential for collaboration. Once again it happened at the ICIE conference, as myself and six other attendees agreed to collaborate on an exciting writing project this year. We continue to stay in touch. As of January 2019, this project now has contributions from authors representing six different countries and four continents.

Final Thoughts

Whether you are attending your first or your 17th ICIE conference in 2019, you are bringing with you a unique treasure trove of sophisticated talents, skills, and specializations. I hope that you also bring along a spirit of curiosity and collaboration, so that you can appreciate and recognize the

talents, skills and specializations of the other attendees. It is astonishing what can happen if two or more courageous individuals can reach out to one another, and connect their individual expertise to create something new. It's amazing what can transpire in one short year.

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About the Author

Ken Reimer is an Assistant Professor at the University of Winnipeg (Canada). Prior to this, he had a twenty-five year career in Canada's public school system. This included positions as a mainstream, special education, and resource teacher, guidance counselor, and school principal in six different schools in two different school divisions. Dr. Reimer holds a PhD in Education from the University of Manitoba. His primary research interests have focused on inclusive special education, school leadership, creativity, educational policy, graduation rates, at-risk learners, and teacher collaboration. He has served as President of the Manitoba Council for Exceptional Children. Dr. Reimer has taught at the University of Winnipeg (Canada), University of Manitoba (Canada), and guest lectured at North-Caucasus Federal University (Russia) and Cambridge University (UK). He has presented papers at several different provincial, national, and international conference sites.

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The Annual ICIE Conference Highlights:

"The French Connection" Bringing Together Excellence, Innovation, and Creativity

Kenneth L. Reimer
Acting Associate Dean, Faculty of Education, University of Winnipeg, Canada

From July 3-6, 2018, I had the opportunity to participate in the 16th annual International Centre for Innovation in Education (ICIE) conference in Paris, France. I was invited to deliver a keynote address titled, 'Correlational Intelligence: The Science (and) Art of Establishing Interdisciplinary Connections'. I was also fortunate to co-present two workshops with Cambridge University's (UK) Melanie Smith that focused on the 'Designing Our Tomorrow' (DOT) initiative. This was the third ICIE conference that I have attended.

The location of the conference was the University of Paris Descartes. This venue was expansive and comfortable, with an excellent theatre for keynote addresses and awards ceremonies. It is conveniently located a short distance from the heart of Paris, and near a major metro line. Upon arrival, all attendees were immediately registered and provided with conference packages overflowing with program information and complimentary ICIE publications. Additionally, attendees were personally and warmly greeted by Dr. Taisir Subhi Yamin, General Director of ICIE.

Conference staff and volunteers were always available and willing to assist. The speakers, sessions, and workshops were diverse, stimulating, and inspirational. The conference meals were delicious, and the expansive cafeteria allowed for scholars from across the globe to eat together, share ideas, and network. Dr. Todd Lubart (Honorary Chair), Dr. Sandra K. Linke (ICIE Director, Co-Chair), Dr. Bahaa Zoubi (MidPoint Director, Co-Chair) and the entire conference organizing committee deserve much credit for creating such a brilliant experience.

Dozens of international scholars and educators presented over the four days at the conference. Day One offered a variety of excellent workshops beginning at 8:00 am. At 10:15 am, the 16th annual ICIE conference held its Opening Ceremony. Nana Gulic (ICIE, Rijeka, Croatia) coordinated this introductory event. Speakers for this event included Ruth Simmons (President, Prairie View A&M University, USA), Bahaa Zoubi, and Sandra Linke (Co-Chair and Director, ICIE).

Following the opening remarks, it was time to announce the winners of four prestigious ICIE awards. The winner of the ICIE International Award for Excellence in Higher Education was Prairie View A&M University. The 'ICIE International Award for Organizational Creativity' went to France's 'Centre for Educational Research and Innovation' (CERI). The Mayor of Rijeka, Vojko Obersnel, was the recipient of the 'ICIE International Award for Excellence in Community Service'. Finally, the 'ICIE International Award for Outstanding Research in Education' went to Warsaw's Maciej Karwowski.

The conference offered an astounding number of impressive keynote speakers. On Day One of the conference, Keynote presenters included Rena Subotnik, Director of the Center for Psychology in Schools and Education at the American Psychological Association (Enhancing Creative Productivity: A Developmental, Domain Specific Approach); James A. Wilson, Jr., Professor and

Endowed Chair in Educational Leadership and Counseling at Prairie View A&M University, USA (Preparing Honors Students in the United States to become future global leaders: Perspectives from a Historically Black College and University); Vlad Glăveanu, Associate Professor and Head of the Department of Psychology and Counseling at Webster University Geneva, Associate Professor II at Bergen University, Norway (Inspired to Create); and Giovanni E. Corazza, Full Professor and Member of the Board of Directors at the Alma Mater Studiorum-University of Bologna (The Dynamic Universal Creative Process).

On Day Two of the conference, Keynote presenters included Stella Smith, Associate Director for the Minority Achievement, Creativity and High-Ability Center in the Whitlowe R. Green College of Education Department of Educational Leadership and Counseling at Prairie View A&M University, USA (Tempered Radicals for Social Justice: A Role for African American Women in Education in the U.S. and Internationally); Patrick Blessinger, Adjunct Associate Professor of Education at St. John's University in New York City (Using Field-Based Learning to Improve Student Engagement and Teacher Professional Development); and my keynote address.

On Day Three of the conference, Keynote presenters included Todd Lubart, Professor of Psychology at the University of Paris Descartes (Getting from Creative Potential to Creative Talent: Assessment & the Educational Challenge); Yoram Harpaz, Teacher at Al-Qasemi College and in Beit-Berl College in Israel (How to Think Education); and award-winning journalist and historian, Jamal Watson, (Going Global: Reporting Diverse News Stories from an International Perspective).

In addition to the magnificent keynote addresses, there were many captivating symposiums and workshops offered throughout the four days. While it was impossible for me to attend (and therefore comment on) all of these presentations, I would like to highlight several lectures that I attended which had a significant impact on me. Two of the presentations were from colleagues connected with the University of Winnipeg, where I work. Professor Karen Magro's presentation titled, 'Transculturalism, Creative Learning and Adult Literacy: Encouraging Imagination and Action' masterfully opened the audience's eyes to the potential of literature as a means of cross-culturally connecting with others. Lisa Neufeld's presentation, 'We Alchemists: Exploring Pain, Power, and Potential' artfully connected Lisa's own personal experiences with empirical research. Both presentations were powerful and informative.

I also had the opportunity to listen to a number of exceptional international presentations. For example, Alenka Vidrih (University of Ljubljana, Slovenia) playfully required full audience participation in order to demonstrate the power of drama in her energetic presentation, 'Applied Theatre and Authentic Communication in Educational Environment'. Paulo Gomes de Sousa Filho's (Universidade Federal de Rio Grande, Brazil) presentation, 'Creativity in the Therapeutic Relationship', emphasized the critical, yet often overlooked, role that creativity can have in assisting people with mental health issues.

In his lecture, 'Innovate within Constraints', Steven Nijhuis (University of Applied Sciences Utrecht/Hogeschool Utrecht, Netherlands) cleverly introduced the concept of the "pre-mortem analysis" to the audience. He explained that innovative teams need to consider, outline, and prepare for all the risks to any new endeavour or collaboration prior to its commencement, so that the team can mitigate them before they even arise.

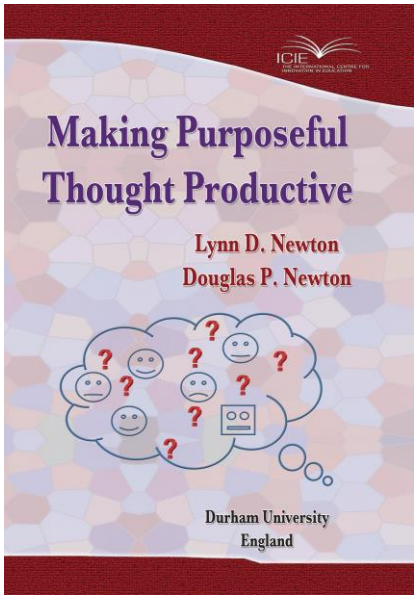
It was such a joy and privilege for for me to attend and participate in the 16th annual International Centre for Innovation in Education (ICIE) conference at the University of Paris Descartes. It's always a treat to spend time in Paris during the summer. It has always been an honour to attend and present at ICIE conferences – especially this past one. Once again, the venue, service, keynote speakers, and symposiums were world-class. I look forward to attending the 17th ICIE conference this summer in Prairie View, Texas, USA (July 16-19, 2019).

Book Review (1):

Making Purposeful Thought Productive

Lynn D. Newton; Douglas P. Newton (2018)

Sandra Linke
Director, ICIE, Ulm-Germany.



The authors of this book describe the importance of productive, purposeful thought in formal education, and they illustrate some ways of engaging students in purposeful thought. Newton and Newton develop in some detail the particularly economical and popular way of challenging students to think by asking questions. Newton and Newton (2018) also emphasize the importance of problem finding. Students can be encouraged to discover new ideas and find problems to solve. They are suggesting that teachers need to challenge their students (at all levels) more with effective and essential questions on particular themes/topics unique to the subject domain.

> Whatever their age, students do not arrive with empty heads. Instead, they often bring understandings with them. At times, these are something to build on and extend, but, on occasions, they can amount to misunderstandings or misconceptions drawn from limited experience, but which have become well-established in the students' thinking. For example, they may arrive to a science class believing that anything which is hollow will float. Direct experience of hollow objects which sink can set up a cognitive dissonance (discussed further in connection with questioning) which prompts them to reconsider. False misunderstandings of this nature can be difficult to change in a short period of time because they often fit everyday experience (p.40).

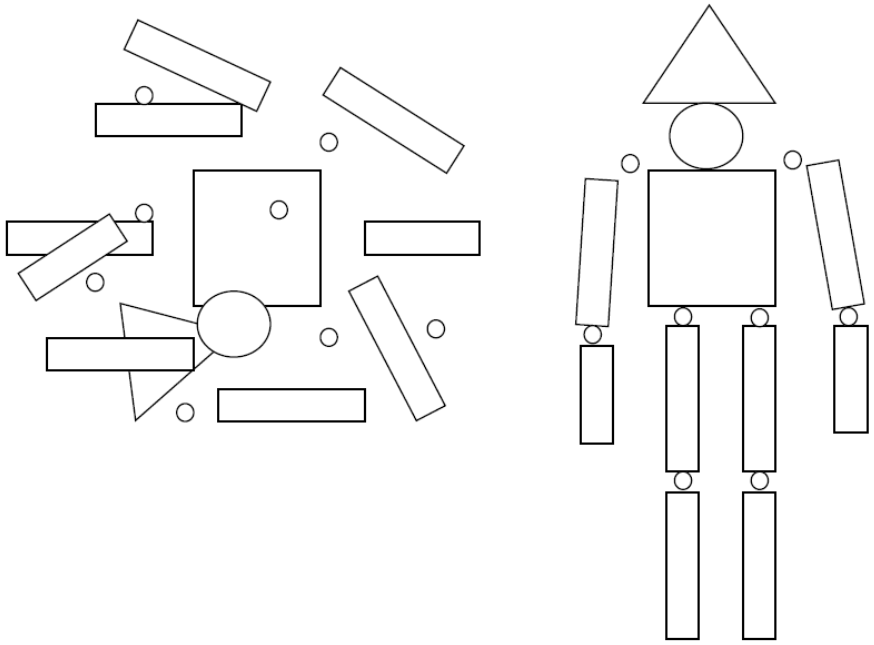
Newton and Newton (2018) reconceptualise the process of questioning as a strategy that uses an overarching question under which lies a series of sub-questions which scaffold thinking, or otherwise help the student to practise and move their purposeful thinking forward. They are suggesting that teachers need to challenge their students (at all levels) more with effective and essential questions on particular themes/topics unique to the subject domain. According to Newton and Newton (2018), purposeful thinking is influenced, for better or worse, by the student's frame of mind and beliefs. The authors provide detailed examples of the way moods and emotions can influence learner mindsets and purposeful thought. How to make use of frames of mind and, if necessary, manage them in this context, is also discussed under the concept of emotional design.

> There are diverse theories of the origin of moods and emotions. To illustrate, evolutionary theorists argue that amongst ancient hunter-gatherers, moods and emotions are responses to the environment which have survival value. When confronted with a wolf, for instance, fear would prompt a rapid retreat – an action which clearly can support well-being. On the other hand, the sight of a friend could arouse pleasurable feelings and prompt approach; there is survival value in mutual support. Charles Darwin (1872) was the first to suggest that, as innate reflexes to events, emotions like happiness, fear, disgust, and anger had adaptive functions and would be favoured by natural selection. Since Darwin, various other theories have been offered. In recent times, psychologists have constructed a number of appraisal theories, each with the assumption that we continuously, and often quickly and automatically, appraise the environment to judge its relevance for our personal well-being. Threats or benefits to safety and personal goals, for instance, may be perceived in situations and events, and signalled by emotions. (p. 67)

In order to inform the process of teaching, a student's purposeful thinking needs to be assessed or gauged in some way. This difficult task again often involves questioning, but here it is aimed at eliciting evidence about the effectiveness of students' thinking, a process which can be difficult to mechanize in meaningful and useful ways. The authors provide examples of effective teaching practices that would encourage purposeful thinking. Finally, with reference to the widespread practice of questioning and to students' frames of mind, Newton and Newton (2018) draw attention to the need for thought about the serious challenges education faces as digital technology, with its benefits and limitations, advances.

Clearly, some frames of mind can bear upon thinking in general, but others are more advantageous for particular families of purposeful thought. Two such families serve to illustrate these contrasting effects (p.75)

I liked this book. People who are interested in purposeful, productive thinking will be very interested in reading this book.



Two representations of the same.

What mental resources does someone need in the twenty-first century?

The authors (Newton & Newton, 2018) supply an in-depth analyses and discussion of various aspects of productive thinking. In particular, what kinds of knowledge and know-how are seen as important for someone to function successfully in a certain society?

In agreement with the authors, there was a time when most children acquired the mental resources to satisfy their needs, material and otherwise, from their parents, or someone commissioned by them. In turn, they passed them on to their children (e.g., Hewitt, 2006). Today, a child in parts of the West can reasonably hope to live into the twenty-second century. Given the pace of change, a significant part of what they learn when young may become irrelevant, and leave them ill-equipped for the world they live in.

Competences of the past become incompetences in the present

According to Newton & Newton (2018) the pace and impact of technological change can quickly turn society and its values and beliefs in unexpected directions, so that competences of the past become incompetences in the present. At the same time, it has made information cheap, easily accessible and plentiful. Today, storing vast quantities of facts and procedures in your head rarely

offers any particular advantage - unless you are competing in some game-show quiz- because technology puts them quite literally at your fingertips. But that same technology also overloads us with information, and smothers us in a data-smog of views, opinions, ideas, advice, and supposed facts which we take at face value and at our own peril. Being able to organise, understand and evaluate such information, and use it to cope with change, create plans, construct solutions to problems, make decisions, and act wisely would be a valuable competence with the potential to help someone function successfully. We need to be able to critically analyse digital media forums. How accurate and reliable is the information we are sourcing? To what extent does easy access to information via the Internet, for example, enhance or hinder critical and reflective thinking? However, people are often bad at knowledge management (Dijksterhuis & Nordgren, 2006).

Knowing the future with certainty is beyond our ability

Newton & Newton pointed out that none of us is a Laplacian Demon with its bottomless capacity for comprehending the world and extrapolating from what is to what will be, even if that is at least theoretically possible. So much of what was promised for today has either proved to be immoderate speculation, or was displaced by the unexpected.

The authors strongly believe that the future is inherently uncertain, and, assuming that thinking is not delegated entirely to machines, and that places of learning do not become obsolete, then kinds of thinking which help to clear the smog, construct ideas, and ensure their quality are likely to be at a premium. They have the potential to empower and enrich lives, to enable successful engagement with the world, and to strengthen self-reliance and wise action. To support and foster such thinking in students adds to their immediate mental capital, but it can also equip them to cope with the demands of change in the future.

> … see the challenge for teachers in the twenty first century being the fostering of thinking classrooms. They argue that, 'a "thinking classroom" ought to orient every activity in school if we [teachers] are to realize the goals of 21st century reforms . . . after all, thinking is fundamental to being human so, of course, it is central to virtually everything we do, especially in intellectual endeavours such as schooling' (p. 20)

The challenge for teachers in the twenty first century

This is a must read book. It is resource book and a guide for scholars, counsellors and teachers. The authors reported that Gini-Newman and Case (2015, p. 21), see the challenge for teachers in the twenty first century being the fostering of thinking classrooms. They argue that, 'a "thinking classroom" ought to orient every activity in school if we [teachers] are to realize the goals of 21st century reforms . . . after all, thinking is fundamental to being human so, of course, it is central to virtually everything we do, especially in intellectual endeavours such as schooling'.

Newton & Newton (2018) asserted that "calls for students and teachers to concern themselves more with 'deeper' kinds of thought are not uncommon. They often reflect perceived needs of a changing workplace and of servicing national economies. These are, of course, important, but so is life outside the workplace, and such competences – the abilities to collect, process, evaluate information, and to use the outcomes to support the quality of life – are just as relevant in everyday life in a highly complex, rapidly changing, technological society." (p. 20)

In chapter one, the authors addressed the importance purposeful, productive thinking. The list of knowledge and know-how we might need could be a long one. For instance, *Partnership for 21st Century Learning* describes a need for Global Awareness; Financial, Economic, Business and Entrepreneurial Literacy; Civic Literacy, Health Literacy, and Environmental Literacy. Themes like these, however, rely on various kinds of productive, purposeful thought for their efficacy, quality, and utility. They need understanding, creative thinking, critical or evaluative thinking, and wise decision-making if such themes are to be anything other than an accumulation of inert knowledge.

In chapter two, Newton & Newton (2018) contend that developing competence in certain kinds of purposeful thought is a valuable and enduring possession if knowledge is to be an active and

considered part of life. They describe the notion of productive, purposeful thought in formal education for children, youth, and adult learners across the disciplines and levels.

In chapter three, the authors illustrate some ways of engaging students in purposeful thought. Newton and Newton then develop in some detail the particularly economical and popular way of obliging students to think, that is, by asking students questions (Chapter 4).

In the following three chapters, the authors reconceptualise the process of questioning as a strategy that uses an overarching essential question under which lies a series of sub-questions which scaffold thinking, or otherwise help the student to practise and move their purposeful thinking forward. Purposeful thinking is influenced, for better or worse, by the student's frame of mind. For example:

- Explain why an apple floats but a tomato sinks in a bowl of water.
- Explain what caused the fall of the Roman Empire.
- Predict what will happen to the apple and tomato of the water is replaced by a light oil.
- What difference would it have made if Japan had not attacked Pearl Harbour in 1941? (Predictions from current events is an alternative to historical 'prediction'.)
- Apply what you know about electrical circuits to make a model of a house with battery operated lights fitted with on/off switches.
- Apply what you know to diagnose this person's illness.
  (P. 102)

Chapter 5 discusses particular frames of mind with some detailed reference to moods and emotions and how the resultant frames of mind affect purposeful thought. How to make use of frames of mind and, if necessary, manage them in this context, is discussed in Chapter 6 under the concept of emotional design.

> The aim is to have students in a frame of mind which supports that thought. Here, *a frame of mind* is taken to be a psychological state which predisposes someone to think or behave in a particular way. The state is largely a consequence of that person's bodily sensations, prior knowledge and experience, interaction with the world, and the mental processing of these, and it changes as these change. Frames of mind can clearly involve what we describe as feelings, moods and emotions, and we express that when we say that we do feel like doing something, or we are not in the mood to do something. (P. 66)

In order to inform the process of teaching, a student's purposeful thinking needs to be assessed or gauged in some way. This difficult task again often involves questioning, but here it is aimed at eliciting evidence about the effectiveness of students' thinking, a process which can be difficult to mechanize in meaningful and useful ways (Chapter 7). This leads us to some implications for teaching practices if students' competence in purposeful thought is to be a successful part of the formal education template for the future.

Finally, by reference to the widespread practice of questioning and to students' frames of mind, Newton & Newton (2018) draw attention to the need for thought about the serious challenges education faces as digital technology, with its benefits and limitations, advances (Chapter 8).

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Book Review (2):

Schools that Matter: Teaching the Mind, Reaching the Heart

Steve Van Bockern (2018)

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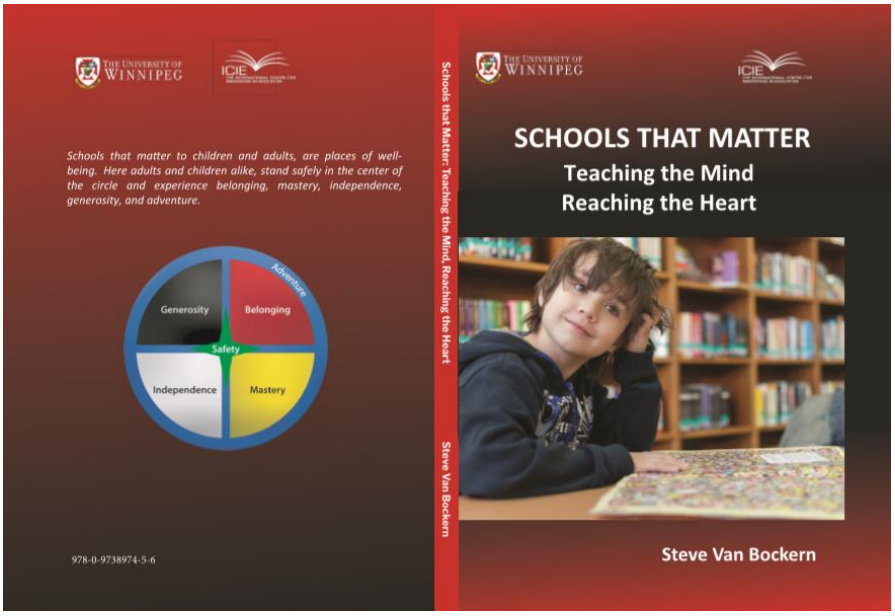

Schools that Matter: Teaching the Mind, Reaching the Heart by Steve Van Bockern offers a holistic approach to establishing learning environments that support the overall well-being of a child. Van Bockern draws from personal and professional experience, sharing teachable moments and opportunities experienced throughout his career as a dedicated and compassionate teacher, administrator, and college professor.

Part I shares the vision of *Schools that Matter*, beginning with useful tools and assessment models available to assist educators in determining the met and unmet needs of a child. The author begins with two key questions: 1) What are the human needs that must be met to experience well-being? and 2) What is well-being?

Chapter one builds a *foundation* by drawing from Indigenous knowledges that embrace education with mind, heart, and spirit and draws on the Circle of Courage (Brendtro, Brokenleg, and Van Bockern, 2002; Deloria, 1998) as well as the conceptual ideas drawn from Abraham Maslow's Hierarchy of Needs (Maslow, 1968), Peter Benson's Developmental Assets (Benson, 2006), and Martin Seligman's work in the field of Positive Psychology (Seligman, 1990). Each resource contributes to a framework declaring the importance of safety, belonging, positive relationships, and generosity in well-being of each child and meeting their basic needs.

Chapter two discusses *belonging*. Van Bockern shares his own experiences of

belonging as a child growing up in a rural community where kinship was valued and neighbours looked after one another. He also offers, with regret and humility, memories of others in the community who did not find such a sense of belonging. In a *School that Matters*, belonging is described as a safe and welcoming environment dependent on a multitude of factors including: staff cohesion, inclusive and inviting décor demonstrating the value of students and their efforts, active responses to address and eliminate bullying, opportunities that welcome and include parents and families, and children who are eager to attend because they feel cared for as a result of meaningful relationships.

Chapter three discusses the importance and relevance of *mastery* in the lives of children. All children are provided with opportunities to thrive through differentiated instruction, subject matter with appropriate scaffolding, and alternative environments. Student assessments and data collection are carried out regularly to determine skill sets and levels of mastery for the purpose of informing future planning that includes input from teachers, students, and parents. Mastery is further developed by teaching developmental skills such as emotional and social skills that help children believe they are capable and competent. Some examples include opportunities for self-assessment, problem-solving, and peer mediation. Work provided to children is appropriately challenging while also encouraging social connections and an element of fun.

Chapter four continues exploring Circle of Courage values with the *spirit of independence*. This is explained as different from self-sufficiency given that this refers to more of an ability to survive independent of meaningful relationships rather than learned independence that comes as an evolutionary process from dependency on loving, caring adults. In *Schools that Matter*, independence is encouraged by empowering students through choice, appropriate freedom, and responsibility. Effective communication occurs between home and school including use of family friendly language in all correspondence that is also mindful of first languages spoken in the home. Students are involved in classroom decisions and the development of expectations, which are regularly revisited for appropriate amendments. Van Bockern articulates the difference – and importance – of discipline versus punishment and the importance of having adults willing to say 'no' as a process of caregiving and maintaining well-being, not for arbitrary or power asserting purposes.

Chapter five concludes part one by sharing the importance of *generosity* in *Schools that Matter*. This is achieved by offering meaningful opportunities to serve each other, the school, at home and in the greater community. Students might participate in opportunities such as sitting on school committee or community boards, peer support programs, mentoring or child-care opportunities, or other leadership roles found to be meaningful and relevant to student interests, talents, passions, and learning. A general atmosphere of optimism and hope is established through teaching rituals and ceremonies that create familiarity through established traditions. Adults model generosity and offer guidance and nurturing by ensuring praise and rewards are genuine and by demonstrating care for themselves as well as others.

Part II begins with an assessment of biases and perceptions to consider both before and after reading the chapters that follow. The remainder of the book offers opportunities for reflection and consideration of existing strengths in current teaching practices and engagement in strategies that may lead to further development and improvement of future teaching practices.

Chapter six introduces the idea of *cultural tales* and the biases that are brought into the classroom as a result of life's influences and individual's lived experiences. Van Bockern explains the cultural tale as the story of our past and present – influenced by our cultural heritage, life-experiences, and genetics. This may offer explanations for certain belief systems and patterns of behavior that are learned as we grow-up in our homes and communities. The caution is to create self-awareness of such biases and how they influence our interactions with students, parents, and colleagues. A list of values and examples are offered as examples of ways tales might get in the way of a child's learning if educators are not mindful.

Chapter seven enters into the realm of *emotions* and the importance of *self-awareness* in how we engage, or more importantly disengage, in conflict situations. Various factors

are visited in consideration of emotion-based behaviours and responses reflecting the importance of trying to understand the source of a child's emotional pain. Attention is also paid to how life circumstances can influence behavior and reactions to distress. It is necessary for educators to recognize conflict, learn how to manage their own emotions, and understand how to break the conflict cycle in a manner that will support problem solving and provide growth opportunities for themselves and students.

Chapter seven concludes by articulating the importance of *taking care of our emotional selves*. This is important not only for the health and well-being of ourselves, but also for the maintenance of healthy interactions with children. Taking care of ourselves requires work that Van Bockern states is "dependent on social connections, developing talents, claiming our power, and giving back to others" (p. 80), all of which are offered as contexts of belonging, mastery, independence, and generosity. Given that teachers are expected to model behaviours expected of children, it is suggested that taking care of ourselves puts us in a better position to care for our students and help them to do the same.

Chapter eight explores best practices, which are described as the things teachers do to help a student experience belonging, mastery, independence, and generosity. The importance of creating non-threatening learning environments is discussed, particularly concerning students who have may have experienced trauma. Understanding the implications of acute or complex trauma on learning can help educators develop informed practice that establishes safety and reduces stress- or fear-based reactions. Simple strategies for creating non-threatening environments are shared including calling students by name, offering regular greetings, creating inviting physical space co-developed with students, and establishing consistent routines that help students with expectations and predictability.

This chapter also includes a *caring, clarifying,* and *creating solutions* approach to managing conflict or emotional-breakdowns. *Caring* is offered as the preventative connections that take place before experiencing a conflict situation. It is the development of relationships that demonstrates authenticity by knowing a student's name, pointing out strengths, and showing interest. This develops a pattern of genuine interest in the child that will be beneficial in case of conflict. *Clarifying* is stated as understanding the problem from the perspective of the child. This can be achieved by asking questions that help to create a timeline of events and being sure to convey understanding both for clarity and for opportunities for the child to provide correction if needed. *Creating solutions* is the attempt to find mutually agreeable solutions to problems (that are able to be solved or "fixed") by involving all parties who were engaged in – or affected by – the conflict. At times, further communication is necessary with other classmates to help debrief or explain a situation that has created stress or confusion while still maintaining appropriate rights to privacy.

Chapter eight concludes by offering strategies and techniques that encourage interactions that contribute to *enriched social environments* where students engage with each other in a community of learning that values everyone's participation and contributions. Offering opportunities for students to gain experience through service learning can contribute to moral development and increased responsibility and self-esteem.

Chapter nine builds on the already discussed components of the Circle of Courage by adding *safety* and *adventure*. Van Bockern suggests finding the right tension between these two bio-social drives will allow students to feel safe while also encouraging growth and development that can be experienced through risk-taking. *Safety* can be encouraged by creating schools with a culture of non-violence, which reduces acts of bullying and aggression. Creating safe environments for our students includes practices such as maintaining positive expectations, using cooperative learning methods, instilling pride, offering genuine praise, and always treating children with dignity. *Adventure* embraces opportunities and activities that run with a level of risk and/or danger. This might involve outings where children go sailing, climb mountains, or spend a night camping in the woods. Such adventures also provide opportunities for talent spotting and development.

Chapter ten concludes *Schools that Matter* by presenting a model that includes the

four components of the Circle of Courage: belonging, mastery, independence, and generosity. The model also includes safety at the centre because it is connected to all other fundamental needs. Model elements are wrapped in adventure, which offers opportunities to connect with others, build skills, manage challenges, include and care for others, and develop strategies for self-control. Van Bockern recognizes that there is no one-size-fits-all solution for meeting all the needs of students and teachers, but suggests that schools equipped with competent, self-aware, and self-motivating adults and teachers, who share a vision of a school that builds wellness in children, will help ensure human needs are being met.

Schools that Matter is an excellent practical guide for new and veteran teachers alike. This book serves as a "how-to" manual for creating meaningful relationships in a classroom environment striving to build efficacy, citizenship, and critical thinking skills in tomorrow's leaders. Van Bockern's approach of sharing personal stories and experiences invites readers to create a connection that shares in childhood experiences and professional learning that offer an element of humour while also serving as a cautionary tale for those early in their career as he identifies common pitfalls in the classroom such as power driven conflict and discipline measures. The inclusion of teacher wellness is a refreshing inclusion of an often absent conversation. For veteran teachers, it serves as a reminder of the powerful impact a positive and empowering school community can have. Van Bockern's methods provide a recipe for reflective practice that encourages all educators to engage in practices that teach the mind and reach the heart.

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