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A thesis submitted in partial fulfillment of the requirements for the Doctor of Philosophy degree in Education

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**FOSTERING CREATIVITY: ONTARIO TEACHERS' PERCEPTIONS,
STRATEGIES, AND EXPERIENCES**

(Thesis format: Monograph)

by

Catharine Dishke Hondzel

Graduate Program in Education Studies

A thesis submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy

The School of Graduate and Postdoctoral Studies
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Abstract

This study provides a broad overview of perceptions elementary school teachers hold regarding creativity, the strategies those teachers use to foster creative thinking and behaviour in their students, and the environmental challenges and opportunities they navigate when striving to develop 21st century skills in students. Earlier research examining teachers' perceptions and creativity-fostering behaviours have typically asked teachers to describe their classroom practices, or self-report their perceptions regarding creative children or children's creative actions. Using a mixed-methods approach, in this study 22 Grade 5-7 teachers working in Ontario completed an online questionnaire which measured their creativity-fostering behaviours. Following the survey, 12 teachers were interviewed and allowed the researcher to observe their classroom and collect field data. Analysis of data reveals major themes that illuminate the dynamic and interconnected nature of the classroom and school environment, and demonstrate the multifarious ways in which teacher perceptions, creativity-fostering strategies, and uncontrollable environmental factors, such as administrators, colleagues, and EQAO testing influence teachers' attempts to sustain a creative classroom environment.

Keywords: Creativity, Creativity Fostering, Teachers, Education, Mixed Methods, Standardized Testing

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Chapter 1: Fostering Creativity: Ontario Teachers' Perceptions, Strategies, and Experiences

“Creativity is just connecting things. When you ask creative people how they did something, they feel a little guilty because they didn't really do it, they just saw something. It seemed obvious to them after a while” – Steve Jobs

Creativity is one of the key aspects of humanity. Though it remains an elusive and imprecisely defined concept, researchers, teachers, and politicians recognize that creativity is one of the key elements of life satisfaction, a motivating factor in learning, as well as a driver of innovation and economic productivity. When creativity is fostered in educational contexts it can inspire and support student success, increase personal and social engagement through learning, and lead to greater student satisfaction and higher levels of self-efficacy (Robinson, 2011). When creativity is not fostered, individual development may be diminished or misdirected, leaving a sense of self and personal achievement in doubt. This dissertation study examines the experiences and perceptions of teachers with regard to their scholastic creativity-fostering behaviours. We know that teachers balance innumerable demands in the classroom setting – paying attention to creativity is just one component of a full range of activities that demand their time. Through methods that include scale measurement, interviewing, and observing teachers as they work, this study provides a comprehensive exposition of teachers' perceptions, beliefs and behaviours related to fostering creativity in the current climate of elementary classrooms in Ontario. The findings and results of this study inform our understanding of positive and not-so-positive teacher behaviours, provide insight into educators' attitudes toward creativity, and expose some structural and environmental issues in schools that may or may not act as barriers to fostering creativity.

Introduction to the Chapter

Chapter 1 presents an overview of the background and purpose of this study. Relevant to recent work outlining essential skills for the 21st century, this chapter outlines the rationale and theoretical grounding on which this study of teachers' creativity-fostering behaviours is situated. Following statements of the problem and purpose, the theories of situated cognition and experiential learning are presented in historical context and in relation to the needs of today's learners. Drawing from this theoretical grounding, the epistemological framework sets out the research method and approach taken to investigate this subject. The epistemological framework references the foundational theories of situated cognition and experiential learning. Research questions are listed following the discussion of theory.

Statement of the Problem

Several studies have attempted to examine the ways in which teachers foster creativity in the classroom, but none have used a mixed-methods design to measure teacher behaviours, and further scale and triangulate those results with interviews and classroom observation. Previous work on this topic indicates that there is a significant gap in our understanding of what perceptions teachers hold of their role in fostering creativity, and that many teachers misunderstand or hold negative perceptions about creative students. Whether or not these misunderstandings exist in the minds of Canadian teachers is unknown, as no Canadian investigation of this sort has been published. In order to improve education and promote children's opportunities to nurture their creativity, it is first critical to develop an understanding of teachers' perceptions and catalog teachers' experiences concerning how creativity is fostered.

This research is also driven by the need to further examine the role of 21st century skills in public education. Twenty-first century skills refer to a framework for learning put

forth by education researchers which attempts to classify the competencies children should have in order to be prepared for the future. The social environment children will need to be prepared for in adulthood include a shifting and dynamic global economy; the need to readily and easily adapt to new technologies; the rise of knowledge work over physical work; being prepared for globalized, multi-cultural cities; ideas, and taking on positions of leadership (Bellanca & Brandt, 2010; Trilling & Fadel, 2009). Though a full exploration of 21st skills falls outside the scope of this report, creativity and innovation fall within the parameters of the skills children will require to be successful as adults (Bellanca & Brandt, 2010; Trilling & Fadel, 2009, Wagner, 2012). Skills associated with creativity allow children to use, create, refine, analyze, and evaluate a wide range of ideas in order to improve and maximise creative efforts (Trilling & Fadel, 2009). Behaviours that have been categorized as creativity-oriented 21st century skills include: communicating effectively, responding to new perspectives, and recognizing failure as an opportunity to learn. Creativity is a cyclical process of small successes and frequent mistakes (Trilling & Fadel, 2009). In order to prepare students to be successful in the future, school administrators and teachers must understand and prioritize opportunities that allow students to become self-directed and creative learners, capable of independent work and clear communication.

The environment can provide a challenge and an opportunity for teachers to foster creative development in their students. The school's structure, size, location and administration mediates the elementary teacher's relationship with his or her students and influences the lessons and projects the teacher considers ideal and implementable. One of the demands teachers face is the administration of standardized tests in their classroom. In Ontario the Education Quality and Accountability Office (EQAO) measures student achievement through standardized assessments in Grades 3, 6 and 9. Though EQAO testing

in Ontario has not been studied with explicit reference to creativity, several studies have taken place in the United States which have examined the ways No Child Left Behind (NCLB) testing practices have shaped the classroom environment. Most have found that teachers feel pressure to prioritize test preparation to the exclusion of creativity-fostering activities (Crocco & Costigan, 2007; Geist & Hohn, 2009; Kymes, 2004; Longo, 2010). Based on the literature examining NCLB policies there is evidence to support an investigation regarding whether preparation for EQAO testing in Ontario is sometimes emphasised over the development of creative thinking and problem-solving skills in children. The topic of standardized testing and creativity is therefore important to explore in reference to how creativity-fostering behaviours are demonstrated by teachers.

Statement of the Purpose

The purpose of this study is twofold. The first and broadest part of the examination is to investigate creativity-fostering behaviours in teachers. This was done by gathering information from teachers about their perceptions of creativity, the strategies they used to foster creativity in their classroom, and by observing their behaviour in the classroom environment as they interacted with their students. The secondary investigation within this study is intended to explore the environmental opportunities and limitations teachers identify with regards to their self-perceived ability to foster creativity. This environmental scan includes a summary of the kinds of resources and support teachers identify themselves as having, as well as an investigation of teachers' perceptions of the impact standardized testing has in the classroom and in the school.

Conceptual Framework

The knowledge, beliefs, and practices of teachers and students regarding creativity are nested within, and affected by, several distinct systems. Teachers are shaped by their own

education and life experiences, the context of their classroom and students, and by the larger ideologies and practices of the school, governing board, provincial accountability standards, and country (Woolfolk Hoy, Davis, & Pape, 2006). Students in turn are influenced by the contexts in which their teachers live and work, as well as their own life experiences, family environment, cultural norms, and needs. The reciprocal relationship that exists between teacher and student is not a unidirectional discourse of exclusivity, but is an association of mutual influence with permeable boundaries. This study aims to examine experiences and perceptions of teachers, because they are important to understanding the classroom environment and intends to reveal which curricular (or non-curricular) elements are given the most attention and highest priority. By investigating the perceptions of teachers with explicit reference to creativity, it is anticipated that a better understanding of classroom and school environments, as well as the lives of learners can be gleaned.

This study will draw upon two theoretical perspectives: situated cognition and experiential learning in order to conceptualize how teachers create effective learning environments and foster creative behaviours in their students.

Situated cognition. The theory of situated cognition rests on the core belief that human thoughts and behaviours are sophisticated and process information efficiently, dynamically, contextually, and on a moment-to-moment basis. Cognition does not exist for its own sake, and does not operate exclusively through static representations which describe external realities such as prototypes, stereotypes, and the like (Guinote, 2008). In a tangible sense, this means that, "instead of building up detailed internal models of the world that require continuous and costly updating, it pays to look up relevant information from the world on an as-needed basis" (Robbins & Aydede, 2009, p. 7). This requires that individuals draw on environmental cues, cultural expectations, accessible sensory information, relevant

schemas, and previous conditioning (rewards/punishments) to make decisions and solve problems. Situated cognition¹ refers to the mental processes by which we create thought, beyond a specific location such as a laboratory setting. All learning is situated in a dynamic environment, directly and indirectly influenced by prior experience, environmental demands and constraints, knowledge, abstract representations, and unique mental models (Clancey, 1995). Many methods of didactic teaching assume a cognitive separation between knowing and doing—treating knowledge as integral and self-sufficient, independent of the situations in which it is learned and used (Brown, Collins & Duguid, 1989; Robinson, 2011).

Situated cognition gained recognition in the field of educational psychology in the late twentieth century, but the roots of thought related to the development of the theory rest on Dewey's so-called Copernican revolution in psychology (Bredo, 1994; Dewey, 1900). Revolting against one-sided educational positions, that had some claiming that education should focus exclusively on the social world, or on humanities, or on the world of nature and sciences, Dewey sought to challenge this "childish quest for certainty" (Bredo, 1994, p.24) and reconcile arts with sciences when appropriate and work toward an integrated process of education as theory situated within practice (Dewey, 1900). Dewey was concerned with the role of the social world in education, as well as the lack of applicability of formal educational teachings, especially those that deliberately ignored the extension of theory to practice. Comparable to the work of Darwin, Dewey's pragmatism recognized the myriad ways individuals were shaped by the demands of their environment, responsive to situational differences, and able to adapt to new and unique problems (Berliner, 2006). This is also a precursor to systems thinking — a way of studying events and experiences holistically, and

¹ Situated cognition is sometimes referred to as situated learning. A discussion of the nuanced philosophical reasons for the two terms will not be included here, as the terms are frequently used interchangeably. A clarification of differences in technical usage and additional references can be found in the footnotes of Wilson & Myers (1999).

understanding that the causal dependencies and emergent processes among elements comprising a system are dynamic and reciprocal (Clancey, 2009). Systems thinking developed in the 1940s and 1950s, and it then became more common that principles of biology, physics, and engineering influenced the social and behavioural sciences, placing emphasis on dynamic change and interdependent processes (Clancey, 2009).

Recognizing the same human nature as Dewey, Vygotsky states in his epistemological position (*dialectical historical materialism*) that development and creativity are composed of and influence each other within and across people's cognitions and lived experiences (Vygotsky, 1997). The world, then, is comprised of a series of processes which is always undergoing changes, instead of a collection of static, stable images and objects (Vygotsky, 1997). Adopting this epistemology allows us to also identify the nature of learning as one defined by contextually situated reciprocal interactions. This reinforces and defines the essentially social nature of cultural acquisition, and acknowledges that social situations, group learning, and the influence society and experience have in shaping problem-solving and innovative thinking are intrinsic to human nature, and inseparable from cognitive patterns and behaviour (Moran, 2010; Sternberg & Williams, 2010). Building on the role of experience in shaping learning, Vygotsky emphasised the importance of the expert in providing real-life examples and situations for a learner while supporting learners as they produce their own new understandings and then providing ever-decreasing levels of support and guidance until a student is able to succeed on his or her own (Sternberg & Williams, 2010). This dynamic process between expert and novice sets up a coordinated, and ultimately socially-mediated, learning situation wherein theory, practice, experience, and cognition contribute to knowledge formation and extend creative tendencies in both the teacher and learner. Creativity emerges from this complex interaction between and within processes.

Creativity, as the development of novel and useful ideas, requires recognition of what novelty is, an understanding of culturally-valued utility, and successful adaptation to community needs and norms. Through the dynamic learning situation, creativity, in the form of a skill, trait, or disposition develops.

Vygotsky's interpretation of activity theory (1978) further reinforces the interconnectedness between learning and knowledge while placing emphasis on the tangible mechanisms by which actions shape learning. His theory proposes that the activities of the mind are inseparable from overt behaviour as well as from the social context in which they occur. The systems of the mind are thus embedded within each other in a continual series of dynamic, reciprocal interactions, without clear delineations between the perceptual and physical coordinating processes of the brain (Clancey, 1995). It is clear that strong parallels exist between how Vygotsky understood the development of human knowledge in the course of activity, and how cognitive theorists delineate the role of relational individual representations and cognitive structures (Garrison, 1995).

Situated cognition has several names reflecting this move away from prior theories of cognition and behavioural conditioning to a new, more all-encompassing and holistic model. Robbins and Aydede (2009) refer to it with terms such as "embodiment, enactivism, distributed cognition, and the extended mind" (p.3). Each term and theorist shaping the move from traditional cognitive models has added and changed the definition of what it means to be 'situated' in a way of thinking and learning. The development of situated cognition as a theory is multi-disciplinary, and relies on the collection and understanding of human behaviour and learning from fields as diverse as anthropology, sociology, cognitive science, neuroscience, linguistics, and psychology (St. Julien, 1997; Wilson & Myers, 1999). This approach allows for the infusion of cultural relativism within the spectre of human

development, cognition, and language use, and provides direct insight into a comprehensive and holistic way of understanding the human mind. One major focus of situated cognition has been the direct critique of how our understanding of the ways we process information is misused in everyday settings, such as within schools and formal educational settings. Much like the laboratories where the intricacies of memory and problem-solving are examined without outside influence, schools have been critiqued as places assumed to be neutral — grounded apart from the real world and where problems are solvable and answers available from the back of the book or the instructor (Wilson & Myers, 1999). Knowledge transfer between domains is ignored in favour of domain specificity, which limits convergent and creative dialogue between areas. This is correctable by acknowledging that our understanding of learning and education must be grounded in the real world, where students are given the opportunity to physically engage with and manipulate idea-relevant details. Students (regardless of age) should be given the opportunity to learn in relevant, applied contexts where information is shared between communities of practice. By making tools and artefacts of culture manipulable, students who have a variety of learning styles and/or learning challenges, can engage with processes in order to see, feel, and experience how information fits into the physical world. Through effective educational practices that recognize the way cognitions are shaped both inside and outside of the formal educational environment, students develop an appreciation of history, scale, interactions, and their own identity (Wilson & Myers, 1999).

Experiential learning. Experiential learning theory states that knowledge is created through the transformation brought about by experience (Kolb, 1984; Mainemelis, Boyatzis, & Kolb, 2002; Martinez Casanovas, Miralles, Gomez, & Garcia, 2010) and delineates an applied means by which learning through a process of situated cognition may take place. It

can also be understood as learning that occurs when the dimensions of *content*, *incentive*, and *interaction* are balanced, such that learners are connected to each other and able to make sense of new information or relate ideas with or without the direct pedagogical instruction of an instructor (Fenwick, 2000; Illeris, 2007). Dewey described learning as an active individual process that takes place when learners are given the opportunity to reflect on a series of consequences (Kuhlthau, Maniotes, & Caspari, 2007). This process has been argued to help individuals make sense of the world and become actively engaged in their learning (Kolb, 1984; Kuhlthau et al., 2007). The activity of personal meaning-making and information gathering relies on the engagement of students in order to actively gather and interpret information, simultaneously providing them with the opportunity to gain skills and concepts, which then allows them to learn throughout life while experimenting with and developing innovative and creative thought processes.

To be labelled as experiential, learning processes and outcomes must be part of a process of continuity and interaction, and must to some extent be learner-controlled and involve a connection between the learning environment and the broader culture (Illeris, 2007). This learning form is broadly applicable in a range of educational settings, including but not limited to formal schooling, workplace environments, community training facilities, and social groups. Ultimately, the experiential learning model provides a framework for examining and strengthening the critical linkages among education, work, and personal development, with emphasis on the relationships that develop between the classroom and the outside world (Kolb, 1984). The theoretical traditions that inform experiential learning theory include the work of John Dewey, Kurt Lewin, Carl Rogers, and David Kolb.

The functionalist concerns of John Dewey “are as relevant today as they were 100 years ago when they were forcefully brought to the attention of educators” (Berliner, 2006,

p.13). As stated earlier, the work of Dewey articulated the guiding principles of experiential learning and situated cognition, recognizing the intrinsic relationship between cognitive functioning and a dynamic environment. Though his theories with regard to pragmatism and instrumentalism are critiqued by those opposed to the vocationalization of education, and as antithetical to the nature of pedagogue-structured knowledge acquisition, his overarching philosophy represents a shift away from the specified and predictable nature of structuralist thought, to an embrace of the role of the individual as a whole within a fluid, transactional environment (Garrison, 1995; Price, 1967). The influence of Dewey's work cannot be understated, and can also be argued to fall within the paradigm of social constructionism (Garrison, 1995). Dewey's understanding of social constructionism closely mirrors that of Vygotsky, but also lends influence to the pioneering work of Kurt Lewin, whose work is perhaps wider in terms of scope, offering a broader understanding of group dynamics, including how learning environments are shaped by their participants (Kolb, 1984).

Lewin's field theory and work on group dynamics proved significantly influential to the domains of social and educational psychology. His position that theory and practice must at all times be integrated, and that a dynamic approach and systematic method be used to reflect on and analyze the success or improvements required through the process of learning, collaboration, and understanding the roots of social behaviours, is significant (Kolb, 1984; Shaw & Costanzo, 1982). The foundation of experiential learning is built on a sophisticated understanding of human behaviour and social psychology — that individuals interact within a field that is not static, but understood as influential in different ways to the participants depending on their own life experiences and prior learning. The learning environment must be tailored to respect and integrate the prior knowledge of students with the ultimate goal of positive social development with emphasis on subjective experience. This knowledge should

prompt leaders and teachers to create environments for learners that encourage their engagement in a subjective process of inquiry and understanding, which leads to creative behaviours. Lewin put forth the equation $B = f(P, E)$ which serves to both define and delineate the dynamic social and environmental ways in which individual behaviour is influenced by the 'gestalt' or the whole of the field ("the object and the situation") (Lewin, 1931, p. 165). Lewin's equation suggests that researchers attend to the dynamic ways in which people are influenced by, and reciprocally influence, the environments they inhabit.

Carl Rogers' research and writing on the personal meaning of experiential learning and recognition of personal change and growth are important components of both effective learning environments as well as our modern understanding of positive, affirmative, innovative classrooms. Rogers distinguished two types of learning: cognitive and experiential. He argued that cognitive learning refers to facts and information a student acquires, such as important dates and multiplication tables, and experiential learning applies this information in a personally involved, self-initiated way with pervasive personal effects (Combs, 1982; Rogers & Freiberg, 1994). Believing that all humans have a natural desire to learn, Rogers argued that the role of the teacher is to facilitate learning through the setting of a positive climate, having an accurate understanding of the learner's needs, making appropriate resources available, sharing emotional experiences, and balancing both the intellectual and experiential components of learning (Rogers, 1954). Emphasising the adaptive components of socio-emotional development, Rogers provided a holistic framework for describing and understanding the attitudes, feelings and emotions of students in learning environments (Combs, 1982; Kolb, 1984), which, if implemented, would provide students with the opportunity to self-reflect, engage with learning materials, and understand their own abilities and creative talents. Rogers also emphasised the need for an appropriate

environment to stimulate creativity, drawing on the need for an open, inclusive space with ample support and room for trial and error in order to allow students to reach their fullest creative potential (Lubart & Georgsdottir, 2004; Rogers, 1954). The themes and concepts brought forth by Rogers are echoed by Cromptley's creativity-fostering teacher behaviours (Cromptley, 2001), which are discussed in Chapter 2.

David Kolb's experiential learning theory of development presents the most comprehensive description of how students learn by experience through the transactions that occur between a person and the environment (both physical and social). Based on a model similar to that of situated cognition, the theory proposes that the processes of learning from experience are context-dependent and shaped through cycles of integration and differentiation in development (Kolb, 1984). Learning is thus exemplified as a series of interdependent processes, growing and changing as the individual's mental functions mature and greater understandings become implicit. Critical experiences throughout learning that involve the shaping of new ideas and achievements are internalized, providing a scaffold for creating new ideas to further intellectual and personal development. Problem solving under experienced peer or adult guidance provides a framework for the identification of personal and global rules and truths, while allowing the individual learner to shape and construct the cognitive formations that form the basis of that understanding (Kolb, 1984; Moon, 2004). Kolb's experiential learning theory of development draws strongly from ecological theories of development, which stress the adaptive nature of human functioning, and the plastic nature of cognitive wiring that permits the formation of divergent thoughts and creative idea generation.

Epistemological Framework

The methodological approach for this research project is strongly influenced by Kolb's experiential learning theory (Kolb, 1984) and embraces the interactionist perspective that learning is shaped and created by individuals, such that "knowledge results from continuous construction, since in each act of understanding, some degree of invention is always involved" (Piaget, 1970, p.77). Bredo (2006) further clarifies the term interactionism by proposing that this form of "weak constructionism" (p.5) is demonstrated in all of human behaviour, as thinking alters action, which subsequently affects our relationship with the external world. An individual's future sensory input is then influenced by both internal and external factors, changing both thoughts and subsequent behaviours. Cognitively, the interactionist perspective is aligned with the theory of situated cognition, which posits that our brains process information dynamically and contextually, naturally making connections between related ideas while being influenced by past events, memories, and the demands of the current situation (Robbins & Aydede, 2009). To understand cognition from the perspective of situatedness is to recognize and accept that myriad reciprocal interactions continuously shape how we acquire knowledge and interpret situations. Knowledges are formed when we interact with new information, interpreting and assimilating it into our existing mental and cognitive structures; "further, the physical and social contexts in which learning occurs become intrinsic elements of that learning" (Rex, Steadman & Gradiano, 2006, p.740).

Bredo's model of "weak constructionism" can also be referred to as *perspectivism* — the view that all knowledge claims and their evaluation take place conceptually within a framework where the world can be described and explained (Bredo, 2006; Fay, 1996). Within a social context, this can be understood ontologically as the acceptance that reality is

constructed individually, but can be traced to an underlying pattern or theory. Thus all tenable statements about existence (or our recollections about our own behaviour within what we perceive to be existence) depend on a worldview which cannot be empirically or objectively determined, but can be reported through the aggregation of shared ascribed meanings (Patton, 2002). This perspective is necessarily weaker than that of 'strong' social constructionism, whose proponents argue that the world is inherently unknowable, and that there is no way of understanding the arbitrary and relative ways individuals interact with their social environments (Jost & Kruglanski, 2002). The standpoint of this study rests more closely on the assumption that teachers have the ability to discuss and explain their own truth from a perspective of socially-mediated reality, and that from this discussion a reasonable understanding of each person's beliefs and behaviours can be reported. Epistemologically, there is no underlying assumption of strictly rule-guided behaviour, but there is a conscious recognition that individuals behave in particular ways for personal reasons, and that some of those reasons are knowable, and transmittable to others through an awareness of self, familiarity with a specific social culture, shared understandings, descriptive language, and open-ended reflective discussion (Denzin 1997; Schwandt, 2000).

By using a weak social constructionist perspective, the researcher acknowledges and describes the multiple realities teachers construct, and the implications of those constructions for teachers' lives and interactions with others (Patton, 2002). As discussed by Longino (1993), the ideological values researchers hold are tied to sociocultural practices and interwoven with empirical ones in the process of scientific inquiry. To deny prior knowledge of a phenomenon, or claim that there are no underlying assumptions of prior knowledges denies the lived experiences and cognitions of both the researcher and the participants. In order to enter into a research environment it is crucial to be cognizant of the predisposing

cultural biases and response patterns, while acknowledging that these are constructed within a personal frame of reference. The context of the environment in which all participants are situated influences and directs the way information is collected and interpreted. Taking a social constructionist perspective allows for permeable boundaries between new and old knowledge, and heeds the historical caution that methods and structures used to develop new knowledge (especially in the social sciences) have roots that stretch back to an empirical framework and traditional methods of scientific inquiry.

There is recognized controversy over the use of a constructionist framework (no matter how weak) to collect scientific data using quantitative scales (Smith, 2006), which is one of the data collection methods used in this study. Scales and observational checklists typically fall under the framework of positivism and demonstrate an expectation that the researcher is separate from the participant. However, researchers (see Maxcy, 2002; Smith, 2006) have concluded that more than one method can be appropriately used, regardless of founding epistemology, as long as the purpose is to collect information to inform the literature and promote the right action. It is this later definition that categorizes this study. Ultimately, this approach is the one best suited to the investigation of the proposed research questions, and provides a comprehensive framework from which to interpret and understand the responses teachers provided in discussing their creativity-fostering behaviours.

Research Questions

Guided by the theoretical and epistemological frameworks, the aim of this study is to answer the following three research questions:

1. What perceptions regarding creativity do teachers have?
2. What specific strategies do teachers demonstrate in order to foster creative behaviours in their students?

3. What environmental factors influence teachers' desire or ability to create and maintain a creativity-fostering classroom?

Summary

In order to understand and faithfully capture the perceptions, strategies, and environmental variables that affect the lives of teachers, this study adopts the theoretical framework of both experiential learning theory and situated cognition, guided by the epistemological approach of social constructivism. Drawing on recent research and writing that argues for the deliberate inclusion of 21st century skills in public education, this study aims to investigate the nature of creativity-fostering behaviours and perceptions in teachers, while concurrently identifying the environmental factors which influence teachers' attempts to develop and maintain a creativity-oriented classroom atmosphere. The following chapter will outline the work that has already been conducted in the area, as well as the major gaps in our understanding of this topic.

Chapter 2: Review of Related Literature

The literature review summarises relevant empirical research in the area of creativity and education. First, the terms creativity and innovation are defined in relation to their positive learning and health outcomes. Second, literature examining creativity and education, including programs, and teacher behaviours that foster creativity, will be examined. Lastly, teacher behaviours and structural barriers teachers face when attempting to foster creativity are discussed.

Introduction to Creativity

Defining creativity and innovation. Creativity is a central element of human nature, yet the word is frequently confused in common language (Moran, 2010; Runco, 2007). As a society we use the term to refer to acts of creative work such as paintings or theatrical performances, but we also relate it to manners of dress, personal expression, and at times lack of social conformity (Moran, 2010). As theories of creativity evolve, the emerging consensus among psychologists has been to define creativity as a novel yet appropriate solution to a problem, or response to a situation (e.g. Amabile, 1996; Feldman, Csikszentmihalyi & Gardner, 1994; Moran & John-Steiner, 2003; Runco, 2007; Sternberg 1999). For the purposes of this investigation, Runco's (2007) expanded definition offers greater precision. He states that creativity is a uniquely human trait that reflects our ability to adapt to changing circumstances and our effective cognitive abilities to combine and improve upon ideas to which we are exposed (Runco, 2007).

Creativity is considered the primary source of innovation, which is an essential tool in addressing global challenges such as health care reform, climate change, and sustainable growth. It is needed in order to promote social cohesion and well-being (Andiliou & Murphy, 2010). However, creativity can be differentiated from innovation by defining creativity as the

process of thinking new things, whereas innovation reflects the applied product, or the process of doing new things (West & Rickards, 1999). Within the context of education, both constructs complement the development of well-rounded, competent, and effective learners. Moreover, creativity is not purely a cognitive phenomenon associated with high intelligence, but a motivational, emotional, and intellectual approach to learning that all individuals can embrace (Cropley, 1992). Throughout this report the words creativity and innovation will be used synonymously.

Creativity, learning, happiness, and prosperity. The exact knowledge we will need in order to be successful in the future is difficult to predict, however it is clear that as technology develops, social norms change, and the global economy shifts, individuals will need to be prepared to successfully navigate complex and ill-defined problems in a shifting environment (Beghetto, 2010; Florida, 2002; Friedman, 2005; Moran, 2010; Wells & Claxton, 2002). As discussed earlier, the ability to think creatively and innovatively is a core component of 21st century skills; critical to learning, life, and career skills, as well as effective communication and collaboration (Bellanca & Brandt, 2010; Trilling & Fadel, 2009). Creativity is an adaptive component of life, one that prompts divergent thought processes, problem-solving, and applied ingenuity.

When individuals regularly participate in activities that engage creative, innovative, and imaginative cognitive processes, they self-report higher levels of overall happiness and well-being (Cassandro & Simonton, 2003; Cloninger, 2004; Csikszentmihalyi, 1990; Maslow, 1968; May 1975). Self-reported happiness and well-being are related directly to lower incidences of health problems and optimal mental and physical functioning (Cloninger, 2004; Cloninger & Mengert, 2010; Diener, 2000). Individuals who demonstrate creative behaviours have the ability to express ideas and impulses without fear of criticism, and thrive

in environments that allow for psychological freedom, they are able to recognize appropriate limits, and can identify and produce novel, interesting ideas, and objects (Cassandro & Simonton, 2003). This psychological freedom supports the generation of creative ideas, of positive interpersonal relationships, and moves us away from limited ideas about domain-specific creativity – the misguided conception that creativity is only demonstrable by the especially talented musician, artist, or athlete. An understanding of creativity from the perspective of well-being justifies the study of creativity in its many forms, and serves as an impetus to learn more about the ways that creative behaviours and dispositions can be nurtured and supported in more environments.

Though the study and promotion of creativity as a means to enhance well-being and happiness is a noble goal, it has also been recognized that students who demonstrate their creativity are able to access and utilize ideas in multiple ways. These students are able to recognize the cross-fertilization among ideas, topics, and skills, and are able to engage more readily in activity, leading to higher achievement as well as feelings of personal self-efficacy (Beghetto, 2006; Moran, 2010). In this sense, creativity is one of our ultimate human resources, and can be considered a form of human capital, an asset, because our own personal creativity can lead to higher workplace capacity, greater problem-solving abilities, and stronger economic output. Human capital refers to the specific skills and knowledge which enter into the productive process, including the competencies and commitment of individuals within an organization (Schultz, 1961). Human capital is directly related to the concept of ‘social capital’, which takes the perspective that the lives and behaviours of individuals are tied to the culture and the social systems within which they live. It is the interaction of the individual, culture, and social systems that bring about transformation to society and it is the socio-cultural environment that influences what and how ideas are expressed (Rudowicz,

2003). Within the study of creativity, this perspective allows us to better conceptualize the myriad ways the environment can influence how creativity is experienced and expressed.

Runco (2007) also states that this ability to develop new ideas and better ways of doing things will eventually raise living standards and overall economic productivity. A society rich with creative capital leads to improved socioeconomic factors, and contributes to increased standards of living, greater personal freedom, and global equality/prosperity (Council of Canadian Academies, 2009; Manley & Lucas, 2010; Ministry of Research and Innovation, 2008). In order to reap the social and economic benefits of creative and innovative abilities, students must first be encouraged to think creatively and experience the intrinsic rewards of creative behaviour.

Creativity and education. The concept of creativity and its purpose and place in education has arisen all around the world, but is of particular academic interest in developed countries and industrialized nations where technology and ingenuity are of paramount importance to continued and ongoing prosperity (Aud, McCammon, & O'Farrell, 2007). Educators, parents, employers, and policy-makers realize that only by being creative will we be able to address the problems of the future, including education, health care, the environment, and the economy. Creativity is one of the key factors that drive civilization forward (Hennessey & Amabile, 2010). Many researchers have closely examined the role of creativity in society and in education, and have put forth reasons why creativity-fostering behaviours are important. Others have examined the influential nature of teachers' perceptions of creativity, as well as the role of standardized testing in the classroom and the effects it has on teachers' ability to foster creative and divergent thought.

Though creative potential and products fill an economic and industrial need, creative and innovative individuals are required for the sake of improving our communities and

addressing pressing problems. Creativity may also benefit student engagement and improve student achievement, allowing and encouraging cross-fertilization among ideas and subject areas — all of which promotes self-initiated learning (Moran, 2010). This social and dynamic process encourages students to think of solutions to problems in applied, experiential ways, and capitalizes on learners' innate capacities to construct new ideas from experiences.

Drawing from theories of situated cognition, this aligns with and promotes our natural way of engaging with the world and solving problems with common sense. Several studies have shown that classroom teachers who encourage creativity also improve student reasoning, memory, problem-solving, and student engagement, all of which lead to improved learning and personal development (academic and beyond) (Guilford, 1967; Isaksen & Treffinger, 2004; Karpova, Marcketti & Barker, 2011; Moran, 2010; Torrance, 1963). It has been hypothesised that these improvements happen due to the increased number of cognitive connections and associative networks that are developed when multiple ideas and experiences are combined in creativity-fostering environments.

Educational Experiences and Teaching Methods that Foster Creativity

Programs. As early as 1961, Karnes et al. found that creativity was related significantly to educational achievement, revealing that overachieving students had measurably higher creative ability than underachieving students. Though their study suffers from methodological flaws, it set off a range of related research aimed at determining how creativity can be fostered, and what classroom environments lead to students developing both creative and academic skills. Following from the work of Karnes et al. (1961), Guilford (1967) and Torrance (1963) both determined that creative thinking abilities could be identified and nurtured through direct instruction. Teachers who use direct methods of developing creativity, such as using an inquiry-discovery or problem-solving approach

deliberately provide students with hands-on opportunities to generate new ideas, and enhance complementary skills such as fluency, flexibility, elaboration, and originality (Fasco, 2001). These teaching methods engage students in problem-solving activities, and provide situations and opportunities for students to answer questions through research, practical trial-and-error challenges, and positive reinforcement from the instructor. Creative methods of inquiry differ from direct instruction by allowing students to take ownership of a problem and learn through mistakes that can be self-corrected. The cognitive connections developed through authentic learning situations create and strengthen divergent thinking processes and allow for building new and different problem-solving skills. The Osborn-Parnes Creative Problem-Solving Program is one example of this divergent thinking (Parnes, 2000). The Program directs students to explore challenges through identification of data and problems, generate new ideas, and prepare for action, which includes finding possible working solutions. Follow-up testing with the children who participated in the program has shown that they demonstrate lasting higher levels of creativity as well as better research, reading and language skills (Isaksen & Treffinger, 2004). Torrance (1972) in a meta-analysis of 133 research studies examining creative thinking abilities found that this method of stimulating creativity engaged both cognitive and affective factors while providing extrinsic motivation and active learning opportunities.

More recently, Renzulli and Reis (2003) have discussed the implementation of a Schoolwide Enrichment Model (SEM), designed to focus on a pedagogy that makes schools inviting, friendly, and enjoyable while encouraging talent and development rather than punishing poor performance on standardized tests. This model aims to foster creativity and independent thought in all students by encouraging a collaborative school culture and structuring the educational environment so that teachers encourage creativity and innovation

through authentic activities and self-directed learning. The findings of their research showed that when students were given opportunities to pursue learning in an enriched environment, and teachers were trained to develop talent and question traditional methods of instruction, all students improved their problem-solving abilities, scored better on tests, and demonstrated better understanding of curricular material (Renzulli & Reis, 2003). The SEM creates a range of opportunities for students that are integrated in such a way that the “rising tide lifts all ships” (p. 333).

Finally, cultural shifts at the individual school level can act to inspire and foster creativity in students. There are several examples of schools that have identified a need to enhance autonomous thinking, creativity, and innovative behaviours in their students. One such example is Jasper Place High School in Edmonton, Alberta (Millar, 2012). The school-wide change began by giving control of the school café over to the students in order for them to use the service and location as they saw fit. Once students had control, teachers noticed that the adolescents became highly engaged in researching ethical issues regarding the types of food and beverages that should be sold, ergonomic design principles, and profit models. This change led to further curriculum revisions, providing students with greater opportunities to take control of their own learning. Learning outcomes relevant to social issues, community-based projects, and high levels of independent and creative thought are now commonly visible in a once traditional school focussed on curriculum specialization. A more established school program which has a culture dedicated to fostering creativity and innovation in students is located in California. High Tech High (HTH) operates 11 schools, from elementary through high school. The schools foster creativity through deliberate maintenance of a focus on project-based learning, group collaboration, and student support provided by faculty mentors and support staff. The schools’ curriculum blends both technical

and academic courses, with the intent of preparing students equally well for the field of work or higher education. Design principles that include personalization, and connection to the adult world, as well as fostering a common intellectual mission, and position teachers as designers, create a culture where creativity, innovation, and engagement in learning are paramount (High Tech High, 2012). Achievement, measured in a variety of ways at HTH, is exceptional. They report extraordinary success rates for college entrance, student satisfaction, and positive community engagement (High Tech High, 2012; Patton, 2011).

These programs summarise some benefits that can accrue from a school culture that rewards and recognizes creativity, life-long learning, and is willing to shift curriculum design to meet the needs of students, while respecting and valuing the experience of teachers. However, even when in many places there is not the same political or community will to create such large-scale changes, teachers can, at an individual school and classroom level, make a big difference in the ways that creativity is fostered and supported.

Teacher perceptions, theories, and behaviours regarding creativity. Teachers' creativity fostering behaviours are directly linked to the implicit and explicit theories that they have formed concerning the ability, sex, age, and intelligence of their students (Aljughaiman & Mowrer-Reynolds, 2005; Bamburg, 1994; Rosenthal & Jacobson, 1968; Runco & Johnson, 2002; Saracho, 2011; Scott, 1999). Teachers' implicit theories of creativity refer to conscious, but mostly subconscious expectations and thoughts held by teachers about the characteristics of children with regard to the creative potential and tendencies they demonstrate (Runco & Johnson, 2002; Saracho, 2011). Experimental work examining teachers' implicit theories was famously conducted by Rosenthal and Jacobson in public elementary schools in 1968. Researchers Robert Rosenthal and Lenore Jacobson told teachers that certain children could be expected to be intellectual *growth spurters* based on

their results on the *Harvard Test of Inflected Acquisition*. In reality, no such test existed and students were randomly assigned to *spurter* and *non-spurter* groups. Results of the investigation demonstrated that the teachers' expectation of the child's behaviour served as a self-fulfilling prophecy over the course of one school year (Rosenthal & Jacobson, 1968). Teachers who were told to expect high achievement from an identified group of children found them to indeed be higher achieving, while teachers who were told to expect less from certain students found their experiences matched their expectations (Rosenthal & Jacobson, 1968; Runco & Johnson, 2002). The relationship between expectations and outcomes is explained using the premise that teachers unwittingly behave differently towards students based on prior expectations, including stereotypes about student appearance, speech, identified ability, ethnicity, or gender conformity (Bamburg, 1994). At the individual level, these behaviours may include offering more or less eye contact, nodding, or encouraging behaviours (Bamburg, 1994). This research established a field examining how teacher behaviours, including the perceptions that teachers hold regarding curriculum, student ability, and ultimately creativity, influences the dynamics of the classroom environment.

When directed towards creativity, most teachers claim to favour creativity and praise the advantages of creative exploration; though in practice teachers may resist the creative efforts and behaviours of their students (Runco & Johnson, 2002; Scott, 1999; Westby & Dawson, 1995). Statements and deliberate actions teachers make regarding creative abilities, students, and practices, demonstrate teachers' personal explicit theories and beliefs regarding creativity. Explicit theories of creativity differ from implicit theories because explicit theories rely on teachers' definitions of creativity, and reference the deliberate actions teachers take toward creativity, such as the types of projects they assign, the organization of the classroom environment, and the time they allow for creative exploration and decision-making. Both

implicit and explicit theories of creativity determine how a teacher behaves and fosters creative behaviours in his or her students. Both contribute to the environments in which children learn. Teachers who deliberately set out to construct a creative environment for their students may adopt programs such as those identified earlier, such as the Osborn-Parnes Creative Problem-Solving Program (Parnes, 2000) or adopt the recommendations of 21st century skills reports (Bellanca & Brandt, 2010; Trilling & Fadel, 2009), but in many cases creativity fostering is a less formal but no less deliberate activity.

Teachers who wish to nurture creative skills in their students can encourage classroom participation in activities expected to foster the development of creativity, and reward divergent ideas and problem solving. They can also facilitate creative actions in their students by giving students opportunities to communicate their ideas to others, by responding to unusual questions with interest and respect rather than annoyance, and by stressing the value of all ideas for solving problems (Beghetto & Kaufman, 2010). Piirto (2010) recommends that teachers encourage risk-taking, self-discipline, group trust, and tolerance for ambiguity. These characteristics and opportunities then provide a space for creative thinking, skill building, and enhancement, leading to the ideal environment for insight, inspiration, imagination, and intuition. Teachers are the directors of the institutional learning space, facilitating and providing opportunities for children to explore and learn in experiential ways, situated within the constraints of institutionalized learning/reality.

Cropley (1992) studied teachers who encouraged creativity among students and found that they provided opportunities for students to play with problems, materials, and ideas to foster self-directed learning and divergent thinking skills. He also wrote a synthesis of the importance of creativity in the classroom and delineated the ways in which teachers foster or stifle creative environments (1992). Using a model of social facilitation developed by Zajonc

(1965), Cropley identified nine specific teacher behaviours which augment learning in students. What he indicated is that teachers influence students by modelling, by *energizing* learners, and by administering differential reinforcement to incrementally guide learners toward what the teacher considers *proper* behaviour (Cropley, 1992, 2001). Simultaneously, the teacher creates the climate and environment in which the children learn, ultimately allowing them to create self-reinforcing norms in developing the culture of the classroom. Cropley (1992) wrote that teachers who have a better and clearer understanding of divergent thinking and related creative behaviours ultimately permit higher levels of creativity in their students, even if they make no special or conscious effort to achieve it. In later work, Cropley (1997) identifies nine behaviours of teachers who foster creativity. Creativity fostering teachers:

- Encourage students to learn independently.
- Have a co-operative, socially integrative style of teaching.
- Motivate their students to master factual knowledge so that they have a solid base for divergent thinking.
- Delay judging students' ideas until they have been thoroughly worked out and clearly formulated.
- Encourage flexible thinking.
- Promote self-evaluation in students.
- Take students' suggestions and questions seriously.
- Offer students opportunities to work with a wide variety of materials and under many different conditions.
- Help students learn to cope with frustration and failure so that they have the courage to try the new and unusual.

These nine creativity-fostering behaviours parallel many of the recommendations provided by prominent authors in the area (Beghetto & Kaufman, 2010; Runco, 2007; Panagiotis, Saariluoma, & Berki, 2011; Piirto, 2010; Sternberg & Williams, 1996). Overall, there is a great deal of convergence on what behaviours foster creativity. Some of these include tolerance for mistakes, nurturing independence, mastery of factual knowledge, and providing emotional support for students experiencing frustration or failure.

Cropley's model was deliberately selected as a guiding framework for later questioning and observation of teachers, even though there are other similar models that could have been chosen (Alencar, 2002; Panagiotis, Saariluoma, & Berki, 2011; Sternberg & Williams, 1996). It was determined that Cropley's nine behaviours provided both a comprehensive grounding in theory, and provided an interesting opportunity to quantify explicit behaviours, as Soh (2000) had previously developed a validated questionnaire based on Cropley's work (1997). In addition, by defining explicit behaviours, as opposed to investigating implicit theories, Cropley's (1997) nine behaviours provided an ideal measure to use as an observation guide in the classroom.

Barriers to Fostering Creativity

Teacher behaviours. Though teachers often speak highly of creativity, unfortunately many tend to limit their definitions of creativity to art or intelligence, confuse creativity with giftedness, or negatively perceive creative students as troublemakers or hyperactive (Moran, 2010; Runco & Johnson 2002). Further, studies of teacher perceptions have shown that students with creative personality traits are least favoured, presumably because they interfere with classroom management practices (Beghetto, 2007; Westby & Dawson, 1995). These negative attitudes towards students who demonstrate creativity are pervasive, but not universal. Andiliou and Murphy (2010) recently completed a review and synthesis of

researchers' and teachers' conceptualizations of creativity. This review explores the myriad ways creativity is envisioned in peer-reviewed empirical research studies, and investigates what appears to be a misalignment between researchers' and teachers' beliefs. Though the academic literature is profoundly positive and encouraging of creative environments, teaching methods, and strategies, teachers often witness a variety of child behaviours that involve creativity but may not match expectations or contribute to an easily managed classroom environment (Andiliou & Murphy, 2010; Runco & Johnson, 2002). Despite the good intentions many teachers have of fostering children's creative potential, they vary in the degree to which they support, enhance, or nurture creativity in the classroom environment (Flieth, 2000). This difference may be due to variations in the definitions teachers hold of creativity, or the complicated demands teachers must balance between implementing creativity-fostering teaching methods and the need to meet curricular and testing goals (Andiliou & Murphy, 2010).

Of the seventeen studies examined by Andiliou and Murphy (2010), the vast majority examined the perceptions teachers' hold of creativity and creative students by using questionnaires and checklists. These scales were used primarily to work toward a definition of how teachers view creative students, and assess the implicit theories teachers hold with regard to student creativity. The findings of Andiliou and Murphy's (2010) meta-analysis show that teachers view creativity in multiple ways, and there is a noticeable disconnect between researcher conceptions of creativity and the applied personal theories of teachers.

One of the studies examined by Andiliou and Murphy (2010) was an investigation of teacher perceptions by Aljughaiman and Mowrer-Reynolds (2005). Using questionnaires administered to elementary school teachers, Aljughaiman and Mowrer-Reynolds (2005) found that teachers frequently possess inaccurate concepts of what constitutes creativity,

considering creativity to be primarily the generation of original ideas, or aesthetic products, and the demonstration of intelligence. This is different than what experts commonly agree constitutes creativity; namely, divergent thinking, fluency, flexible thought, and the ability to elaborate on an idea (Alughaiman & Mowrer-Reynolds, 2005; Isaksen, Dorval, & Treffinger, 2000; Runco, 2007; Torrance, 1974). In addition, the researchers found that teachers mistakenly confuse intelligence with creativity. Though intelligence and creativity are related in meaningful ways, such as in the requirement for basic knowledge of a subject area (Runco, 2007), a cause-and-effect relationship between the two characteristics is not widely supported by the literature on the subject (Hee Kim, 2005; Slabbert, 1994). When teachers misidentify creativity, it demonstrates a lack of understanding about the positive behaviours associated with creativity. When personal theories of creativity are limited, it means that the deliberate act of fostering creativity may be pushed aside in favour of what is perceived to be more mainstream academic work.

Teacher beliefs about creativity are important because they lead to actions and contribute to the decisions teachers make regarding which behaviours to encourage in their students and which to discourage. The results of research that have found teachers to hold negative perceptions about creative behaviours are worrisome, as they indicate that teachers may avoid fostering creative behaviours in their students because the teachers mistakenly attribute these behaviours to disrupting classroom environments (Alughaiman & Mowrer-Reynolds, 2005; Dawson, 1997; Guncer & Oral, 1993; Runco, 2002; Westby & Dawson, 1995). The need to foster creative behaviours in children has been well-documented and has obvious personal and social benefits (Beghetto, 2010; Cropley, 2001; Robinson, 2011).

Structural and environmental barriers to creativity. Teachers work within a system that has expectations, obligations, and direct evaluation of their methods and

approaches to fostering learning in their classrooms. Colleagues, parents, students, administrative personnel and staff all contribute to the climate and environment in which the teacher is situated. Social influences from those parties are interpersonal and environmental (Runco, 2007). Social judgement is a major interpersonal factor that contributes to an environment where creativity is possible. Csikszentmihalyi's (1990) systems theory of creativity requires social judgement and recognition of an item to be creative, before it can be considered so. Thus, the school environment, with multiple opportunities to judge, and a hierarchical organizational design, invites critique and criticism (sometimes constructive) which influences teachers' and students' perceptions of whether or not creativity is welcomed.

In addition, social influences and settings have different impacts on people, which means that the impact any social or organizational factor can have on a person can only be understood by taking the individual and his or her circumstances into account (Runco, 2007). Within a dynamic and multi-layered environment such as a school, there are a multitude of factors, involving people, structures, and demands impacting on an individual at any given time. Because of this, it is too limited to examine teachers' behaviours toward creativity with exclusive regard to their personal perceptions. The teaching environment, including school structure, ministry-mandated curriculum, and the nature of the classroom environment itself (including the differing needs and behaviours of the students) offers both opportunities and barriers for teachers to foster creativity. Though a full ethnographic investigation of the structure of the school, the relationships between staff and teachers, and the exact demands of the curriculum goes beyond the scope set out for this study, teachers interviewed were specifically asked to discuss what elements of the school environment, including support from administration and the role of the Ministry of Education, influenced their ability to

foster creativity in their classrooms. Teachers were also asked how standardized achievement testing, also referred to as accountability measures, influenced their classroom environment. Little is known about the impact that standardized testing measures have on the classroom environment with specific regard to creativity-fostering teacher behaviours.

Accountability. The purpose of standardized testing, among other things, is to help teachers and administrators identify student strengths and weaknesses so that educational resources can be appropriately directed to the benefit of student learning. Standardized tests are measures that are administered under controlled and uniform conditions and are expected to measure learning outcomes and skills that are common to the curricula across schools and school districts (Chatterji, 2003). In Ontario, the Education Quality and Accountability Office (EQAO) conducts province-wide tests of reading, writing and mathematics in Grades 3, 6, and 9, reporting the results to educators, parents, and the public (EQAO, 2011). The purpose of the tests, according to the EQAO, includes measuring “whether students can understand what they read, clearly communicate their thoughts in writing and use grade-appropriate mathematical knowledge and skills to solve problems” (Desbiens, 2011). EQAO testing differs in significant ways from No Child Left Behind (NCLB) testing, which is tied directly to school funding and teacher promotion and tenure practices in the United States (Bush, 2001; Ravitch, 2010). Though the explicit details of the NCLB act can be found elsewhere (U.S. Department of Education, n.d.), the purpose of the program was to hold schools, local educational agencies, and States accountable for improving the academic achievement of all students, and identify and turn around low-performing schools that have failed to provide the mandated level of education to their students. The program also provides supports and funding for the provision of alternatives to students in low-performing schools to enable them to receive a high-quality education. In implementing NCLB, teachers

and schools were rewarded or punished for students who did not achieve the performance standards set by the U.S. Department of Education, and the program has been widely criticised for lowering standards and creating unrealistic goals (Crocco & Costigan, 2007; Geist & Hohn, 2009; Kynes, 2004; Longo, 2010; Ravitch, 2010).

Unlike NCLB, Ontario's province-wide tests are standards-based, which means students are compared to an expected standard of achievement tied to the curriculum manual rather than directly to other students, and results are not tied to school funding or educator evaluations (Desbiens, 2011). That stated, EQAO and NCLB testing have both been widely criticized for forcing teachers to spend more time on test preparation and drill-and-kill exercises rather than authentic teaching and learning (Crocco & Costigan, 2007; Firestone, 2001; Fusarelli, 2004; Geist & Hohn, 2009; Neill, 2008; Ravitch, 2010; Sacks, 1999; Salutin, 2011; Volante, 2004). Though the EQAO reports that province-wide testing cannot be considered "high-stakes" in the way that NCLB tests can (Desbiens, 2011), a culture of "naming and shaming" exists when schools are publicly listed as having high or low scores on provincial tests. The Ministry of Education, the CD Howe Institute, and the Fraser Institute have all openly published provincial school rankings, and media outlets like CBC News have announced the names of the lowest ranked schools provincially with no context or critical analysis provided (Neill, 2008). Local newspapers also publish assessment results, ranking schools based on Grades 3, 6, and 9 scores (Volante, 2004). This wide public announcement of test results without qualifying the limited curricular scope of the test presents test results as important, and indicates to the public that test scores reflect the quality of teaching in a given district. This sets up a climate of competition and pressure to succeed that may be reflected in consequent testing situations (Neill, 2008).

In many ways, the current implementation of standardized assessment measures go against the theoretical positioning of the theories of both experiential learning and situated cognition. Though testing can be used as a meaningful way of gauging student progress, when teaching resources are directed toward success on a test instead of learning and authentic mastery of the curriculum, student learning may suffer. Although pressure on administrators, teachers, and students to meet the standards set by the EQAO can lead to productive work for many, research suggests that teachers will often skew their efforts in the direction of activities that would lead to increases in these highly public scores (Earl, Levin, Leithwood, Fullan, & Watson, 2003). This push for success may be strengthened by the availability of sample tests and exercises on the EQAO website, providing teachers with the opportunity to tailor lessons directly to the test-taking skills required, rather than pursuing a broader, less linear approach to tackling subject material.

Evidence of a teaching culture which highly values student success on standardized tests is also evident in the recent investigations of EQAO test cheating. In September 2010, 10 schools came under scrutiny for reports that teachers were providing students with test questions, allowing students extra time, and photocopying earlier versions of the exam for students to study from (Brown & Taylor, 2010). Ultimately, a culture that rewards success on standard tests of student knowledge will also encourage teachers to find more efficient ways of preparing students to do well on the test. The problem with this process is that teachers may begin to divert time spent engaging in creative and abstract thought and teaching methods with students toward teaching methods that reinforce test-taking skills and material to be covered. If this is indeed happening, it is likely that teachers will not be able to provide students with the range of experiential and applied learning opportunities that lead to creative thinking and innovative behaviours. Experiential learning in an applied context takes time to

plan, as well as time to reflect, and allow for activities that have broader learning consequences. If time to prepare for a test is at a premium, it might be expected that the most time-intensive and least predictable learning activities will be removed from the classroom in favour of activities that are expected to lead to better test-taking skills. The purpose of this exploration of teacher perceptions was, in part, to find out if in the opinion of teachers this is indeed happening, and understand how teachers are making decisions with regard to optimal use of classroom time.

What underlies a creativity-fostering teacher is a classroom organizational climate that is challenging, meaningful, supportive, and trusting, that allows for spontaneous behaviours that contribute to the creative learning process (Ekvall & Ryhammar, 1999). Unfortunately, formal evaluation appears to have a negative effect on the classroom environment, leading to higher anxiety in students, heavy reliance on external motivation, and a classroom climate that punishes divergent thought (Amabile, 1990; Cropley, 2001). This is not to say that evaluation should be abandoned, nor that creativity is composed of random thought or the suspension of all judgement (Runco, 2007). Creative thinking requires significant content knowledge, and thinking creatively about a topic helps deepen one's knowledge of that topic (Baer & Garrett, 2010). The current focus on improving standardized test scores as well as the public pressure for school accountability, might lead teachers to associate accountability with convergent or evaluative thinking – thereby ensuring that students can answer test questions correctly as opposed to exploring alternate divergent thought processes or complex ideas (Baer & Garrett, 2010).

It is important to recognize and not discount the responsibility teachers have to make productive use of students' time in class and ensure that the activities they do are meaningful and contribute to intellectual growth. Starko (2010) provides a clear outline of the importance

of teacher work, but demonstrates the difficulty of teaching for creativity in a time of standards testing. In the opening chapter, Starko recounts conversations he has had with teachers who indicated there is little time for creative and experimental teaching methods, as well as significant pressure not to teach information that “isn’t on the test” (p. 17). In rebutting this point, Starko makes clear that teaching for creativity does not comprise an add-on activity, and is not simply the addition of more work to an otherwise burdened teacher. Teaching for creativity, Starko indicates, includes providing students with the opportunities to “identify and solve problems, see from multiple points of view, analyze data, and express themselves clearly in multiple genres” (p.17). These activities help students engage in their work and make meaningful connections to real life as they think about important content.

Creativity in schools may be compromised not only because of problematic views of what constitutes creativity but also because of pressure teachers face to cover a certain amount of content for the primary purpose of raising standardized test scores (Baer & Garrett, 2010; Beghetto & Plucker, 2006). Baer and Garrett (2010) further explore the role of creativity in an era of accountability, and clearly state that standardized testing and creativity are not diametrically opposed and can be reconciled in the classroom. What must happen in order for this to occur, though, is for teachers to recognize the role they play in fostering creativity, as well as the various forms and qualities of creativity. Teachers who hold a static view of creativity as only divergent thinking or original ideas are less likely to foster creativity in the classroom than those who have a wider and more comprehensive understanding of the traits of and benefits from creative thought.

Summary

The literature shows that creativity is a topic fraught with controversy, misunderstandings, and good intentions. Teachers have differing and sometimes conflicting

views of creativity, which leads to both positive and negative application in the classroom. In addition, the school structure itself, by way of prioritizing standardized testing, emphasises the role of achieving content standards over and above the use of meaningful problem-solving and creative thinking exercises. If teachers feel pressure to teach to the test then it is likely that they will not create an atmosphere where experiential teaching methods are used, or embrace teaching techniques to enhance or foster creativity. Though there is a wealth of literature available that provides us with a clear understanding of *how* to foster creativity, the current educational climate and structure may not allow for a means to do so.

Chapter 3: Research Design and Methodology

The methods section will delineate the steps taken to investigate the research questions that were identified on page 16. Using a mixed-methods (both quantitative and qualitative) approach, 22 Ontario teachers participated in a survey, and 12 teachers agreed to allow the researcher to observe their classroom and participate in an interview regarding their teaching style and perspective(s) on creativity.

Methodological Approach

Research in the field of education relies on the traditions and perspectives of a variety of disciplines to comprehend and update the professionals involved in the scholarship and schooling process (Creswell, 2003). Mixed methods, or multiple methods, have been suggested as an appropriate way to strengthen results and diminish some of the inherent weaknesses in both qualitative and quantitative forms of measurement (Smith, 2006). Gay (2003) states that the combination of quantitative and qualitative data can enhance a research study, especially when testimonials and/or quotes are used with descriptive statistics. These comments, Gay suggests, bring the statistics to life and enrich meaning. In the case of this research study, multiple methods were employed to gather both a macro- and micro-level view of the phenomenon under study, namely teachers' perceptions of creativity. A social constructionist framework influenced the choice of strategies used to engage research participants, and directs this inquiry in order to provide meaningful understanding of the characters and events that make up this investigation (Maxcy, 2002; Patton, 2002). The purpose of the study is to further theoretical and applied dialogue regarding knowledge and reality, as well as to better understand teachers' beliefs, perceptions, and actions toward fostering creativity in schools. As such, a mixed methods approach is warranted and valid as a form of social constructionist research. Given that this research is largely exploratory and

captured the experiences of participants in light of governmental policy and classroom demands, the adopted framework allows for meaning and voices to emerge from patterns in the interviews, observations, and scales. Use of multiple data collection methods has been referred to as a form of *triangulation*, a process whereby several perspectives and tools are used to clarify meaning, verify the repeatability of an observation or interpretation, and provide a diversity of perspectives leading to a broader and deeper understanding of the multiple realities in which people live (Patton, 2002; Stake, 2005; Yin, 2006).

Population and Sample

Participants for this study were drawn from Grade 5, 6 and 7 teachers from across Southern Ontario. Teachers were chosen from these grades because they represent the two boundary years and one testing year of the Grade 6 EQAO assessment. In addition, children at this age are able to work independently, but in most cases have one teacher responsible for delivering the majority of the curriculum. Specialized teachers may be brought in for French, music, or physical education depending on school resources. This teacher-student consistency ensures that the classroom teacher being interviewed has a high level of regular and direct contact with his or her students in a range of subjects and settings.

Upon receipt of approval from the research ethics board at the university and the relevant school boards, research officers at the various Boards of Education sent an email invitation to principals, who were asked to forward the invitation to teachers in the selected grades. Selection criteria were limited to grade assignment only. No selection criteria were indicated as to years of teaching experience, location, or perspectives toward creativity. The researcher sent subsequent follow-up reminder emails four and six weeks after the initial invitation. For thematic saturation and the desired variability, twelve participants constitute a sufficient number (Guest, Bunce & Johnson, 2006; Lincoln & Guba, 1985).

Data Sources and Instrumentation

This study has two stages. The first (Stage 1) is a survey, and based on teacher interest, the second stage (Stage 2) comprises a classroom observation period and a semi-structured personal interview.

Stage 1. The first stage of this study invited Grade 5, 6 and 7 teachers to complete the Creativity Fostering Teacher Index (CFTI) as well as answer several pertinent questions related to personal characteristics, which included each teacher's number of years of teaching experience, the location of school, the teacher's gender, and the grade he or she was currently teaching (Appendix B). The CFTI (Soh, 2000) is based on Cropley's nine creativity-fostering behaviours identified earlier in this report (Cropley, 1997). The CFTI asks teachers to rate their beliefs about children's creativity and classroom behaviours on a 45-item questionnaire that uses a 6-point Likert scale. Table 1 displays each of the scale items along with Cropley's item definition (below, in italics), the coefficient alpha score, and a sample question from each sub-scale.

Teachers completed the questionnaire using a secure online survey form that was accessible through a web link embedded in the email they received. The website was hosted on the Western University server. The researcher downloaded aggregated responses over the course of the data collection period. Teachers who wished to participate in the second stage of the research project were invited to volunteer their name and contact information on the last page of the survey.

Analysis of the responses collected using the online version of the CFTI was completed using SPSS, and coded for the variables of independence, integration, motivation, judgement, flexibility, evaluation, question, opportunities, and frustration (Soh, 2000). Independent group t-tests used the independent variables of gender, and school setting

(urban/rural) to probe for any relationships. Pearson product-moment correlational analyses were also used to examine the data for relationships between years of teaching experience and scale data. The primary purpose of the scale was to generate selection criteria for the interviews and the classroom observation in order to recruit a range of participants and secure their interest and willingness to participate in the study. Unfortunately, despite repeated attempts to engage principals and teachers, there were an insufficient number of volunteers for this study to conduct a fulsome analysis and implement selection criteria. Therefore, scores on the CFTI were used to form a more comprehensive understanding of teachers' perceptions of creativity fostering, and used to triangulate scale scores with observation and interview data.

Subscale Item	Coefficient Alpha	Sample Question
Independence <i>Encourage students to learn independently.</i>	.076	I encourage students to show what they have learned on their own
Integration <i>Have a co-operative, socially integrative style of teaching</i>	.85	In my class, students have opportunities to share ideas and views.
Motivation <i>Motivate their students to master factual knowledge so that they have a solid base for divergent thinking.</i>	.74	Learning the basic knowledge/skills well is emphasized in my class.
Judgment <i>Delay judging students' ideas until they have been thoroughly worked out and clearly formulated.</i>	.83	When my students have some ideas, I get them to explore further before I take a stand.
Flexibility <i>Encourage flexible thinking.</i>	.78	In my class, I probe students' ideas to encourage thinking.
Evaluation <i>Promote self-evaluation in students.</i>	.69	I expect my students to check their own work instead of waiting for me to correct them.
Question <i>Take students' suggestions and questions seriously.</i>	.82	I follow up on my students' suggestions so that they know I take them seriously.
Opportunities <i>Offer students opportunities to work with a wide variety of materials and under many different conditions.</i>	.83	I encourage my students to try out what they have learned from me in different situations.
Frustration <i>Help students to learn to cope with frustration and failure, so that they have the courage to try the new and unusual.</i>	.86	My students who are frustrated can come to me for emotional support.

Table 1: Scale items, coefficient alphas, and sample questions from the CFTI (Soh, 2000)

Stage 2. The second stage of data collection involved a day of classroom observation with each teacher and an interview with that teacher during the observation day. Classroom observation was an important element of this study and allowed the researcher to co-reflect with the teacher on the nature of the classroom space and the students, as well as specific instances and occurrences. It also provided an opportunity for the researcher and teacher to discuss the multifarious phenomena that constitute life in the classroom environment and the relationships among the students and the teacher (Cohen, Manion, & Morrison, 2008). The observation also allowed for an element of rapport-building with each of the teachers, leading to the development of a temporary relationship between the researcher and the participant (Hays & Singh, 2012). The observation provided an opportunity for the researcher to convey a sense of her genuine interest in the daily life and experiences of the participant. During the observation the researcher acted as a visible but non-participating visitor to the class, and casually recorded the interactions and discussions that took place during the exercise. Field notes were kept (Cohen et al., 2008; Patton, 2002), guided by Soh's (2000) Creativity Fostering Teacher Index Observation Scale (CFTIOS Appendix C). The CFTIOS was not used as a comprehensive measure of teachers' classroom behaviour, as observation periods were not deemed to be lengthy enough to faithfully represent the participants typical teaching approach. The scale served as an observation guide, and a way to interpret and attend to specific behaviours. Field notes collected information about the lesson content, as well as the shape and appearance of the classroom, desk organization, and number of students.

The role of the researcher as non-participant was negotiated and discussed with the classroom teacher prior to the beginning of the observation period. Most participants in this study indicated that observations and visitors to their class were not unusual, and it was apparent that in all cases the visitor was thought of as a novelty to begin with but quickly

ignored by the students. It is worth noting that several authors (Cohen et al., 2008; Patton, 2002) have indicated that a physically present observer can never be completely neutral, or hidden from the conscious awareness of participants, thereby influencing natural behaviour. This was duly noted, but also recognized as a limitation inherent in the conduct of field research.

During the observation day, the researcher conducted a semi-structured interview with the participant using an interview guide format such that specific lines of inquiry were pursued with each person interviewed (Patton, 2002), but questions were directed and shaped by participant responses. This format allowed the interviewer an additional opportunity to build rapport with the participant and demonstrate appreciation for his or her expertise and experience while illuminating the lived experiences through narrative and situated examples. The conversations were recorded using a digital voice recorder and later transcribed verbatim by the researcher. These interviews are intended to triangulate the teachers' experiences with observation and scale data as well as elicit their thoughts, opinions, and feelings about the creative nature of the activity (Patton, 2002; Stake, 2005; Yin, 2006). During the interview, the researcher asked the teacher about his or her perspectives on fostering creative thinking and learning in the classroom and investigated what the teachers may perceive as barriers to or opportunities for promoting creativity. The most politically-minded questions were saved until the end of the interview, which is when teachers were asked to comment on the implementation of EQAO testing and share their perspectives on how standardized testing and preparation for testing activities influenced (either positively or negatively) the climate for creativity in the classroom. Questions used for the semi-structured interview portion of the study can be found in Appendix D.

Interview transcripts were analyzed and coded by categorizing interview text into underlying semantic (latent) themes and patterns identified by the researcher. No attempt was made by the researcher to look beyond what a participant said or did during the observation or interview period (Braun & Clarke, 2006). MaxQDA software was used as a tool to assist in the process of manually sorting, grouping, and coding relevant elements of the participants' transcripts and the researcher's field notes. This method of coding and data organization is often referred to as thematic analysis. It allows the opportunity to interact with the data and sort through ideas and concepts that are shared between participants (Braun & Clarke, 2006; Hays & Singh, 2012). Thematic analysis is described by Braun and Clarke (2006) as "a method for identifying, analysing, and reporting patterns (themes) within data" (p.79). Key themes are then summarised and related back to the theoretical position of the research. This form of *theoretical* thematic analysis (Braun & Clarke, 2006) was chosen as a means of examining evidence related to the research questions posed and as a means of aggregating information related to Cropley's (2001) creativity-fostering teacher behaviours. Interviews with teachers, then, represent important and relevant information related to the main research questions. Had an inductive or *bottom-up* approach been used, linking themes to the data, rather than to previous work in this area – and subsequently the questions asked of participants, it would have led to re-theorizing Cropley's teacher behaviours as well as re-interpreting the meaning and deliberate grouping of the research questions. Instead, in the deductive or *top-down* approach, the research questions are derived from the theory, which then map the categories and general themes into which participant responses fall (Bloomberg & Volpe, 2012; Braun & Clarke, 2006).

Ethical Considerations

Though there were no known risks to participating in this research study, it was understood that teachers may have chosen not to participate, or may have felt uncomfortable participating for a number of reasons. First and foremost, the purpose of this project was to investigate teachers' ideas about their own practice. This may have led teachers to be suspicious of the nature of inquiry, and misinterpret the purpose of the study as being related to issues of employment. For this reason, it was explicitly stated in letters of introduction to the Boards of Education as well as to teachers participating in the research that all material was, and would be kept strictly confidential to the researcher, and would not be presented in any way that would disclose the identity of the participant. Participation was voluntary, and for those who chose to participate, pseudonyms were substituted for the teachers' names in order to hide any information that might reveal the identity of teachers or schools. School names and specific locations are also withheld in order to prevent the identification of participating teachers. Moreover, this information is not relevant to the analysis or discussion of the subjects and themes identified.

It is known that classroom observation can be stressful for teachers. The nature of the observation was discussed and negotiated openly with participating teachers. During the initial meeting with the teacher it was reiterated that there was no judgement being made of the teacher's performance; the work involved simply an observation of classroom activities. Teachers were not paid or remunerated for their participation in this study.

The Faculty of Education Sub-Research Ethics Board at Western University as well as the Ethics Committees and research officers at the Thames Valley District School Board, Avon-Maitland District School Board, and the London District Catholic School Board gave their approval for this research study to be undertaken.

Summary

The specific techniques used for data collection in this study were employed to gather relevant information from participating classroom teachers. Though all participants provided answers to survey questions, the primary means of data collection involved semi-structured interviews and participant observation. Each method allowed specific forms of information to emerge from the given participant, providing the knowledge required to interpret and convey the experiences of the participants as well as a holistic sense of the environment, perceptions, and teaching methods. The use of a multiple participant/case sampling strategy provides an opportunity for *naturalistic generalization* (Stake & Trumbull, 1982). This form of generalization allows the researcher to gather and present enduring meanings and report significant patterns which are grounded using multiple encounters and perspectives. The subsequent analysis and report will not evaluate the worth or judge the experiences of individual actors or the situation against an established standard nor broadly generalize results to the wider population (Stake & Trumbull, 1982). The goal of this research was to provide rich, thick descriptions which use the participants' voices in order to enrich our understanding of creativity fostering, and pose questions about how to further that understanding (Merriam, 2002).

Chapter 4: Analysis, Interpretation, and Synthesis of Survey Findings

This chapter summarizes and organizes the information collected through the survey questionnaire completed by the study participants. The responses teachers provided to the questionnaire situate the study and present the teacher-reported frequency of, and statistically analyzed relationships between selected creativity-fostering behaviours (Cropley, 1997).

Descriptive Characteristics of Respondents

Survey participants in this study were 22 men ($n = 4$) and women ($n = 18$) teaching in Grade 5, 6, and 7 classrooms in Southern Ontario. Participants were teaching in schools located within the Thames Valley District School Board, the London District Catholic School Board, or the Avon-Maitland District School Board. Schools in these districts are located in communities that are considered to be cities, towns, villages, or remote rural communities. Some classrooms in the schools that were visited were combined grades meaning that there were two grades levels in the same classroom with the same teacher. For inclusion in this study, at least one of the two Grades in a combined classroom had to be 5, 6, and/or 7. The teaching experience of the participants ranged from 1 to 33 years ($m = 12.5$, $SD = 8.70$). Most participants indicated that they were between 29-41 years of age ($n = 13$), while two were under 29, and seven were between the ages of 42-55. Fifty-nine percent ($n = 13$) of the respondents indicated that they taught at a school they considered to be “rural” while 9 participants indicated that they were teaching in “urban” schools. Unfortunately, parameters indicating to participants how to classify what was to be considered urban and rural were not set out at the beginning of the survey, so it is uncertain what kind of criteria participants used to judge their location. Based on the characteristics of Stage 2 participants, and other work conducted by the researcher (Dishke Hondzel & Hansen, 2012) mid-sized communities with populations falling between 20,000 - 40,000 people are sometimes considered urban *or* rural,

based on the past living experiences and expectations the participant holds regarding the community.

Analysis of Survey Data

The CFTI is a 45-item self-rating scale that contains nine theoretically distinct subscales. Each subscale consists of five unique questions. Questions are scored using a 6-point Likert scale, ranging from 1 (completely disagree) to 6 (agree completely). The nine subscales are based on creativity-fostering behaviours first identified by Cropley (1997). Higher scores indicate that teachers perform more creativity-fostering behaviours. Overall mean scores for the 22 survey participants (with standard deviations in parentheses) were: Independence 4.28 (.72), Integration 5.45 (.38), Motivation 4.78 (.58), Judgment 4.45 (.57), Evaluation 4.82 (.61), Question 4.78 (.60), Opportunities 5.18 (.48), Frustration 4.93 (.67), and Flexibility 4.78 (.56) respectively. The combined mean score on the CFTI for participants in this study was measured to be 4.82 (.40). Using an independent samples t-test to investigate differences between groups, no significant differences were found between men and women. Similarly, no differences in subscale data were found between participants who considered themselves to be teaching in urban and rural locations.

A Pearson product-moment correlation coefficient was computed to assess the relationship between the number of years of teaching experience participants reported and the overall average score on the CFTI. There was a strong positive correlation between the two variables, $r(22) = .51$, $p = .016$. A scatterplot summarizes the results (Figure 1). Further analysis revealed strong positive relationships between years of teaching and the subscale variables of Motivation, $r(22) = .59$, $p = .004$, Opportunities, $r(22) = .44$, $p = .041$, and Flexibility, $r(22) = .51$, $p = .016$.



Figure 1: Scatterplot showing the strong positive relationship between teachers' reported years of teaching experience and overall average score on the CFTI.

Interpretation of Survey Data

Though the survey sample size was small, an interesting relationship was found between the number of years of experience teachers had in the classroom and their scores on the CFTI. This relationship was both strong and positive, indicating that the teachers who participated in this study were more likely to demonstrate higher levels of creativity-fostering behaviours when they had more years of teaching experience. In addition, three subscale variables, *Motivation*, *Opportunities*, and *Flexibility* also demonstrated a strong positive correlation with years of teaching experience. These relationships further suggest that as teachers gain more years of experience in the classroom, they see themselves as more likely to motivate students to master factual knowledge therefore seeing basic knowledge and understanding as a fundamental aspect of creativity. They are also more likely to offer their

students frequent opportunities to work under different conditions, and with a variety of materials; and encourage flexible thinking, that is to encourage students to think about ideas in different ways, and deviate from what they are told to do. Many teachers who were interviewed for this study also mentioned the way their teaching style has changed with experience. Some indicated that the more years of experience they have, the better able they have become at judging what curriculum material is most important to cover, and how much emphasis they need to place on preparing students for standardized achievement tests.

Summary

The survey data provides a glimpse of the experiences and perceptions teachers have regarding their own creativity-fostering behaviours. All of the teachers in this study reported fairly high levels of creativity-fostering behaviours (4.82 on a scale maximum of 6), with the highest levels shown by teachers with the greatest number of years of teaching experience. The interview and observation data collected as part of this study provide a more nuanced understanding of why and how creativity-fostering behaviours are demonstrated.

Chapter 5: Analysis, Interpretation, and Synthesis of Observation and Interview Findings

This chapter summarizes and organizes the information collected through the observations and interviews with study participants. The thematic analysis and field notes provide context for the results of the survey, and demonstrate the complexity of the school environment and how it influences creativity-fostering behaviours. Each of the 12 teachers who volunteered to participate in the observation and interview was assigned a unique pseudonym, and short summaries of the relevant characteristics of each participant, including descriptions of the teachers' philosophy and classrooms are included for reference as Appendix E. Some information, such as school name, size, location, and the grade in which the teacher was teaching at the time of the observation has been excluded from this report to preserve the anonymity of participants. If a teacher identified any child by name, a different, but gender-consistent name was substituted. School sizes ranged from 54 children in the smallest school to just over 500 in the largest school.

Descriptive Characteristics of Respondents

Of the 22 participants who completed the CFTI index using the online survey format, 11 volunteered to participate in Stage 2 (one additional interview participant chose not to complete the online survey and contacted the researcher directly). Though the groups of participants who chose to complete Stage 2 were similar to the group that chose to discontinue after Stage 1, on average, Stage 2 participants had an additional four years of teaching experience, and were more likely to consider themselves to be teaching at rural schools. Using SPSS independent-group t-tests, no significant differences were found between groups on any of the nine survey scale variables. Nine of the participants who participated in the interview and observation were women, three were men.

Organization of Thematic Analysis

Drawing on recommendations by Hays and Singh (2012), qualitative data collection and analysis occurred concurrently to ensure rigorous research design and to allow for the investigation and probing of research questions. Through continuous interaction with the participants and the data, the researcher was able to become familiar with common themes and explore topics in an increasingly meaningful way with subsequent participants. The reciprocal and iterative research process strengthened the means by which data was collected, and gave the participants an equal and fair opportunity to share their ideas and experiences.

The thematic analysis follows from the research questions presented at the beginning of this report, and are presented in summary form again in Table 2. Deliberate use of the research questions as a reporting tool provides an organizing structure, and collates major themes as well as the contents of the themes into an accessible layered system of meaning. As indicated in the table, and throughout the analysis, there are aspects of themes that overlap or are duplicated. It should be noted that *experiential learning* is seen as both a perception of what creativity is, as well as a way to foster creativity (strategy). Providing students with *time to think* is a strategy for fostering creativity, but *lack of time* is also an environmental barrier teachers encounter when trying to create a creativity-fostering environment for their students. In order to better represent the layers of this thematic structure, Table 2 provides an outline of the research questions and the themes which speak to the ideas contained within.

In some cases square brackets [...] have been used to indicate where a section of unnecessary text which was not relevant to the response was removed. Also, short verbalizations such as *um* and *like* that carry little meaning or disrupt the flow of the excerpt

when read were removed for clarity. Some expressions, such as smiling, have been indicated to provide the reader with a contextual sense of non-verbal meaning.

Research Question	Major Themes	Contents of Theme
What perceptions regarding creativity do teachers have?	Characteristics of creative children	Special talent or skill/ struggle/ challenge
		Think outside the box/ think differently (confidence, leadership, risk-taking, problem-solving)
	Creativity as a general construct	Creativity is art, music and drama
		Connections/ choices/engagement Experiential learning/ self-exploration
What specific strategies did teachers in this study demonstrate in order to foster creative behaviours in their students?	Differentiated instruction	Learning styles inventories
		Altering deliverables
	Regulating the emotional climate	Safety
		Trust
		Confidence
	Collaboration	Group activities
		Problem-based learning
	Exploring, experiencing, and making connections	Experiential learning
Authentic experiences		
Taking time		
What environmental factors influence teachers' desire or ability to create and maintain a creativity-fostering classroom?	Resources	Time (as a commodity)
		Money/materials
	Support	Teachers
		Administrators
	Accountability/ EQAO	Time (it takes to prepare)
		Incongruity
Basic skills		

Table 2: Research questions and major themes drawn from interview and observation data.

Key Themes Drawn from Interviews and Observations

The following sections are organized sequentially by each of the guiding research questions. After the research question is re-stated, it is then discussed in detail with respect to the major themes, and the contents of each theme.

Research Question 1: What perceptions regarding creativity do teachers have?

Teacher perceptions regarding creativity can have a negative, neutral, or positive impact on the classroom environment, differentially reinforcing or preventing students from demonstrating creative behaviours and ideas. Teachers in this study discussed a range of perceptions they held about creativity and its importance. Key perceptions that teachers hold regarding creativity in students fell into two categories: perceptions teachers hold regarding how a child who is creative thinks and behaves, and what creativity means as a construct or concept. In most interviews, teachers' concepts of the term creativity were moderately different from how they explained the behaviour of creative children.

Characteristics of creative children. At some point in the interviews, most participants indicated that *all* children were creative in some way or another, even if at another point they singled out children who were especially creative in a particular domain. This general definition identifying what, exactly, a creative child looks like was different for all participants, but teachers typically referred to creative children as those with a special talent or skill in a specific, and definable subject area, or generally interpreted the word creativity to mean a behavioural or cognitive tendency.

With regards to special talents and skills, most teachers quickly identified students in their class who were talented musically, artistically, or physically (sports or dance), or had creative writing or math problem-solving skills. These children were thought to 'think

differently' or 'outside the box', and teachers indicated that they sometimes struggled in other areas.

When teachers spoke of students' exceptional creativity in specific subject areas, they often referenced children with disabilities, or indicated that their students with behaviour problems were the most creative. Though several teachers indicated in one way or another how their students with challenges were associated with individual creativity, one teacher in particular, who will be referred to as Paige, was able to capture the essence of many conversations. Paige had a large class and experienced a number of environmental and behavioural challenges. She discussed her most creative children this way:

I find some of the most creative kids in my class are ones that actually struggle in other ways. Which I find interesting, [is] you know that their brains just work a little differently. I'll give you a couple examples. There's one little girl in my class named Amy and she struggles academically, there's some needs - I think I told you about her- with dyslexia and other things- communication is an issue, but she's a great little actress and she's a great like, anything where you're creating something, she just loves it and she dives right into it. Another little girl named Maia, she's a very um, kind of awkward socially, but, you know, any time that you give her a chance on a project to build something or give her an opportunity to create in any way, she brings in tons of resources from home, you know, anything [...] any time there is a creative element she is always gung-ho and brings in props and another kid who is an amazing little actor is Shaun, he's got Aspergers but obviously not on paper, and that kid very socially, there's some awkwardness, but any time he gets a chance to speak, or be in front of the group, or use his creativity, fabulous. Um, another one I guess would be Michael, because he's got this book and I'll have to show you sometime, but it's got

pages and pages, probably 30 pages of his creative doodles and drawings and quizzes and you know, but that's his way of expressing himself, even though ADHD is something that he struggles with, so it's almost like that part of the brain um, and I could be wrong, but it just, my experience is often the most creative children struggle in other ways to be really successful, and so it's their way of almost coping, or succeeding or maybe the brain is built differently.

Throughout the observation period, Paige took the time to show the researcher projects the students were working on and individual artefacts that she felt demonstrated the creative strengths of her students. In her classroom, these items were often artistic, such as Michael's sketchbook and another student's homework covered in scribbles, consisting mostly of shapes, and faces. During the observation period, Paige's students were working in groups putting together a series of self-made games. Groups were taking turns visiting the games developed by the other students and providing feedback on the level of engagement, difficulty, and creativity that the other groups had shown. Paige had identified students who were particularly creative as also those who experienced challenges and she also pointed out that those particular students had taken on roles that allowed them to demonstrate their strengths in the game activity, whether that involved artistic, organizational, or writing talents.

In a manner similar to Paige, Colette highlighted a relationship between specific weaknesses and creativity in students by describing her two most creative children in the following way:

My absolute brightest child who is extremely eloquent in his writing is not so verbally, he's - I think he's a bit awkward in that department, and then my child who is lowest academically, struggles with reading, and writing - give him a pencil and

paper and like it's just goes to pot, right? [But] he is so oral and verbal he is always on the money, he has so much to add to every conversation, and they are best friends.

Colette had a relatively small class, so it was also easy to see that the children knew each other well, and could compensate for each other's weaknesses. These specific weaknesses were made more evident by the size of the class and the frequency with which students needed to collaborate on projects and activities.

Though creative children were not always identified as those with a specific talent, or an identifiable challenge, out of 12 interview participants, 8 mentioned at some point that creativity was related to 'outside the box' thinking and problem-solving skills. Character traits that teachers consistently described creative children as having included confidence, leadership skills, and problem-solving abilities. These children thought through complex ideas, were not limited by the environmental constraints, and were described as those who were also well-respected by their peers. Interestingly, the following teachers also indicated that they perceive all children to be creative, however they further elaborated on the nature of the specific personality traits that they saw creative children having, including confidence, willingness to take risks, and a resistance to premature closure.

Brad clearly identified that he believed a willingness to take risks, and little fear of being wrong were elements of creativity:

Yeah, they all have it [creativity] in them. Part of it- those who are more confident - those who are less self-conscious about what they are doing tend to be more, like outwardly - they're the ones that we recognize as being creative because they're not afraid to take risks, they're not afraid to be wrong- as far as they're concerned, wrong isn't really a big deal, it's just one of the stops in the road.

Allison also indicated that creative children took multiple approaches, and kept going until they were satisfied with their work. Allison stated:

If I think about my grade... [smiling] well, it's different- they're all different, right? There's kids who are brilliant problem-solvers, so they have a huge repertoire of approaches, and ideas about how- how to approach, how to do something- how to take a problem to the next step, they're not afraid - they don't put limits on themselves. They expect there to be a next - something else, another approach for them to use- they don't stop, they just keep going, and they can drive you crazy at times, right? Because they are just passionate. Um, creative- um, then there's the ones who are - that's- I think that's the biggest thing, they just don't run out of ideas- they always have another idea. They always have something else in their mind, they're always doing 'what if, what if' and they have imaginations, they're not held back by the rules. Like, is this, 'if I do this, will I get a better mark?' Is that the only reason you're doing this, or are you doing this because the outcome might be interesting? You know, they're just highly curious learners who when you give them an idea, they say- oh, that's interesting, but what if I did this instead? Or could I do that instead? Or, you know, that's what I think of as a creative learner.

Allison used a number of adjectives to describe the personality and behaviour characteristics of her creative students: they don't limit themselves, they just keep going, they are passionate, they always have other ideas, and they're not held back by the rules. Those students, according to Allison, have a number of unique traits that allow them to think and act in a creative way, which in Allison's case was tied to positive behaviours related to creativity — though she does indicate that they sometimes 'drive you crazy'. Laura shared the same perspective, stating that her most creative children were bored by worksheets, and

would always ask if they could change what they were doing, or modify it somehow. Laura also discussed a student who came up with an unexpected answer in a way that also speaks to the unique nature of thought teachers perceive their creative students as having. When discussing a poetry project they were working on, Laura stated:

The child who when I said ‘write the paragraph about your favourite thing,’ he was going to write about poetry so he wrote it in the shape of a poem. Like that, to me, is a creative kid. A kid who comes up with something and it's not the way I expected or wanted them to do it, that's the creative kid.

Once again, unexpected behaviours and putting a unique spin on an assignment or task speaks to the juxtaposition of what teachers see as creative, involving both personalities as well as actions. When Laura references the output of a student, that output is related to the nature of who that child is – namely someone who thinks differently – and is compelled to demonstrate that distinctive thought process through the delivery of a unique product. In following from that, the following anecdote shared by Heather provides a summary of what most of the teachers in this study experienced — that creative children demonstrate creative tendencies in subject-specific ways as well as through their personalities. She identifies leadership and confidence as some of the traits creative children in her class demonstrate:

There's so many ways to [be] creative, so there's some children who musically are creative, so when we have dance, and they're really into being able to - to figure that out for themselves, or artistically I've had some amazing kids who are creative that way. Um, I've had kids creative even in group work, like being able to creatively solve problems and say [directing others] “ok, well, ok guys”. I've got one kid, and that's a very confident student and there's one in here for sure and they all respect him, because when they chose groups the kids write down who they want to be in a

group with and a few of the names keep coming up, so sometimes the leader, uh, it's the leaders who have that creativity in them, and then like I said before, sometimes it's just kind of subject-specific creativity, so I don't know. That's how I see it in my classroom, or my students that I've had before is - it can vary from how they're creative, so it depends, so I don't know.

It is clear to see that teachers have multiple but related ways of identifying and describing the characteristics of creative children in their classes. When teachers perceive that children who are creative as also the ones who struggle, they are demonstrating many of the same stereotypes our culture holds about what makes an individual creative (Koestner, et al. 1999; Plucker et al., 2004). The child Paige identified earlier as having Asperger's (though he had not received a formal diagnosis), or a child who struggles with writing, reading, or any other element of the curriculum was still perceived to have significant creative strengths which are stronger than those of his or her average peers. Interestingly, teachers link more general strengths such as leadership, confidence, and persistence to creativity, further demonstrating that creative children are somehow positively different: they are seen as above average.

Creativity as a general construct. The perceptions teachers held regarding creativity as a definable construct differed, and the word creativity was frequently used in a broad sense, whether to convey an approach to teaching, an approach to encouraging student engagement, or to describe the benefits creativity offers to individual student development. Teachers in this study never seemed confused about the concept or meaning of the word creativity, but did tend to use the term broadly to refer to different aspects of the curriculum and what they expected from their students. As was anticipated based on substantial evidence found in the literature (Fryer & Collings, 1991; Kampylis, Berki & Saariluoma, 2009), many

teachers restricted the subject areas where creativity is demonstrable in the classroom to art, music, and drama lessons, and only in a more limited way, acknowledged some opportunities to demonstrate creativity in writing, technology, science and math.

In the following quote, Brad speaks to the multiple ways teachers often defined creativity, highlighting ties to innovation and risk-taking.

I would say that creativity is tied into innovation, it is tied into risk-taking, it is tied into all those things, and I think that you know the creativity, the creative aspect I think we forget sometimes is not about drawing nice pictures or something different, right, the creativity, and I think that's where people miss the mark when they think about creativity, and they start- they don't see creativity as an important element of what we're doing here.

Brad's definition of creativity was clearly evident in his classroom. His space was fully immersed in technology, and at the beginning of the year he had made a deal with his students that he would not write anything in chalk on the chalkboard, preferring to use the SMART Board, laptop computers, or iPads to communicate and get students to discover and research information on their own. Since Brad perceived creativity as tied to innovation and technology, he deliberately worked to foster a spirit of collaboration, information-seeking, and high levels of activity in his room, not unlike a technology-driven workplace where high levels of collaboration, creativity, and innovative ideas are required and encouraged, e.g. Google, or Apple.

Heather, on the other hand, said that creativity was making connections between ideas, problem-solving, and being able to communicate ideas and concepts to others. By perceiving creativity as making connections, when she discussed creativity as a concept, she

made reference to how she fosters creativity by challenging students to draw parallels between ideas:

I think [creativity] does go hand in hand, especially with making- being able to make a connection to whatever lesson I'm teaching, or whatever the topic is. Science, we just did invasive species, and I had them do a comic strip to show what the problem is and how to solve it. Um, so then there's a creative outlet on how to - now - we had a science test and all of them - some of them bombed it, but the part that they all answered was they could all answer an invasive species, the name of a creature, right? So because they - either they shared them with each other, they shared them with the class, they visually saw that, or they were able to be creative besides just note-taking and that has to have connected to them, because they all got it. So next time we'll be like ok, how do I get them to remember like the classification system for next time I teach it? I have to think of something else that visually seems to click with creativity and remembering things.

Though Heather has an active desire to foster creativity in her students, it was noted that over the course of the observation and interview, she referred to art and design as the elements of creativity that could be brought into lesson structure, in this case a science lesson. This was not uncommon among participants, and many, like Heather, used the term 'creativity' to explain an opportunity they found to have students visually present the contents of a project, or build, bake or enact a dramatic performance while studying what they considered to be a 'non-creative' topic like math or science.

Ryan's definitions of creativity were strongly related to engagement, finding your passion, and student choice. He felt that creativity was a process, and it became evident when students were genuinely interested and immersed in what they were doing. By defining

creativity as a personal construct related to high task engagement, Ryan's ideas echo those of Csikszentmihalyi (2001) and his concept of creativity as a state of flow, wherein high task engagement and enjoyment leads to the output of novel and useful products.

I believe in choice, and I believe in engagement and creativity. I think the kids have to have a choice in what they do, so I think I look at the collaborative learning structures, the project-based learning, that kind of stuff, as my sort of 21st century approach. I really try to put the ownership in their hands, and make it as one-on-one as possible, so at the table here or wherever they happen to be, whether that's online collaborating with the kids through their work, through that [electronic] pen, or through my Google Docs. My approach is summed up in three words: creativity, engagement, and choice.

By perceiving creativity as being fostered through engagement and choice, Ryan then deliberately provided his students with a variety of ways they could choose to present assignments or projects. By allowing the freedom to choose the means by which assignments were completed, whether through presentations, visual displays, essays, or reports, Ryan felt that the constraints that might limit creativity could be avoided. Writing a formal essay, for example, might reduce the students' engagement in the task because of the constraints a traditional essay format puts on creative expression, according to Ryan. Instead, he allowed the students to come up with ways to use the appropriate forms of written language to convey their thoughts and ideas while still meeting the end goal of the activity or lesson. Ryan's personal experience led to his more comprehensive understanding of what creativity is and how it could be fostered. Throughout the interview he made reference to 21st century skills and the competencies his students would need for high school and beyond. Ryan's personal interest in creativity and student development informed how he conceptualized and defined

creativity, and it was evident that this 'human development emphasis' influenced his teaching methods.

Creativity was also viewed by teachers as tied to experiential learning and self-exploration. Several participants indicated that creativity and creative thinking skills were tied to being able to think about the world outside of the classroom, about the repercussions of the actions people make, and learning to apply in-class learning to real-world problems and events. Sophia had a particularly rich view of what creativity was, informed, no doubt, by her more than 30 years of teaching experience. Sophia perceived creativity as linked to experiences and opportunities as well as problem-solving, confidence and persistence. She responded to a question in this way:

If they are creative, so that they can try different things and they're not afraid to try different things, they get different ideas and creative ideas, then they almost always reach a solution, so it probably helps them in their learning because they - first of all when you get things right it fosters confidence, you know, when you perceive it to be right, or the teacher is obviously giving you the oh, this is great feedback, then it sort of- it's a vicious circle, you just 'hey, I'm going to keep trying this, I know I can do it' and, yeah, I would think that and they can imagine things, I mean, um, sometimes I guess it's with what they're background experiences are, you know, can you picture this happening in your head, can you imagine what the person must be feeling, and to me that must take some creativity and um, most kids can't do that unless they have not had those experiences before, I mean we can't really imagine- they can't really imagine what it would be like to be living as a girl in Afghanistan, for instance, I mean they hear about it, we talk about it, but um, the creative child probably could picture that a little bit, so I can see how that would also help, because it helps them to

relate to what is being read, or you know, putting their own spin on things. I'm just thinking you know in the past when we thought about creativity we always thought about it in an art form, you know, how creative are they when they're drawing something, but um, does that help their learning? I'm - it absolutely has to, I just don't know what the relationship would be.

Sophia's experiences with the emergent and ever-broader use of the word creativity to mean 'engagement,' 'imagination,' and 'trying different things' speaks to the nature of the evolving meaning of creativity in schools as well as the different opportunities teachers feel they can bring into the classroom to foster creativity. In general, teachers were found to have a wide range of perceptions related to the nature of creativity, including what talents and traits make up creative children, and the ways that creativity is visible and evident in classroom situations. The perceptions that teachers had of what creativity is, and the characteristics of children who were creative likely influence the strategies they use to foster creativity in their students. Though very little is known about teachers' espoused beliefs and the subsequent enacted classroom practices (Andilou & Murphy, 2010), having the opportunity to observe and speak to teachers about creativity confirms that in many ways perceptions and behaviours are, indeed, related. The next section of the analysis will outline the strategies that teachers described and used to foster creativity.

Research Question 2: What specific strategies did teachers in this study demonstrate in order to foster creative behaviours in their students? Strategies that teachers use to foster creativity are often based on the perceptions and ideas they hold regarding the nature of creativity and the characteristics they believe that a creative child should demonstrate.

Most teachers in this study were quick to identify a variety of strategies they used to support and enhance the creative thinking skills of their students. Since every teacher reported using multiple strategies, the strategies have been thematically grouped into four categories that represent and organize the specific techniques and approaches in the context of their association with the literature. The following strategies were identified as themes through the analysis of interview transcripts and field notes: differentiated instruction, regulation of the emotional climate, collaboration, and exploration.

Differentiated instruction: Differentiation is the process of modifying or adapting curriculum in a way to match “content, process and product based on student differences in readiness, interests, and learning needs” (Woolfolk, Winne & Perry, 2012, p.481). Many teachers in this study identified that their creativity-fostering strategies were based on adapted methods of differentiated instruction, oftentimes stating they used teaching and assessment strategies that were associated with their students’ individual learning styles/preferences². Many teachers (8 out of the 12) indicated that during the first few weeks of the school year they dedicated large amounts of classroom time to finding out the dominant learning style of their students. In several of the classrooms bulletin boards were dedicated to learning style profiles of the students in the class, in some instances with students grouped according to learning style through an indicator of colour, animal, shape, or body part. Though each teacher took a different approach, many teachers indicated they were, or appeared to be using adaptations of Gardner’s theory of multiple intelligences (Gardner, 1983, 1991). Multiple intelligences (regularly referred to as learning style or preference) inventories typically group students into between three and eight categories,

² The terms learning styles and learning preferences are contested as to which is most accurate. A full discussion of this topic is outside the scope of this paper. For more information on the debate see Woolfolk et al. p.125. For the purposes of this discussion, the terms are used interchangeably to best represent the words used by participants.

labeling students based on a highest and second-highest preference. An inventory frequently mentioned by teachers was Gardner and Hatch's (1989) *Learning Styles*. The styles include:

- Linguistic: Shows sensitivity to rhythm and sound in language.
- Musical: Sensitivity and capacity to produce and appreciate rhythm pitch and timbre.
- Logical/mathematical: Capacity and sensitivity to logical or numerical patterns and capacity for reasoning.
- Visual-spatial: students who are highly visual, and think in terms of physical space.
- Bodily-kinesthetic: Can use the body effectively and have a high sense of bodily awareness
- Interpersonal: Understand and interact with others, and learn through interaction
- Intrapersonal: Understand their own interests and goals, prefer to shy away from others
- Naturalist: Ability to spot and understand patterns in nature.

Though there are many iterations of this type of learning style division (see also: Canfield, 1992; Gregorc, 1982; Heffer, 2001; Myers & Myers, 1980), teachers used the differences between students as an organizing principal to tailor and position each of their students as unique, and in need of specialized learning opportunities. Teachers who participated in this study largely spoke of differentiation as a primary strategy that allowed them to see their learners as individuals, and helped them to communicate their understanding that the typical school atmosphere that places heavy emphasis on verbal-linguistic and logical-mathematical systems may not be the approach all students are most suited for (Edmunds & Edmunds, 2010). When asked about the strategies they used to foster creativity in their classrooms, many teachers immediately talked about how recognizing and

attending to learning preferences allowed children to flourish and demonstrate their personal creativity.

Trent spoke about the learning style inventory he used in order to help him create an environment in his class where he was able to foster creativity and recognize his students' strengths.

So it's called animal traits, so that's what I do with group work, I spend the first week of school I don't do anything academic. It's all get to know games, things like that, getting to know what type of person they are [...] I have done in the past where you chose an activity based on what your learning style is, but the flip side is it's hard because the one thing I am learning is that I used to think it had to be open-ended for kids to be creative. So if we told them exactly what to do that we were limiting their creativity. Now I feel like hey, if we do a project, like our science project, I feel this must be on it, and this must be on it, and this must be on it. But what I've done, if they're doing a project on different ways of generating electricity, [now some of them can] create a brochure that's supposed to convince the audience that their way is the best way. So to me, the research is making sure that the checklist tells everybody what's supposed to be on it [but they can change their approach]. So can you find the information, find it, make sure it's on there. But the creativity is how do you present it.

Trent went on to speak about and provide examples of the various opportunities he presented students with in order to complete an assignment in a way that best matched their strengths, including various forms of visual presentation (posters, PowerPoint, brochures, artwork), written work, or in some cases a dramatic presentation. He also spoke about his personal development as a teacher, in that he went through a long process of learning how to

foster creativity in his students within the demands he faced meeting the curriculum expectations. By differentiating based on learning styles, he felt that he was providing students with an opportunity to be creative while ensuring that his teaching expectations were also met.

Trent's expressions were not unique. Brad also felt that differentiated instruction techniques were the key to getting students to express their creative talents and abilities, and he said that when the classroom teacher used differentiated teaching methods, students felt more successful, more confident, and more willing to take risks. All of these were positive benefits and strategies in themselves that Brad used foster greater creativity:

I offer tons of differentiation, so students providing not just product, but you know, like to differentiate the end product, but also the means of preparing, or the means of acquiring knowledge [...] because if you can give kids opportunities to [have that] experience, not only are they going to be more successful in those kinds of things, but they also have the confidence going forward to take risks, and move into areas that they may not have been exposed to before, but they're like, 'yeah, you know what, I was successful doing this, let me give it a try', and we create a cohort of students who are more likely to take some risks and more likely to come up with some new ideas, or to look at a different way of doing something, or develop something that's different, and that's what I think going forward, we want to try, and you always want to try and better yourself, and better the people and things around you. If you can have kids that are willing to take risks, and do that kind of stuff, then you know, [differentiation is] providing them the opportunity to do that.

Paige believed that differentiation was a key to student success as well as central to the creation of a stimulating environment in her classroom. By providing options for either

working in a group or independently and modifying the means of presentation, she clearly stated that she felt choice and differentiation allowed students to be creative and demonstrate their full capacity for learning and understanding.

I try to always make sure for every subject, for every strand, that they get a chance to show their learning in different ways. So for example, say I have a kid you know, that - like I always try to do a reading, not a reading, but like a paper-pencil task, some sort of project that even has [differentiated instruction] in it, and or a test. Because some kids just function different ways. The project- almost always I give them different options on how to do it, so you know, you can do a PowerPoint, you can do an oral presentation, you can do a skit, you can do, so as long as you're telling me the same information, I don't care how you show it. And that - there's a lot of freedom in that for kids. Kids usually embrace that a lot and really engage through it, so usually I let them embrace their creativity through those opportunities, So I try to embrace where they're at, and encourage it. I think I'm really comfortable.... they give me the cue about what they need, but also I think I'm really comfortable with creativity and some teachers aren't. So, I think there's that whole balance of you know, because I'm comfortable with it I can embrace it.

Theresa's thoughts also highlight the idea that differentiated instruction and creativity are somehow linked. Throughout the interview and observation, Theresa seemed to express little of the excitement shown by the other participants, and only a somewhat vague interest in fostering creativity. When asked about her teaching strategies and differentiation, she indicated that she felt that it was better to take a traditional approach to teaching, and in her case she preferred to use a teacher-directed model, rather than differentiating instruction to meet student needs. Theresa's classroom also looked different than the others- hers was the

only one of the 12 that had desks aligned in rows, and students were not asked to collaborate or work together in the time the researcher was present in the room. Her response to a follow-up question about whether or not she uses any differentiated instruction practices was answered as follows:

Yeah, I mean, I try to incorporate other learning styles as well, but my, my preferred learning style is how I teach- I'm a visual person an auditory person, that's the way I teach- I'm strong, I use visuals, and listening and teacher-directed lessons which I'm trying to cut back on too, but you know, you need a certain um, you need a lot, like, I don't want to leave them to their own learning so that they're muffling around and not knowing what they're doing, so I like to be somewhat in control of that. You know what I mean?

In many ways, Theresa's perspective aligns with the literature (Edmunds & Edmunds, 2010; Woolfolk et al., 2012) which states that students may not be the best judges of how they learn, and that children often benefit from developing new and more effective ways to learn rather than staying within the comfort zone of their own identified learning style. Similarly, creativity is known to be enhanced when individuals are pushed to take risks, to explore new ideas, and to encounter challenges (Cropley, 2001; Runco, 2007).

By differentiating the instructional techniques that they used in the classroom, most teachers in this study felt that they were providing their students with the opportunity to express themselves and come up with novel and original ideas. Differentiation and their willingness to adapt the curriculum expectation to meet the needs of the learners supported another major theme identified in the interview and observation data, namely that of regulating the emotional climate in the classroom, which included teachers' attempts at fostering safety, trust and confidence in the learners.

Regulating the emotional climate. At some point during the observation and interview, most teachers spoke to the techniques they use to create a safe, trusting, and warm classroom environment where students felt that their ideas would not be judged negatively, they would not be bullied, and they would not be ostracized from group work or projects. When asked what the benefits of this practice were, often teachers said that emotions were strongly tied to confidence and empowerment, and students who were confident and empowered were less disruptive, happier, and ultimately more creative in their work. This was a common theme throughout almost all classroom visits. Ryan's expression of how he creates a safe classroom environment to foster creativity sums up much of what was said by all participants:

We really work a lot on this being a safe place. So you can say what you want, you can dance when you want, you can sing when you want, um, and if you don't have that sense of security, then you maybe not going to be as creative. It's going to close off some of your creative outlets because you're afraid of looking silly. So I will sing for the kids, I dance with the kids, we write poetry together. We laugh and cry together over book reports.

Ryan's emotional work with students was also evident during the observation period. During a recess break, he opened up a computer file full of student book report slideshows and presented a few that he identified as the best and most creative in the class. Emotionally, each of the presentations he showed was gripping, and clearly demonstrated that his students had a strong understanding of how music, images, and words can be used to elicit emotions in the viewer. During one of the slideshows Ryan commented to the effect that when students were presenting particularly emotional books, it wouldn't be surprising to see himself or another student in the class actually shedding tears. By supporting a safe and trusting

environment, he allowed for students to not only express themselves creatively, but also overcome the trepidation and fear present when being judged or viewed by peers as overly emotional or, in his words, “weak”. The safety of the environment led Ryan to feel that he could encourage and expect his students to work at a higher level of understanding and push the boundaries of what was typically expected of that grade level.

Safety and trust were also discussed by Sophia. First and foremost, Sophia indicated that her teaching strategy was to ensure that her students felt comfortable and that they knew they were respected in the classroom. She did this by breaking students into smaller groups and ensuring that she had one-on-one time with every student during the week. Student-teacher conferences, directed attention, and deliberate and purposeful emotional support were important elements of her philosophy of education. Using this approach she felt she was able to develop creative strengths and talents. In reflecting on this technique, Sophia stated:

My goal is to make every kid feel comfortable and liked because I think that's sort of the- you need that building block in order to get them- in order to teach them anything. In order for them to want to learn, they have to want to be there and they have to want to be engaged, so that's - I guess maybe a bit of a safe environment.

Sophia’s teaching style also relied on having students critique and support each other’s work. Though she indicated that students were nervous to have the class look at their work at the beginning of the year, by the end of the year students saw the class as a safe space where they understood suggestions for improvement that came from others were meant to be supportive and developmental rather than negative. Creativity for Sophia came out of trust and safety and removing barriers around judgment and fear of being teased or ostracized.

Erin also spoke directly about the need to foster a sense of safety and trust in her class, linking it to freedom and confidence:

... like I was saying before, the psychological part of it, I think just them feeling free to give any answer and not to be judged by it. Like just having, yeah, that opportunity to give their answer and feel confident about it and not to worry about if it's right or wrong.[...] maybe just a safe environment for them to share. And for - in the school I would say um, most kids would feel safe sharing in their classrooms, especially once they have a relationship with their teacher. It might not be right off the bat, but I think most of the kids in our school at least would feel comfortable sharing their ideas with teachers.

During one of the observation sessions, a teacher indicated in an aside to the researcher that the development of a sense of safety and trust in the class was essential to getting things done, because without them she would regularly be forced to go back and deal with any conflict before they could all move forward with an activity or get through a lesson. In this respect, her comment spoke to a wide range of opinions teachers held with regard to adopting classroom management practices that lead to a comfortable, safe and trusting space, which then becomes a precursor to creative thinking and behaviors. By establishing a climate where children can be free to express ideas, teachers in this study found that blocks to creativity are lessened, and the environment serves to motivate even while inviting constructive criticism and informative feedback. Most of the teachers who participated in Stage 2 of the research identified how important the maintenance of a positive and supportive classroom climate was to achieving goals and fostering creativity.

The words *trust* and *confidence* were frequently used as synonyms for teachers who were interested in developing creative behaviours in their students. Teachers often said that

they needed to *build trust* or *build confidence* through activities, through multiple opportunities for success, and through a number of strategic processes that allow inner creativity to shine through. Allison saw that trust, confidence, and learning were key components of being able to do activities and she used deliberate strategies to foster creativity in her students. Allison regularly engaged her students in hands-on experiences using tools and materials that engaged students in meaningful ways with the expectation that hands-on learning would lead to a greater sense of empowerment and creativity. When she spoke about preparing the students for those kinds of learning opportunities, she made the following two remarks at different points in the interview:

Before you can teach them, they have to trust you. And so we spend a lot of time in the fall getting - doing collaborative activities and teamwork activities, and trying to build up their trust because if they don't want to work for you, then it doesn't matter what level they are at. They're not going to do - they're not going to do well.

[...]

If they love you they will do anything for you, and if they don't love you, they will not do - they will resist. Right? Like a supply teacher- they don't like change because they don't know if they can trust that person, and so and they might not- the freedoms or the things that they value are not available to them because you're not there, and so I think that's one of the reasons teachers have problems with kids at this age because they are resistant to - they like what they like and they don't like what they don't like, but once they trust you and they feel that they have ownership over their domain, with little things, right, they will respect you.

Earlier, Brad spoke about fostering confidence and risk-taking as part of his strategies to differentiate instruction and encourage creativity (p.66). In addition, Brad stated that

trusting his students was an important element of being a creativity-fostering teacher. To trust students, in Brad's experience, means to allow students to take the lead, and when they do, great things can happen:

You have to take that leap of faith, to trust that if you set it up right, it will work. [...] If you put [the right] structures in place and use the vocabulary and reinforce it with kids and do all that stuff, it becomes normal for them and they become more sophisticated learners. They become more able to lead themselves and work through those things, and you know, if you trust them to do it, if you trust yourself to give up the - to give up the reins, then uh, then yeah, the results are really powerful, and you can, you see amazing things it blows your mind when you say 'that kid who is 11 just did that'. And there's not a lot of places in the world where someone would ever expect an 11 year old to come up with that idea, or that particular product, or that whatever, and ever believe that came from a kid. We just don't give kids enough credit, you know, because kids are - we still are we're still not ready to trust them you know, [trust] what they're capable of in many cases.

Within the context of this study, teachers frequently reported emotional safety, trust, empowerment, and confidence as components of the strategies they use to foster creativity in their classrooms. In most cases the development of the emotional climate was viewed as more important than the end product, because by creating a sense of safety, teachers saw that children were more free when they were unencumbered by the burden of emotional challenges and the class could work together as one, rather than relying on behavioural and classroom management techniques. Though most teachers indicated that it took a great deal of time and effort to learn about their students and establish classroom parameters and enforce behavioural rules, the end product was that creativity and student engagement levels

were higher, and students experienced less stress and fewer negative behavioural challenges. Moreover, by establishing a trusting and safe climate, teachers could draw upon the strengths of group work and collaboration among students, again heightening their creative thinking skills and motivation to learn.

Collaboration. Teachers in this study used collaboration as a tool to build an inclusive space in their classroom and to foster healthy relationships and child development. Teachers also discussed the ways they used collaborative group work as a strategy to foster creativity and help students draw on each other's strengths. In many ways, collaborative learning activities seem to be related to the methods teachers used to differentiate instruction for students who were interpersonal and like to talk through their ideas, but they are also a means to establish a positive emotional climate. The value of collaboration is in the connections students can make to more ideas and the substantial opportunity it offers students to take on a leadership role and be self-directed in the way they navigate conversations and problem-solve with peers.

Allison discussed her teaching philosophy using the words *collaborative differentiation*. To her, this described a merging of both differentiated instruction and collaborative learning teaching strategies. She employed this technique to foster a sense of togetherness in the class (building a sense of trust and safety) while meeting the learning needs of her students.

Collaborative differentiation. That was my new term, because I believe that kids the age I teach - and probably any age really just want to belong to their peer group more than anything else, and kids who struggle in learning, they get pulled out for this, that, and the other, and sometimes they lose their sense of belonging to the group. So, I try to create activities where the end goal is something that everybody will do together,

like the gingerbread houses, or the baking, or we do algebra pizza in the spring, and we do all these little things um, like so that everybody feels like they're part of the activity, but then I teach the skills that go underneath it, that's when I differentiate by ability or by modified programs or whatever, so that the little girls in my class who were only able to find surface — not even surface area, area of a rectangle and a square are doing their math, and the rest of the class are doing their trapezoids, or whatever, so they all feel like they're working toward the same goal which is to build their gingerbread house, but they're not- they don't feel separate from it.

Here Allison speaks to her strategies to get students engaged and learning together, and she also references activities she used to get students thinking differently, like coming up with new ways of doing math and science projects. By baking, or building gingerbread houses, Allison wanted students to be creative and think about the subject matter from a different perspective. In this case, instead of doing math with worksheets or integer tiles, she used raw materials such as food to promote knowledge and understanding as well as allowing students to learn from the ideas and understandings of others in the class. Allison saw each activity or exercise as providing opportunities for high levels of engagement, and through that, students could work to the level at which they were most comfortable. Similarly, Brad saw collaboration as a tool to foster engagement:

I know that when my kids come- when these kids come to me they understand what it means to work collaboratively, and what a group sounds like, and what a group is supposed to work like, and the kinds of roles that people will be expected to take and those kinds of things. To be able to do that — to have that understanding first of all, and then to be able to apply that for whatever it is we are doing, in this case it is proportional reasoning, or you know, it could be any kind of math problem-solving

that we're doing, in that situation then students can take what we're working on and hopefully apply it to something that has some real-life connections. [...] In this particular case it is an opportunity where they can take what they know, apply it, and then, you know, have that conversation at the actual, on-task conversation about what they're doing. 'Well, I like that idea, maybe we can do this'. One of the things we did today was do the spy— where you send somebody out to take a look [at what other groups are doing], and you know, that's another strategy where it's not about keeping your ideas to yourself, it's not about, you know, 'this is mine, you can't have any of this', like 'this is my understanding, and you're not allowed to have any of this'. It's like: let's share, let's get this out there, let's have as many people have a piece of this, and more to improve it rather than to you know, you don't distort it or dilute it in any way, you actually improve it as the more hands that touch it, often. So with these kinds of things if the kids can get some ideas and it's not me saying 'you need to divide by this' or you need to add this, you need to whatever, they look and they say 'wait a second, how'd you do that?', and then have the conversation and then say, 'oh, geez, why didn't I think of that?' and it's that kind of learning that experiential learning. Working through those problems, having you know, peers do that do instruction rather than me, I mean, the research we've seen says yeah, of course, that makes them learn better because then it's not somebody yakking at them, it's them figuring out for themselves and working through it themselves.

Brad touches on many reasons why he feels that collaborative learning and group work are an effective strategy and tool for promoting creative thinking and practice in his classroom. In structuring his class so that students can work together, he allows them to teach themselves, learn from each other, and draw on the best ideas. He is firm in his belief that

teaching and learning are not about keeping ideas to yourself, but require instead sharing and building on ideas in order to improve your own learning and outcomes. Students then enhance their creativity because they can make connections between the ideas of others, and much like John-Steiner (1997) wrote in her work examining the role of famous collaborations, Brad sees the creative discourse as a process that includes disagreements. For the teachers in this study, collaborative, creative discourse involves taking a position and arguing for it, because when the end is reached, the ideas have become stronger and the creative products are more original because of the challenges and re-developments that happened along the way. In the creative collaborative space there is room for discord. In Brad's classroom, the activity that he is referencing in the quote involved students racing around the room and competing for "resources" in order to build and trade puzzle pieces as part of a social studies lesson. Some groups were given fewer resources than others, and conflict occurred as a natural consequence of this. The strength of the exercise and the creative collaboration was not only in the highly-engaging activity (students racing around the room), but also in the post-activity reflection wherein students were encouraged to discuss their disagreements, their reasoning for certain actions, and what they would have done differently. In Brad's classroom, novel and appropriate ideas and behaviours were fostered through collaborative networks as well as reflection on action.

Drawing on many of the same themes, Heather frequently used collaboration and group work as a means of engaging students and getting them to think about topics and issues. Heather's teaching philosophy was geared towards encouraging creativity in her students, and collaborative activities was a way she felt she nurtured this goal. Not unlike Brad's perspective, Heather's view of collaboration is tied to conflict, and the idea that through the resolution of conflict, relationships can grow and learning can happen in a

variety of ways. In reference to building a classroom where collaborative practice is valued, Heather stated:

I like group work a lot, lets them work together, collaborate, so makes them problem-solve, because lots of problems happen, right? They have to be taught how to go through and figure out a solution when they have problems with each other, especially. So I really focus on positive words to each other [...] and then, I don't know, from the start in September as well, I just kind of talk to them about respecting each other and not expecting that they're all going to be best friends who go skipping down the hall hand-in-hand, that's not what needs to happen with each other, but they still have to respect each other. Right? And then they have to understand that, and we try to make real-world connections, like when you go and have a job, yeah, you're going to be friends with some people. Some people you're not- you still have to work with them. So you have to sort it out.

Heather's activities encouraged students to think through problems and discuss issues related to what they were studying. Collaboration and group-work activities provided students with an opportunity to demonstrate what they have learned in a meaningful way while working through and discussing issues with a group before coming to a mutually agreeable conclusion. When Heather indicates that these are skills that students will need for the workplace, she communicates an understanding that the material is not necessarily the most important component of the lesson: the learning that comes through conflict resolution and problem-solving (two essential elements of 21st century skills) are what will be carried forward and used by the students in the future.

Marilyn, a teacher who acknowledged that she herself had struggled in school, also felt that life skills learned through collaboration and group work were essential for the future

success of her students, indicating like Heather that the future included preparation for the world of work. In her Grade 6 class, Marilyn discussed why she felt group work was important and why she purposely built her lessons using strategies to encourage collaborative learning. She made the following remark after discussing what she considered to be the importance of understanding her students learning styles, during which she noted that most of her students primary learning preference was kinesthetic. Marilyn stated:

These kids do way better working with a group than they do by themselves. So... and that's really what it would be like working in a working place anyway, like they might as well get working with other people, because whether they're a nurse, or a teacher, or a farmer, like no matter what, they need to know how to work with people.

Teachers gave many reasons why group work was an important aspect of their classroom and why they encouraged group work and collaborative activities in order to foster creativity. Seeing it as part of a holistic learning process, teachers in this study placed a high value on collaborative group work and often tied the benefits of collaboration to other elements of learning and personal development. While acknowledging that conflict sometimes occurred, teachers largely indicated that conflict was a part of the creative struggle, and that taking on roles and positions promoted a broader understanding of human nature and could lead to compassion and understanding.

Exploring, experiencing, and making connections: Though one of the foundational theories of this research project is experiential learning theory (Kolb, 1984; Mainemelis, et al., 2002; Martinez Casanovas et al., 2010), only a few teachers explicitly identified experiential learning as a deliberate strategy they used to foster creativity, even though many teachers such as Erin stated that “creativity is using like hands-on things a lot of the time.” Teachers were far more likely to identify experiences and events (that could be considered

experiential learning), as activities that they felt were interesting, or different, and/or were highly engaging for them as teachers. In this respect, teachers saw experiential learning opportunities as a way of demonstrating their own personal creativity, in that what they were doing as teachers was different or unique, more so than they perceived the activities as strategies for fostering the creativity of individual students. Despite the fact that teachers do not explicitly name experiential learning as one of their creativity-fostering strategies, it is easy to see the parallels between the experiences they did talk about and the desire teachers in this study had to foster creativity as a general competency in their students. Several programs and experiences stood out.

When teachers spoke about the experiences they provided their student with, they typically spoke about the opportunities they had to go somewhere, or do something that involved bringing in someone from outside of the school. Both Colette and Paige discussed the value of participating in a program called *Teaching Shakespeare School* that takes place yearly each summer in Stratford, Ontario (see Stratford Festival, 2012). During this program, Grade 4-8 teachers from across Ontario have the opportunity to work together with professional actors and learn hands-on, drama-based strategies for teaching Shakespeare to their students. As part of the program, a trained professional actor comes to the participating teachers' classrooms to co-facilitate a workshop during the school term, and subsequently teachers and their students attend showings of a play at the Stratford Festival as part of a school trip (Stratford Festival, 2012). Both Colette and Paige spoke highly of the program, and the unique way in which it engaged their students in learning Shakespeare. Paige had participated in the program "about three or four times." She emphasised that the Teaching Shakespeare program was highly engaging for both students and instructors. By working together with a professional actor, she felt the program made Shakespeare's plays accessible

to a young audience, and by using dramatic techniques to work through the story of the play, the antiquated language and customs, that are typically barriers to Shakespeare, were less prominent, and the students were better able to understand the meaning of the story.

Colette also expressed her enthusiasm for the program, and she was one of the few participants to explicitly state the high level of importance she placed on experiential learning for both herself and her students. In reference to the Teaching Shakespeare program, she stated:

And studying Shakespeare, who does that in elementary school, right? You often don't. We tore Twelfth Night to bits, we studied all of that, then our actress came in and we did all this character development and we had great fun- she was awesome, great fun with her, and then at the end you go to Stratford and you see their production, and the kids loved that! How many kids get the experience of going to Stratford to the Festival? [...] So yeah, we did that, it was great. Truly awesome.

Both Paige and Colette saw the opportunity to combine language arts with drama as a unique and valuable opportunity to get students thinking differently about reading, producing text, and the nature of theatre. They both identified this learning opportunity as one which was beneficial and brought forth unique and creative ideas in all of their students.

Colette also made connections between the experiences her students had and positive, creative learning outcomes. Reflecting on another expedition in which she and her students participated, Colette indicated that creativity was enhanced when students were outside of their typical environments. In discussing a class trip to the Ontario Museum of Archeology, Colette highlighted how such experiences lead to creative and divergent thinking:

So we were at the Museum of Archaeology and we did a lot of creative learning that entire week. Interesting to see my one fellow who is not a pencil-paper boy, take a

piece of clay and mold into this beautiful pot, and to add such detail. He took forever, and he focused on that, and this is a child who honestly if you gave him paper and pen, like first off the pen usually flies over his shoulder, the paper comes back to you looking like a dog got to it, right, and there's maybe a sentence on it with no capital, no period, so it's not even really a sentence, it's a thought, and that's it. So to see him be creative doing that is great! They did a lot of journaling and they did a lot of going to their own spot within the museum, and just writing their thoughts, or drawing their thoughts, or like giving them the opportunity to do whatever they felt was necessary for forty minutes. And they did. They worked, they produced. They didn't sit there and think. They did things, you know like sometimes you'll say to them 'what are you doing? Do something' [indicating typical student response] 'I'm thinking.' they weren't doing that. They were all doing something, and of course they're thinking, but they weren't saying 'I'm thinking.'

By highlighting the child's ability to focus and engage in a task, Colette recognized that children's creativity and her strategies for fostering creativity rely on the production of something novel and interesting, not just thinking about creativity. In presenting students with the opportunity to explore and experience elements of the environment, Colette and other teachers in this study saw that there were a wide range of opportunities available to foster creativity outside the boundaries of the classroom environment. In the excerpt from the transcript above, it is interesting to note that Colette also speaks about the opportunities experiential learning presents students with different learning style preferences (she mentions a student who didn't respond well to paper-and-pencil tasks). In addition, her observation regarding the importance of independent work time fits well with Cropley's (2001)

recommendation that creativity-fostering teachers “encourage students to learn independently” (p.138).

Part of the process of having experiences, many teachers felt, was giving the students enough time to really explore and engage in an element of the curriculum, rather than push students to accomplish a task within a single lesson period. Taking time and thinking deeply were concepts teachers discussed with regards to experiences that made a difference in fostering children’s creative behaviours. Often, during the observation periods teachers mentioned either to the researcher or to the students that there was not enough time, or that they would have to hurry because they needed to move on to something else. In addition, during the interviews many teachers indicated that they wished they had more time, and that the curriculum they were expected to cover had so much in it. Some teachers indicated that they would not get through everything they had planned to get through in a year, and others, especially those who were interviewed in the late spring- closer to the end of the school year, indicated that they were scrambling to finish up all the work they needed to before school was out for the summer. As a whole, teachers seemed to wish they could give students more time to work on projects that would provide them with an opportunity to take their time, and think deeply. Two teachers spoke directly to this issue. Trent stated:

So I'm always struggling with- I want to do these creative divergent things, but at the same time it's a pen and paper task and we've got to practice how they answer questions, and we do, because sometimes you- or sometimes you want to be more creative with reading and get them thinking deeply and all that, but ultimately if they're just doing that- you may be getting into it, but to get it to show up on the paper is a whole other challenge, so that's the biggest thing I struggle with, or usually, anything that is more creative takes more time.

Theresa spoke of feeling similar pressure:

And I hate teaching that way. I really do, but I feel I don't have a choice sometimes. And that's why I try to incorporate these websites on my class page that they can explore and um, I don't know, what else do I do? I you know, I used to play a lot more games but I don't play games anymore, I just don't have the time. And that sucks, because that really - they learned because it was like drills, it was practice, it was revisiting things daily, but we don't do that anymore, I can't, I don't have time. I don't know, I just get bogged down with the curriculum, I feel like I can't teach the way I used to.

Allison had 25 years of teaching experience, and indicated that her perspectives on how she would get all of the material covered had changed with time. Her perspective was that creativity takes time, and in order to foster creativity students should be given as much time as they need to engage in a project and work on it until they are satisfied. Though all of the teachers in this study indicated that more time would make a difference in how they fostered creativity in their students, Allison indicated that when she gave students the time they needed in order to think deeply, they were able to make meaningful work. Allison stated:

So by not rushing students, by not saying ok, I'm going to address every expectation in the curriculum in this art curriculum, half of which I don't understand anyway, [I say] let's focus on this, and let's create until you're satisfied, so they can do many, many copies, and at first when they get art you get those kids who do *psht!* and just get it done- there's no creativity at all, and it's just like ok, give me the rubric, knock that one off, so it takes a little while to get them to think— it's not just about getting it

done, because sometimes they don't get it done, and that's ok too. You don't necessarily need to have a finished project.

Similarly, Laura indicated that creativity was encouraged when student's creative ideas were praised and celebrated, and though there were constraints, she would modify her lessons in order to allow her students to stay engaged in a project. During the interview, Laura said:

Well the children in my class know that if something gives me goose bumps, that that's the *wow* factor and that was something unique and different, um, my schedule that I have on the board there is on magnets, because if we're doing something and we come up with something more exciting to do, we walk over and we change what we're doing that day — as much as I can within time constraints of them having to go somewhere else, but if it's just in my class I can say 'you know what boys and girls, we're working so hard on this math problem we're going to skip this today and we're going to keep working on it' to show them that that's important to do. [So] depending on which class I have my schedule, it's very flexible. Like if it's a class like the one I have in there that I can just change that, I do that. And like I usually have two or three alternative plans of what I'm going to do for the day, because I find that I read the kids. So, if they're into something where they're going to work, like some days they would sit and work on novel study for over an hour and you could hear a pin drop, right? Well if the next day I feel like that's not going to work, then I don't do that day, we'll do the novel study the next day.

Lastly, Marilyn who was relatively new to teaching had a unique perspective on education and child development from a holistic point of view. She drew on her own life experiences, and what she had learned as a mother and grandmother. Marilyn had a strong

interest in fostering creativity, and stated throughout the interview that because of the pressure to accomplish the curricular goals, the students needed to have unique learning experiences that were highly engaging, but they also needed to take their time and work at their own pace. During Marilyn's interview, she stated that her approach encouraged students to be free, think deeply, and take their time.

We don't take enough time to stop the school work and just let them think, just let them lay in the grass, like give them a really really higher-order thinking question, and just let them go out and lay there, all by themselves. [...] If you first get them in a different place, like where they can just relax and take deep breaths, there will be better creativity for them, right.

In the school context, these kinds of opportunities for experiential learning such as allowing students the time and freedom to work slowly and make connections is also strongly influenced by the teacher-colleague-administrative relationship. Several teachers indicated that they either were, or were not, able to engage their students in particular experiences because of the costs, the challenge of organizing travel, or administrative pressure to focus on test results. Those who spoke about their strategies and the opportunities they used to provide their students with experiential learning opportunities quickly credited their principals and their colleagues for the support they provided in putting a program together. The last research question investigates the environmental factors that influence creativity-fostering behaviours in teachers.

Research Question 3: What environmental factors influence teachers' desire or ability to create and maintain a creativity-fostering classroom? Cultural, perceptual, intellectual, emotional, and social blocks to creativity exist in business, education, and our own personal lives (Runco, 2007). These barriers influence our ability to problem-solve, but

also may act as distractions when one is engaged in a task or working through a particular idea or concept. The school environment can be filled with distractions, and always hosts a wide variety of events and occurrences. Without exception, every interview conducted for this study was interrupted at least once by a person who required information or assistance, such as administrator, student, custodian, or parent, or an event — children banging loudly on an opposing wall, a loudspeaker announcement, the delivery of milk for lunch programs, or in once case, a fire drill. Several teachers who had indicated a willingness to participate in Stage 2 of this research study regretfully chose to decline participation because of an ongoing labour dispute between the Elementary Teachers Federation of Ontario and the Provincial Government. During the later stage of data collection, teachers were experiencing pressure to scale down or eliminate extracurricular activities and cancel holiday pageants that would require attendance outside of the normal hours of the workday. Environmental factors such as these, which individual teachers have little control over, appear to have a direct impact on the strategies teachers are able to use and the behaviours they feel they can demonstrate in the classroom towards fostering creativity. It may be impossible to calculate to what extent daily interruptions and the general busy pace of school life changes creativity-fostering behaviours in teachers, though it is a topic that deserves further investigation. Environmental variables certainly influence the relationships that teachers have with the administration and their colleagues within the school as well with students and their parents. When these collaborative and mutually-supportive structures experience stress, it is natural to expect that teachers' perceptions and beliefs will be reciprocally affected.

Some of the following factors have already been mentioned briefly because the elementary school environment is a dynamic and shifting community of students, teachers,

administrative staff, parents, and members of the public. Teacher perceptions and strategies do not exist apart from the environmental resources that teachers have access to and the constraints that they experience. Broadly conceived, three primary environmental themes have been identified, and they are understood to influence the ways teachers perceive and support creativity. These include: the resources they have access to; the support (or lack of it) that teachers receive from colleagues, administrators, and parents; and accountability measures, such as EQAO testing, that, depending on the school, will have a stronger or weaker influence on teachers' behaviours and desirable teaching outcomes/goals. Each will be discussed in turn, using the voices of teachers to provide narrative context for the direct ways their behaviour and opportunities are influenced.

Resources. Teachers mentioned time and money as the resources that were most likely to influence their creativity-fostering behaviours. Heather, who was currently working in an urban school, indicated that she had previously worked in a remote northern community with access to very few material resources in the school. In discussing the issue of resources and fostering creativity, she indicated that a lack of resources sometimes encouraged teachers in remote northern schools to be more creative, as they would not be able to rely on the same access to technology or materials as teachers in southern schools. With reference to a question where Heather was asked about how her experiences fostering creativity in these two different schools differed, she replied: "You have to be a little more creative when you don't have everything you need. It's almost like more things come out when you have less, somehow." Conversely, Colette strongly identified a lack of monetary resources as a barrier to fostering creativity in her classroom. Money, to Colette, signified freedom, and a lack of money "interfered" with her ability to give students experiential learning opportunities outside of the classroom. At one point Colette stated, "There's no money for anything. It

always comes back to money.” With more money, Colette felt that field trips would be more accessible to students and she would be able to bring in higher-quality resources for her students to use. Marilyn, identifying the same financial challenges, also strongly valued the creative process as well as the creative work of her students. In order to foster this creativity, Marilyn spent her own money on high-quality artist’s paper for students to use as part of a project. This expensive purchase demonstrated Marilyn’s feelings about how access to resources influences students and the reason she felt it made a difference in their learning. When asked why she spent her own money on the paper, Marilyn stated:

I just feel things like that make the kid also try harder and appreciate their own work so much more. I forget what the name of that movie is, but it's like where she works so hard at all these part-time jobs and after she actually bought them their brand-new books. Um, um- what was? It was Anne- the Anne Frank book, and she had bought it for all of her really low-leveled students, and just knowing that they smelled these books- like they couldn't even believe they had this brand-new little book - and I think it really makes a difference with kids, that if you give them the right stuff, they do appreciate it and they are more creative.

During the observation period, Marilyn showed the researcher the artwork that the students in her class had created on the heavy paper, indicating that she had brought in a local aboriginal artist to work with the students. He had showed them how to use natural materials, such as plants and charcoal to create images on the paper while discussing the rich symbolism contained within indigenous art. Marilyn indicated that she now expected the students to bring the artwork home to their parents, who could frame and hang it with pride in the family home.

Overall, resources were a point of discussion for teachers, but rarely stood in the way of getting the work done and did not prevent resourceful teachers from finding ways to access what they needed. Several teachers indicated that they had accessed grant money for class trips or to purchase classroom laptop computers, or that they had taken advantage of school board-supported trial programs to gain access to specialized technology such as iPads or computer programs that facilitated face-to-face video chats with students in other schools. Other teachers said that they found free or very low-cost opportunities within their communities that students could participate in, thereby accomplishing their own goal to provide their students with meaningful opportunities to learn in new and unique ways.

Support. Individual differences in the ways that teachers support and nurture creativity in their students are a function of the extent to which the social and contextual factors in which teachers work support the creative process (Carayannis & Gonzalez, 2003). Within the school environment, students, colleagues, administrative staff, parents and community members each offered a different kind of support toward teachers and their creativity-fostering behaviours. These social/environmental factors can be interpreted as either encouraging or discouraging creativity-fostering behaviours. Most teachers in this study indicated that they received very high levels of encouragement and support for creativity-fostering from their school principals and colleagues. In many cases during the observation periods, the researcher had the opportunity to meet school principals, and these meetings were undeniably positive. Every principal who inquired about the study indicated their own personal interest in fostering creativity in students, and three principals mentioned a board-wide push to infuse the curriculum with learning opportunities related to adaptive 21st century skills (Bellanca & Brandt, 2010; Trilling & Fadel, 2009). Though these meetings were all short and welcoming, the principals' genuine interest in the subject matter of this

report was generally confirmed by participants during their interviews and observation sessions.

Colette indicated that her principal was especially supportive of activities related to creativity in the school because her principal was also an artist. Colette stated:

Whether is it supported depends on who admin. is, right? I do think here, absolutely supported, our principal's wonderful, and she's an artist herself, first off, an artist before all this, right, so she's into creativity and trying new things, absolutely, so that's good. Not all admin. is the same, right, it always depends on where you are.

Marilyn shared a similar experience:

Our principal here is very, very creative. And so, she - she likes putting the arts into the curriculum, and every subject- just throw the arts into it, so she's been a real help for that because I think if I had an administrator that was very um, academic, I might feel like they're probably thinking that I'm too fluffy, that I'm not getting my - my work done, right?

Both Colette and Marilyn spoke to the ways in which their principals encouraged the infusion of creativity-fostering activities into the curriculum. By having a supportive principal, they each found that they had more opportunities to present their students with creativity-building activities. It is important to note that Marilyn refers to her concern as being seen as “too fluffy,” which in some cases was how teachers in this study were concerned about seeming to parents, colleagues, and principals. The fear of the words *creativity* and *fluff* being converged indicates a subconscious understanding in teachers that academic work is somehow different than work that fosters creativity in students. Fluff is related to “not getting my work done,” which could be interpreted as an indication that the work to be done involves test preparation and covering all of the elements of the curriculum.

That creativity might be synonymous with fluff, or is *anti-academic* even in the minds of teachers who deeply value creativity is troubling, and speaks to an issue within the formal education system where traditional, bounded subjects such as math and English still hold positions of importance while others are relegated to positions of less value. Theresa indicated during her interview that she found less support from the principal in her school, and she stated that “coming down from the administration in my opinion, it's very prescriptive and there isn't a whole lot of room for creativity.” Her experience, though rare in this study, referenced her school’s stated goal of increasing EQAO scores as well as an intense focus on Professional Learning Cycles (see EduGains, 2012). These, Theresa felt, stifled creativity and focussed more on results than authentic student learning and experiences.

Most other teachers spoke very highly about the support they received from their colleagues. Almost every teacher in this study had a positive story to share about a collaborative experience or a school-wide initiative that demonstrated a commitment to fostering creativity in students. Though, as indicated earlier, many of the experiences teachers shared referenced arts, music, or drama, others spoke to the inspiring creative possibilities that came out of collaboration and cross-subject learning opportunities. Laura shared many examples of how the teaching staff, supported by the principal, fostered creativity in positive ways and in many subject areas throughout her school. Laura stated:

We have a really great music program. We are one of the few schools that has a music teacher, so he's fabulous and in Grades 4, 5, 6 he does a huge operetta like three or four nights, and he has a video on our school website that you might want to go see. So that is huge in this building. Our principal is very supportive in wanting that done, she has things like author circles on Friday where she'll take two kids from

each grade and they'll get together with a plate of cookies and share their stories. So we have those sorts of things, that's great, um, I guess that and just working with other teachers that are creative, right? The more people you can get together that are going to work at that inspiring, we have one teacher who is very much into the environment and nature things, and she is responsible for putting the butterfly zone out there.

Brad also shared several positive experiences that came out of school-wide collaborative exercises and activities.

As a staff, we've tended to embrace more collaborative structures as far as students developing ideas together and a staff developing ideas together, working at it that way and modeling it that way for students and providing them with structures that are more conducive to that kind of creative output, but I think that there certainly are - there are environments that exist where rote learning and copying notes off of blackboards and, you know being tested on facts and figures and those kinds of things- that still exists and that's still part of what's there and it's because I think what happens is people are not comfortable giving up completely the control of that part.

Lastly, Sophia found a similar collaborative atmosphere in her school, discussing the many ways that teachers support each other and share creative ideas:

You know what, I think we have at this school in particular, we have really pushed for [creativity], I think we really encourage it. First of all, as teachers we're encouraged to do that, and I mean we have music programs, we have art programs, and we display the kid's work, and oftentimes now you're melding those kind of arts with the language arts, that creative thinking with the mathematics, I mean it's all really being - I guess we see that there's a blend and a balance, it's not one or the

other. [...] Once you're here you don't want to leave. The teachers are awesomely supportive of each other. Like yesterday I got an email from somebody who got a great Remembrance Day site, so they - they just send that out to everybody and whatever - like everyone shares here. There's no one who kind of hordes it to themselves, thinking 'I'm going to look better if I do this'. Awesome environment in every way.

The experiences teachers discussed with regards to collaboration supporting creativity were for the most part very positive and demonstrate close, collaborative relationships between teachers in the school. Many teachers, like Sophia, spoke to the frequent sharing of resources, ideas, and opportunities in order to best support the students in the school. This sense of a shared responsibility to create a community that values student development, learning, and creativity was overwhelmingly positive. However, it was also indicated by some participants during interviews or the observation time, that not all teachers shared the same view or perspective as they did. Some teachers indicated that they had colleagues who were stuck in the past or who were described as following the curriculum like the Bible, tending to favour a strict division between subjects and rote learning as compared to their personal preferred style of more individualized teaching and open classroom management. When teachers who shied away from creativity-fostering activities were mentioned, they were thought of as being different and standing apart from the dominant ideology of the school.

Finally, teachers saw parents as an integral part of the classroom, and a key element in supporting and fostering creativity in students. Though only about half of the participants in the study mentioned the impact parents had, their influence was undeniable, and in many informal conversations with teachers during observation periods the topic of parental

influence came up. Teachers largely saw parents as a supportive element in the school, providing volunteer classroom assistance, helping to drive students on field trips, and participating in school-wide events like plays or concerts. This kind of support was highly regarded by teachers, and in some cases viewed as the only way that some things would be possible. In speaking to the role of parents, Sophia stated that “we never have trouble getting volunteers to help us do things, and they'll come in our classrooms to help, and it's really supportive. Parents have a really strong role here and they are the ones who sort of initiate that.” Marilyn also spoke to the collaborative relationship she had with the parents of her students and how parents helped give her ideas about the kinds of opportunities that were available in the community that the students would appreciate. Marilyn stated:

The parents are the ones that are also bringing me ideas whenever they hear of anything they'll tell me about it and I will then look into bringing in other people.

Because I can't know everything, and once I've had- now I've had all this exposure, so now I do know this stuff, right, so I can run this and so it's just- and kids love listening to other people, and their stories.”

Parents also came up as a key supporter of children's creative activities outside of school. When identifying the characteristics of a creative student, some teachers in this study indicated that creative students often have parents that provide them with multiple opportunities to experience new things, such as books, music, or travel, and they make learning meaningful and fun. Teachers spoke of the parents of highly-creative children as engaged in their child's learning and education as well as active participants in their child's personal and academic development. Teachers perceived creativity-fostering parents as those who made an effort to expose their children to cultural experiences such as museums and art galleries or involved them in travel and household decisions. However, the high level of

support and involvement that teachers saw creativity-fostering parents demonstrating occasionally came at a cost, as those parents were also perceived to be strongly interested in the complete social and cognitive development of their children. Some teachers indicated that highly-involved parents were concerned about and placed critical emphasis EQAO scores and school-wide performance data. The last environmental variable that teachers reported influencing their ability to foster creativity in their classrooms was the administration of standardized achievement measures, referred to here as EQAO testing.

Accountability. Accountability measures such as EQAO testing have taken on greater prominence in recent years, and now exert a strong influence on teachers due to the expectations of parents and politicians concerning outcome measures from public education. Though some teachers in this study brought up the impact of EQAO measures on creativity-fostering without being asked, each participant in this study was directly asked to share their perspective with regards to how accountability measures affect their ability to foster creativity in their students. Responses teachers gave were mixed, and ranged from fully supportive of EQAO and the goals of the assessment, to explicitly hostile and strongly against the thought of EQAO having anything to do with nurturing creativity in students. Teachers who were in support of EQAO testing often indicated that it was in preparing students for the assessment, rather than the test itself, that basic skills and increased meaningful foundational language and math knowledge could be promoted. Teachers who drew from items on the test to design lessons appeared to teach using techniques that encouraged children to master the basics and clearly explain the reasoning for the answers they gave. Teachers who felt the assessments were primarily negative often spoke to the amount of time it took to prepare students, the pressure and stress students felt around the end-of-year examination, and how little importance EQAO had in measuring or predicting

life success in students in that it provided a limited measure of a child's true potential and variety of skills. Though most of the teachers indicated that EQAO testing had little direct connection to creativity, it was acknowledged that the testing process and preparation activities influenced their practices with regard to creativity-fostering behaviours. As there were numerous perspectives and opinions regarding the strengths and weaknesses of EQAO testing, this section is divided into three themes directly related to the research question. Those themes fall under the sub-categories of: time, incongruity, and foundational skills.

Time. Some teachers in this study indicated that time pressure was a factor they felt limited their ability to engage children in creative activities. Theresa referenced the time pressures she was feeling with regard to preparing students for EQAO testing. When asked about how EQAO influenced her ability to provide students with creative or non-traditional learning opportunities, she stated that:

“[my lessons are] more prescriptive because you have to show that growth, and you have to do the same activity at the beginning as we do at the end, but if you had time to extend you know, you could be creative with that. I'm just trying to be creative within the means that we have, you know, I've got the use of technology, um, I try to do hands-on science, I encourage many ways of thinking, lots of choice, but again I just - I don't - I would love to have more time and more ability to do that.”

Marilyn indicated feeling similar pressure with regard to the time she was required to spend moving through pre-testing activities provided to her by her principal a few days before the interview occurred. Throughout the interview and observation, Marilyn repeated her concerns about the volume of EQAO-related material she had to get through before testing, and how that would take away from her students' time to learn in-depth and engage in activities that she felt would be more relevant to them later in life, such as debating social

issues and working together in groups. In reference to the preparation activities she was expected to do before EQAO testing began in her classroom, she stated the following:

“EQAO sucks. It really does suck. Because I already told you before- I've had to change my last three weeks of teaching because of what was proposed to me- that I need to administer to them and so all this other stuff that would have been very beneficial I think for them, for their future, there's no time - all those hours are going to be gone. It's going to take six hours to administer. Because there's sections and you only give them one section at a time, and you need a double block for each section.

As she became more comfortable in the interview setting, Marilyn also began to comment more on what she felt students *really needed to know*, which was grounded in her teaching philosophy of child agency and independence. Throughout the observation period she pointed out time and labour-intensive projects she and her students had engaged in that she felt fostered not only their creativity but also a sense of community. She lamented the end of these projects as test preparation was about to begin in earnest. Several times during the observation and in the interview Marilyn questioned rhetorically, “Are they going to remember this when they're 25?” in reference to the important social and developmental skills children were gaining in school rather than the content or curriculum material.

Trent stated that he recognized the value in EQAO testing, but he was regularly discouraged by how he had to “turn off” his usually vivacious and highly-engaged class in order to get them to complete the EQAO tests. Before this response, Trent discussed his conflicting views on EQAO, and responded to the follow-up question in which he was asked how often he felt he had to change a lesson because of the amount of time that was required to prepare students for EQAO testing by saying “So I would say it's pretty much daily. That sounds really negative and whatever, but it's true.” Trent's typical teaching approach then

had to change to allow for EQAO testing to be implemented. When he thought about implementing EQAO testing activities, he felt that he needed to change the kinds of activities or material the class would cover, and that he would have to assess it in a way concurrent with EQAO testing, rather than encouraging divergent thinking or allowing for alternate forms of completion, such as a visual or auditory presentation.

Paige's school was built using a *pod* design, an architectural style popular in the 1970s. The classroom was part of an open room plan with fabric walls, meaning that even students who are not participating in EQAO testing are affected. The time at which the testing occurred then influenced not only the lesson planning for the Grade 6 class, but the entire division, causing scheduling changes and requiring students to do activities with minimal noise or movement so that the students being tested would not be distracted. When asked how EQAO testing influenced her classroom environment based on the unique layout of the rooms in her area of the school, Paige stated:

They did it over five days, as opposed to over three, because they have research that groups do better over five, whatever, they do better over five days, so that's what we did this year, and again, I don't know if that was great, especially up in that pod setting, because [the other teacher] next door, was doing the Grade 6 testing, her fives were down in the library and the entire pod had to be quiet during that time, right? Like really quiet, which was hard so we were switching Frenches and switching things so we could keep it as tomb-like as possible for those kids to write, which is not a reality...

The pressure teachers felt to meet the preparation expectations for EQAO set for them by the school administration and the Board of Education seemed to influence the ways in which teachers felt they had to run their classrooms and changed the methods they used in

order to foster creativity in their students. Some teachers spoke of EQAO testing as a barrier to creativity throughout the school year as they tried to incorporate EQAO-style testing into their regular classroom assessments and activities. Several teachers mentioned that they needed to set aside large blocks of uninterrupted time during the testing period and adjust the regular classroom schedule in order to insure that students were able to perform at their highest ability. In all of these settings, teachers indicated that EQAO testing was incompatible with creativity-fostering because of the amount of time it took away from the activities and exercises they would rather have been engaged in.

Other teachers, who did not see EQAO as a negative influence on creativity, had little to say or spoke of EQAO as “a nothing” like Colette, who rarely thought about the assessment until late in the year before it was to begin. She indicated that it took no time to prepare because she felt it simply represented a snapshot of her class at one point in time and nothing more than that. It was not something she felt that she needed to base her teaching practice on. Similarly, Erin stated “all the stuff that's in that test is stuff that is curriculum-based, and we have to teach them anyways, so I'm like, what's the problem? I don't know.” Erin's experience also indicated that she felt that EQAO testing placed very few demands on her time as EQAO test preparation was incorporated into her curriculum. Through building in opportunities to practice throughout the year, instead of directed EQAO preparation, she felt that the test did not take away from her deliberate creativity-fostering strategies.

Time is undoubtedly a factor that influences what teachers feel they are able to accomplish in the classroom, but EQAO testing preparation may or may not take time away from creativity-fostering activities, depending on the perspective of the teacher. As shown here, teachers perceptions of the purpose and meaning of EQAO testing may influence the

strategies they use to prepare students as well as the classroom time they dedicate to practice or preparatory lessons.

Incongruity. Some teachers indicated that they felt there was a *lack of fit* or an incongruity between the demands placed on them by EQAO testing and their own desire to nurture and foster student development and creativity. When asked about how creativity and EQAO testing are related, Allison succinctly stated that: “I don't really see where creativity and EQAO fit. I don't see how they are on the same plane, actually, I just- ... totally different.” This sense of poor fit, or incongruity, was evident during the observation period with Allison as well. She identified that students needed creative independent time to learn about subjects that interested them, but then set aside large sections of the day to drill test items. She indicated, and it was obvious to see, that EQAO preparation activities had a very different and more formal tone than her preferred teaching method and normally relaxed classroom management style.

Paige also felt a sense of incongruity, but when speaking about the Grade 6 class she would be teaching next year, resigned herself to teach the class in the best way she saw fit rather than bowing to administrative pressure to increase EQAO scores. During the interview she reflected on the stress she saw other teachers experiencing with regards to EQAO and stated:

I just think I'm going to do my best in the time that I have with those kids, and I'm going to teach them the best way that I can, and if that means you know, they don't do as well on [EQAO], well, maybe they'll do better in life.

This dichotomy reflects a subtle, but common perception among some teachers in this study that the test is invalid, requiring skills that are not relevant to life outside of school. When other teachers echoed this sentiment, they often clarified it by identifying creativity as

a life skill, one which requires academic engagement and the ability to make connections between disparate ideas and think deeply. Math and literacy skills taught without context, they felt, ultimately benefitted students on the test but not in their daily lives.

Other teachers bemoaned the limited value placed on creativity within the test itself. Ryan reflected on his experiences preparing students for EQAO testing and stated, “It dictates some of the things that I'm expected to do in my program because EQAO says it's got to be five lines or less.” Ryan’s sense of incongruity was explained in more detail when he discussed providing students with writing and reading response activities. Instead of letting students write to learn and explore their thoughts in as much space as they needed, he felt that he needed to constrain their writing in order to make it match the testing expectations. Similarly, Laura felt that the test did her high-achieving students a disservice and did not allow them to demonstrate their true potential. When asked about EQAO testing, she discussed a former Grade 3 student who had what she identified as a gift for writing and whose talents would not be recognized within the EQAO testing format:

[on the test] she was supposed to write a one-page story on finding a key on an adventure, well that child's writing a fifteen chapter book at home - an adventure story, right? So how do you tell her that she's got to fit a story on one page? Like she can't even do her opening in there, and she's not a kid who was writing blah blah blah blah, and you're thinking oh my God, there's no story here. She would have written an introduction so you were sitting in the setting and you knew the character. Like she would have done all of that where we talked about ‘the reader has to be able to visualize’, she would have created the scene, and all she would have had down [on one page] was an opening.

In this quote it is obvious to the reader that Laura struggles with the way the testing process measures someone she clearly identifies as a gifted writer. Laura found the test to be a misrepresentation of the child's strengths and she feared that student would get a lower EQAO test score because of her talent for writing, punishing what Laura identifies as creative thoughts and behaviours. The incongruity between the test and creativity for Laura is the way it constrains how individuals display personal creativity by placing limits on space and content.

Brad also felt constrained with regard to creating a creative environment because of what he was expected to prepare his students for during the testing process:

“... you know, it's a known thing going into it, we know those are limitations, you try to encourage kids to work within the parameters, but again, are you stifling authentic expression of whatever by saying no, you must write it in one line. You must write it in three lines, you must whatever. You can do whatever you want. It's your life, it's your thoughts, it's your abilities, right, but somebody's saying, no, no you're not allowed to do that- you only get three lines.

Brad's sense of having to constrain his students was also influenced by his strong philosophy of differentiated instruction and his acknowledged difficulty in school as a child. By recognizing his students' unique individual strengths, he usually provides his students with multiple opportunities of expression. His frustration with the test is in response to not being able to see how students' different creativity and learning styles are recognized and rewarded.

When asked about the role EQAO testing plays in influencing his ability to foster creativity in his students, Ryan, also provided the strongest and most visceral reaction. He first asked if the researcher would like an honest answer, and once he received an affirmative

response, Ryan yelled his response directly into the audio recorder while lifting out of his chair and hitting both of his hands on the table. Ryan opined, “I HATE IT! Standardized tests- there is no place for standardization in the world of creativity! That is an oxymoron. Standardization and creativity- GONE!” This extremely strong reaction spoke to Ryan’s personal beliefs about how to best teach his students. Throughout the observation period, Ryan demonstrated concerted engagement with each of his students, and fostered the learners’ autonomy while working on projects and classroom activities. His teaching philosophy is grounded in both compassion and high expectations for each of his students while allowing a great deal of space and a large volume of resources for fostering self-direction. He later added during the conversation that if he ever had to teach Grade 6 and thus be responsible for preparing students for EQAO testing again, he would quit his job.

When each of the teachers spoke about the constraints of the test or the limits the accountability measures place on what students were allowed to demonstrate, they often reflected back to their own differentiated instruction methods, indicating that students with different learning styles may be more or less naturally capable of writing answers that met the testing criteria. As discussed earlier, many teachers in this study stated that children were most creative when they were working on an activity that reflected one of their dominant styles, whereas they struggled when faced with an activity that was not one of their *natural* capabilities. EQAO testing, most of them believed, tested students inaccurately on content material that may or may not be their strongest subject. After an interview had been completed, one of the research participants forwarded a cartoon to the researcher, indicating that it was a visual representation of how they envisaged EQAO testing. The image can be found in Appendix F, and provides a succinct summary of the views of several participants in this study.

Foundational skills. Some teachers in this study indicated that they had a positive approach to EQAO testing because it served an important purpose in helping students build and develop their foundational (basic) skills in literacy and numeracy. The previous research on the topics of innovation and creativity are clear in presenting the importance of language and math skills and knowledge in contributing to the development of creative adults. Thinking creatively depends heavily on having strong content knowledge, and higher-level thinking requires students to have not only a great deal of factual content knowledge but also a variety of domain-specific cognitive skills (Baer & Garrett, 2010). Though several teachers reported that they felt constrained in some ways by EQAO testing, they also described the ways that students benefitted from having to focus and exert concerted effort to become experts in reading and analyzing text and mathematics. Many of the teachers interviewed in this study expressed a conflict between developing content knowledge in students through test preparation and using what they considered to be more authentic and engaging activities that prompted students to learn deeply and become engaged with the material.

Trent indicated that his thoughts on EQAO testing had evolved over the course of his teaching career. He explained how and why he experienced a change in his beliefs about EQAO testing from those he had held as a novice teacher compared to his experience now ten years in the profession. He stated:

So that's what I've learned, is no, because we do a lot with success criteria and checklists, and do this- this is how we go about doing it, and five years ago even, I would have been this is ridiculous, we're pigeon-holing kids, and we're stifling creativity, and now I kind of look at is, no, we're giving them a framework to succeed, and then they can be more creative.

Allison echoed Trent's evolution in thought, and now sees EQAO testing as able to provide a starting point for her students with regards to both their creativity and future potential for innovation:

One thing that my students have that they didn't used to have, and I'll say this is probably because of EQAO, is they have very good basic skills, most of them, coming in, and so I guess that is a launching place for creativity, if you know that your students coming in, mostly know their times tables, and mostly know how to sit down and do seatwork, um, that does give you a place - it does give you a launching pad, because when I sit my kids down with a sheet of integers or whatever to work on, they have no trouble understanding what sit down and do independent seat work looks like. So when I ask for that I can usually get it.

When Allison was prompted to expand on her answer by asking if this referred to her seeing EQAO testing as having utility, she responded:

Right, you have to have the underpinnings, just like anybody who's in a- think of people who research - like Stephen Hawking, people like that, they have to have underlying understanding of the principles of physics in order to be able to be - they have to be able to say to themselves, 'test this against my understanding of this is, and know whether what my pursuit is reasonable', and if it's not- abandon it, instead of getting locked into an approach that's not going to get you anywhere.

Laura was also able to find utility in EQAO testing, in that it she felt it accomplished its goal of keeping her accountable. She stated, "I mean it keeps you in check, it makes you go back and make sure that this is what we're doing, some of the math problem-solving questions I like." Similarly, Heather also felt she derived some benefit from EQAO testing, in that it helped her to explain to her students how to improve answers as well as prompt

metacognition about their own work habits, including building creative-thinking skills. Using questions from previous versions of the EQAO test, she provided students with goals and objectives for their own work, allowing them to see where they could do a better job in explaining their ideas and answers. Heather's stated teaching style was to encourage students to try and find commonalities between ideas and subjects rather than keeping them separate in silos, so she used EQAO testing as another tool to foster creativity and learning across the curriculum, and used techniques derived from EQAO testing to prompt student performance in other domains. In reference to this, Heather stated:

I think I think it can promote creativity if you approach it in that way, and because there's, you know, the question and then there's a kid who will just minimum answer it, and I said, ok, 'how about if you strive towards a level 4 answer, what would it look like? What about beyond level 4?' Some of them are, you know, 'I'm done' in 2 seconds. 'Ok, what about what could you change about the question, maybe?' I don't know you have to be thinking, especially for those guys [pointing to a section of the classroom]. So I think it promotes creativity more so than anything, but only if you're willing to work with it, right, with the questions, because I don't know if you know, you can go on the EQAO site and pull up all the old tests, right? And then get the answers for them, and that's what the beauty of it is, I think as a teacher you should- that's how you should be using it as ok, this is - this is how they're assessing it, first off, but um, for them to see - for them to kind of legitimize what their own answers are, right?

Finally, Erin also identified some positive outcomes from EQAO testing as she saw it as a means to help students identify and understand problem-solving in math. She spoke to

the importance of problem-solving and creativity and how the two concepts support and reinforce each other.

I actually don't mind EQAO at all because a lot of it is problem-solving and I think problem-solving is making kids think creatively, like think, "how do I solve this?" And "how do I explain it in different ways?" So, I actually use EQAO questions a lot as my questions and so that also helps take anxiety away from them when it comes time to do [the test] because they're familiar with the types of questions, they're familiar with the format of it, and with the space that they have to write in it, Sometimes closer to the tests I'll give them more of that, but I'll give them the actual questions and then they can solve it.

From these discussions it is clear that teachers have mixed feelings and experiences regarding how they can foster a creative classroom environment. Though there is benefit to be gained from helping students learn the basic skills and develop strong literacy and numeracy abilities, sometimes teachers feel constrained in the types of activities they can offer and depth of learning they can foster within their students. What is important to remember when discussing the influence that the environment has on an individual within it is that different social and environmental settings have different impacts on people (Runco, 2007). No two individuals react in the same way to the same constraints or environmental factors because life experiences and expectations differ. This is clearly evident in the wide variety of perspectives teachers offered with regard to EQAO testing, and broadly evident in the wide range of strategies and approaches teachers take to foster creativity in their students. Referencing Lewin (1931), behaviour is best understood a function of the person and the environment – and it is in the combination of teaching experiences, expectations, and

environmental factors that the idiosyncratic ways in which teachers foster creativity are defined and understood.

Summary

This section provided an in-depth overview of the major themes identified through examination of the interview transcripts and field notes. Together, the survey, interview, and observation data present a compelling and nuanced view of teachers who are interested in fostering creativity in their students. In general, it was found that teachers who participated in this study tended to demonstrate higher levels of creativity-fostering behaviours toward their students as they gained more experience in the classroom. This finding was confirmed by interviews with and observations of participants who discussed the nature of that change, indicating that as they became more comfortable with the curriculum and better understood the needs of their students, they were able to adapt and create a classroom environment tailored to the needs of their students.

Drawing on the research questions, three major concepts were analyzed that examined teachers' perceptions and strategies, and the environmental factors that influence creativity-fostering behaviours. Teachers in this study felt that creativity was innate in all children, but that some children have a special talent or creative skill. Challenges related to a learning difficulty or disability were often associated with creativity. Creativity as a general construct was often thought of as either artistic, musical, or dramatic talent, but was also perceived to be a part of what helps students to make connections, stay engaged, or undertake self-exploration. Teachers identified numerous strategies that they adopt to foster creativity in their students. Many identified differentiated instruction, and an understanding of learning styles was used as a primary way of engaging and tailoring instruction to allow for creative expression. In addition, regulation of the emotional climate through safety, trust, and

confidence building were seen as psychological variables the teacher could control and regulate in the classroom to build and sustain a creativity-fostering space. Building on that, teachers viewed collaboration and experiential learning as key elements of creativity-fostering classrooms, allowing students to work together and experience both the good and the challenging aspects of life learning.

Lastly, three primary environmental factors were identified that influenced the ways in which teachers were able to implement their creativity-fostering strategies. Resources such as time and money, support from colleagues and administrators, and a balanced approach to the requirement to prepare students for EQAO testing were key elements that factored into teachers creativity-fostering behaviours. Most teachers felt that they lacked sufficient time and money, though they felt they had an abundance of support for creativity-fostering activities in their classrooms. Attitudes towards EQAO testing were mixed, with some teachers indicating that it required them to take time away from what was perceived to be more meaningful classroom activities, and that it is incongruous with developing creative students. Most teachers did agree that the EQAO test preparation process helped students to build basic skills, seeing mathematics and literacy as essential elements of creativity later in life.

In analyzing and synthesizing the thematic analysis together with the relevant literature on the topic, a more comprehensive picture of the interconnectedness of the school community can be formed. Teachers who aim to foster creative thinking and behavioural skills in their students have different perceptions of what creativity is, as well as the best strategies with which to foster it. In addition, teachers face a variety of environmental variables – many of them uncontrollable – that must be dealt with at the same time as meeting the students' basic learning and safety needs. As a whole, this summary presents a

clear picture of the nature of creativity-fostering in the classrooms that were visited, and provides a starting point to investigate many of the successful actions as well as expressions of concern brought to light by participants.

Chapter 6: Discussion, Conclusions, and Implications

"The key question isn't 'What fosters creativity?' But it is why in God's name isn't everyone creative? Where was the human potential lost? How was it crippled? I think therefore a good question might be not why do people create, but why do people not create?" - Abraham Maslow

This chapter will consider the topics and themes generated from the participants' voices and discuss the relevance and applicability of the conclusions drawn from this study. First, a brief summary of the study that was conducted will be presented. This is followed by a discussion of the major findings, their relation to the academic literature, and the implications those findings have for future educational practice and training. Finally, the limitations of the study will be outlined as well as some considerations for future research on this topic.

Summary of the Study

The aim of this research study was not to judge individual teacher's creativity or the value of specific classroom practices, but rather to strive for a better understanding of the myriad factors that influence teachers' creativity-fostering behaviours. Teachers who participated in this study indicated that they saw both their role and the purpose of fostering creativity as tied to preparing students for the eventual world of further education, work, and success in life, a perspective that embraces the concept of human capital (Rudowicz; 2003; Schulz, 1961). Participants explained that in order to reach these stated goals, they directed their practice toward providing students with hands-on learning opportunities, fostering collaborative working relationships, and ensuring their classroom was an environment where emotions were valued, students felt safe, and trust was established. Outside of the bounded space of their classrooms, teachers discussed the ways in which they navigated relationships

with colleagues, school principals, and parents. Balancing the demands of accountability, collegial relationships, and the changing availability of resources, teachers experienced various challenges and opportunities while doing their best to meet their stated teaching and student development goals. This study provides a broad overview of the perceptions teachers hold towards creativity, the strategies teachers use to foster creative thinking and behaviour in their students, and the environmental challenges and opportunities teachers navigate along the way.

Significance of the Study

This study uses a mixed-methods approach to examine and investigate creativity-fostering behaviours in teachers. In Andiliou and Murphy's (2010) review and synthesis of teacher's conceptualizations of creativity, only three studies out of the 17 they examined used a methodology which made use of questionnaires, interviews and observations. Twelve used only questionnaires to measure teachers' beliefs and behaviours, while the remaining two used only interviews. The present study is significant in part because survey data is presented along with interview and observation data, thereby describing a more comprehensive view of the situation and demonstrating with greater precision the dynamic and reciprocal nature of the learning environment inhabited by teachers and students.

Though a great deal has been written about how to foster creativity (Cropley, 1992; 1997; 2001; Fasco, 2001; Guilford, 1967; Isaksen & Treffinger, 2004; Karnes, et al. 1961; Millar, 2012; Parnes, 2000; Patton, 2011; Renzulli & Reis, 2003; Torrance, 1963), it is valuable to understand the actual perceptions of teachers as well as the specific strategies that teachers feel can be used to allow their students to demonstrate creative strengths and tendencies. Moreover, it is critical to understand how these perceptions and strategies are bounded by an environment that differentially rewards and punishes behaviour based on

social desirability, and constraints around time, money, and access to resources. By examining the ways teachers are affected by the social, physical, and psychological systems at play in formal educational environments, it sets this research study in a specific context, and also provides an important opportunity for the voices of teachers to be heard. Again, if the only request this study made of teachers was to respond to a Likert-scale/ forced-choice questionnaire, we would have a limited understanding of the many ways in which the environment and the people in a school influence teachers' creativity-fostering behaviours. The flexibility provided by the mixed- methods approach allowed for a comprehensive illustration of teachers' perceptions and behaviours. For example, it is now clear to see the extent to which teachers attend to and emphasize the creation of a positive emotional climate by promoting trust, safety, and confidence. Moreover, we now know that teachers see these psychological-environmental variables as the essential elements of a classroom where students' creative talents are nurtured.

Lastly and importantly, standardized testing was not seen as the barrier to creativity that some authors have suggested (Firestone, 2001; Fusarelli, 2004; Neill, 2008; Ravitch, 2010; Sacks, 1999; Salutin, 2011; Volante, 2004). Certainly, there are problems with the ways in which standardized achievement tests are administered, however there are ways, as indicated by some teachers in this study, that tests such as the one developed by the EQAO can be used in a positive, and integrative way to encourage the development of basic skills, which are a key aspect of developing truly novel and useful ideas. Thus, this study is significant because it adds another voice to the conversation about standardized achievement testing in Ontario. By thinking critically about the purposes of and practices used to prepare students for EQAO testing, there may be ways to mitigate the negative effects indicated by teachers, which include the stress it places on students and teachers, the demand of preparing

for testing, and the artificial and negative ways in which it can alter the classroom environment. If anything, teachers demonstrated that they identify resourcefulness as a key component of the teaching profession, and that educators have a strong commitment to developing the future talent and success of all their students, even within systems where constraints and undesirable tasks and behaviours persist.

Findings

This study examined the perceptions, strategies, and environmental factors that teachers use and encounter when attempting to encourage and foster creative thinking and behaviours in their students. The study findings are organized in association with the three research questions posed at the beginning of the study and discussed in light of the relevant literature where appropriate.

What perceptions regarding creativity do teachers have? Teachers have a variety of perceptions regarding creativity and the nature of creative students. These perceptions are guided by past experiences, by expectations, and by their preferred teaching methods. In general, this study demonstrated that teachers often view students with a special talent or skill, or who think differently, as creative and see many children who are creative struggle in some other way, often with a diagnosed disability or perceived learning challenge. As a construct, teachers often identified creativity as associated with drama, art, and music, and defined creativity in their curriculum as making connections and engaging students in the learning material. Several teachers mentioned that hands-on learning and self-exploration were fundamental elements of what constitutes creativity in that students could be most creative when working with their hands or when physically engaged in a task where they could learn at their own pace and control the outcome.

The ways in which teachers identify students who appear to struggle or have some creative conflict with the academic world has been clearly identified in the literature (Kottler, 2006; Plucker, Beghetto & Dow, 2004) and is a popular part of our culture's typical way of defining some characteristics and the life experiences of creative people. We sometimes expect that creativity comes at a cost, and that in order to produce great things one needs to have struggled with a significant challenge. Moreover, it is frequently assumed that in order to be eminently creative there must be a deficit in some other area to compensate for exceptional strength (Kottler, 2006; Plucker et al., 2004). Examples of this are found in cultural mythology surrounding the creative acts of individuals who are heavy drug users, living in extreme deprivation or poverty, have suffered from abuse, or are *lone geniuses* (Koestner, Walker & Fichman, 1999; Plucker et al., 2004; Stillinger, 1991). Further, this perception is consistent with work by Scott (1999) who found that teachers perceived creative children to be more disruptive and demanding of their time than average children. Teachers in this study explicitly indicated the way that particularly creative students struggle in keeping with our cultural perceptions of creativity. It is unknown whether teachers change their behaviour or perhaps diminish the concerns of creative but struggling students because of this common social perception, although it may be a risk students experiencing challenges may face.

Teachers also perceived creative students as being both confident and willing to take risks. Both confidence and courage to take on challenges and risk without fear of failure are key elements of Cropley's nine creativity-fostering behaviours (Cropley, 2001) as well as Starko's description of the personality characteristics of creative people (Starko, 2010). Teachers in this study also indicated their creative children demonstrated a willingness to persist, which was identified by Torrance (1972) as a key element of creativity. Torrance

refers to this as *resistance to premature closure* and participants in this study seemed to notice their creative students' desire to keep going after a project could be finished, in conjunction with their students' sense of safety, confidence, and personal agency or empowerment. Often it seemed that personal variables were a key component of what teachers saw as creativity in students rather than any objective evaluation of product or process.

Generally this tends to replicate an understanding of creativity as a positive aspect of human development, that is desirable and of benefit to student learning. However, this stands in strong contrast to earlier research with teachers which has suggested that their perceptions regarding the tendencies of creative children are primarily negative and strongly related to a belief of intelligence, or that teachers see creative children as trouble-makers who challenge teachers and flaunt the rules (Alughaiman & Mowrer-Reynolds, 2005; Andiliou & Murphy, 2010; Beghetto, 2007, Moran, 2010; Runco & Johnson 2002). When asked to describe what a creative child looks like or how they act, no teacher in this study indicated that the more creative children in their classroom were the most challenging unless they had significant learning or behavioural challenges that had often already been labelled. In every case, a diagnosis of a behavioural or learning challenge was identified as something distinct from the child's creativity – the child was never said to be creative 'because' of the challenge, but the child experienced a challenge which made them require more attention or special accommodations. It was common to hear that the child had a behavioural challenge or learning disability and that he or she was also very creative.

What specific strategies did teachers in this study demonstrate in order to foster creative behaviours in their students? The literature states that teachers need to be able to accurately assess the learning needs of young children in order to provide them with

developmentally appropriate challenges (Saracho, 2011). In this respect, teachers need to use the appropriate strategies to foster creative thinking skills and behaviours in order to encourage and support student learning and engagement (Saracho, 2011). Regrettably, if teachers have inaccurate perceptions about what creativity constitutes, as noted by Aljughiaman and Mowrer-Reynolds (2005), the strategies teachers use to foster creativity will be misaligned with the provision of effective and positive supports.

Cropley (2001) succinctly outlined several strategies that teachers should use in order to best promote and foster creativity in students. In understanding that modern life requires the ability to adapt to rapid change and that we lack foreknowledge regarding the skills that will be required for success in the future, Cropley advocates “learning activities that emphasise branching out, finding out, or inventing such as discovery learning, learning under play like conditions and learning with the help of fantasy can be more effective than traditional methods such as face-to-face lecturing or rote learning” (Cropley, 2001, p.136). The strategies teachers use to foster creativity in students should then emphasise the well-rounded and imaginative development of children, while tolerating behaviours associated with creative production. Depending on the lesson and stated learning goals, teachers in this study adopted a wide range of strategies to foster creativity in their students. These strategies tended to fall into one or more of four categories: differentiated instruction, emotional variables, collaboration, and experiential learning.

Differentiated instruction techniques are proactive, and assume that each student has differing needs so that all students, regardless of their abilities, must be able to become involved and progress through the education system (Tomlinson, 2001). Interestingly, research about effective methods of differentiated instruction replicates much of what has been written about developing creativity in students. According to Fasco, creativity may be

stimulated by the provision of information sources and adapting to student interests and ideas in the classroom as much as possible, while “encouraging divergent learning activities” (Fasco, 2001, p. 320). By adapting the processes and products of the classroom to match the students, teachers promote a creative learning environment while also increasing students’ motivation to learn. Though very few formal research studies appear to have been conducted explicitly linking differentiated instruction with creativity-fostering behaviours (none were found using extensive library and database searches), there are many parallels in the literature indicating that the two concepts share common and desirable outcomes (Beghetto, 2010; Fasco, 2001; Runco, 2007; Tomlinson, 2001).

Despite the lack of formal research on the topic, most of the teachers in this study identified differentiated instruction techniques, typically based on the identification of children’s learning styles/ preferences as a primary means of fostering creativity. Teachers saw children who preferred to learn kinaesthetically were more creative in their preferred domain, while others who had a linguistic learning style/preference were more creative in their speech patterns and verbalizations. Teachers identified teaching strategies that embraced the learning styles of their class as a primary means of facilitating creative development.

Another unexpected finding of this study was the extent to which teachers emphasised the importance of regulating the emotional climate of the classroom in fostering creative behaviours. Trust, safety, and confidence were significant emotional variables that teachers felt were essential to maintaining and encouraging creative thoughts and behaviours. Several teachers indicated the importance of maintaining a positive and safe classroom environment that allowed students to be themselves without fear of reprisal and to discuss their ideas freely. These ideas regarding a safe and trusting classroom environment that can

foster a sense of confidence and engagement can be traced back as early as Maslow (1954) and the development of a hierarchy of needs. Maslow (1954) states that in order to be self-actualized, that is in order to have the capacity for creativity, spontaneity, expressive, and diminished self-criticism, we first need to satisfy our basic physiological needs (food, water), safety needs (protection, stability) and needs for love and belongingness (loyalty, friendship). Only when those are satisfied can one move on to developing higher potentials such as creativity, divergent thinking, and freedom (Feist & Feist, 1998; Maslow, 1954). Cropley (1992) also emphasizes that creativity requires a climate or atmosphere in the classroom that is supportive and inspires confidence and motivation in students without invoking fear of rejection or ridicule.

Participants in this study also viewed collaboration among students as a key strategy they used to foster creative relationships. Building on both differentiated instruction techniques and the regulation of the emotional climate, teachers saw group activities and problem-based learning shared between students as a way for students to engage with each other and with the material, learn to work together in a positive way, and come up with novel and meaningful ideas. Cropley (1992, 2001) does not identify the promotion or use of collaborative learning activities as one of the strategies of creativity-fostering teachers, however many other researchers have discussed the origins of creative thinking with regards to its emphasis on the social sources of creative development (John-Steiner, 1997, 2000; Runco, 2007; Sawyer, 2006; Starko, 2010; Stillinger, 1991; Tan, 2001; Vygotsky, 2004), and they detail the multifarious ways in which creativity is enhanced and can grow through meaningful partnerships. Collaboration is seen by these researchers as a means to deepen the pool of information that can be drawn from, and test out ideas before they are presented and

complete. This is again confirmed by the classroom teachers in this study who saw it as an effective teaching strategy and a tool to foster creativity.

Teachers viewed field trips and other opportunities for experiential learning as a meaningful part of their roster of creativity-fostering strategies. These activities, they felt, promoted inquisitiveness and curiosity, exposed students to new events and people they might not have a chance to see on their own, and broadened their minds to new ideas and possibilities. Guided by the theoretical framework of this dissertation, it is clear that opportunities for students to experience events, emotions, and situations in real-life environments is a key element of creativity, and significantly enriches student engagement and skills. Though some teachers in this study indicated the benefits of experiential learning opportunities, most teachers did not speak about how experiences shaped or fostered creativity in their students. It is currently unknown why participants in this study did not place a higher emphasis on experiential learning, and whether the omission was deliberate, or because the interviews and observations took place within the school building. It can be inferred that some of the environmental barriers teachers indicated, such as time, money, and EQAO testing limit the ability of teachers to plan and engage in large-scale experiential learning opportunities, and that there can be more work involved in planning and organizing these kinds of student experiences.

Finally, it is interesting to note that few teachers explicitly discussed the use of technology as a strategy for fostering creativity in their students. Though most teachers mentioned that they use technology, and that SMART Boards, iPads, laptops, and computer labs might be available for them to use, information technology seemed to be viewed more in terms of useful (or burdensome) infrastructure rather than as a means or a tool for students to demonstrate or enhance their personal creativity or teachers to foster novel and original ideas.

Certainly, technology is changing rapidly and has become an ubiquitous part of the classroom environment, so it is therefore worthy to note the relative lack of emphasis with which teachers indicated the role technology played in the creative development of their students.

What environmental factors influence teachers' desire or ability to create and maintain a creativity-fostering classroom? The environment in which teachers work and students learn is comprised of many factors, some of which are dynamic and shift through the course of the school year, or even yearly as the student population changes. Environmental factors that have an impact on the teaching and learning environment include the people, space, and physical resources available for students and teachers. Teachers in this study identified resources, support, and accountability measures as the three primary environmental factors that influenced how and whether or not teachers were able to implement creativity-fostering strategies.

Though little has been written about the ways in which resources available to teachers influence the way they choose to foster creative behaviours in students, much has been written about the influence access to resources such as time and money has on innovative practices and behaviours in the workplace. Amabile and Gryskiewicz (1989) as well as other researchers investigating organizational creativity (Carayannis & Gonzalez, 2003; West & Rickards, 1999) have identified human and material resources as key components of creative and effective environments. Amabile and Gryskiewicz (1989) discuss the importance of appropriate resources to get a task accomplished, and emphasise the need for sufficient resources and enough time to complete a task. In addition, West and Rickards (1999) state that a sufficient, but not an overabundance of resources, is a key driver of productivity and

innovation in organizations. They argue that an under- or over-abundance of resources decreases an employee's ability to innovate, as an over-abundance of resources can cause confusion or a sense of being overwhelmed, while too few resources may constrain the number of workable and effective ideas that are possible. Stokes (2005), however references a number of studies that show how constraints in the environment, including limited access to resources and natural barriers can influence, and in many cases encourage, creative thoughts and behaviours. A certain amount of environmental stress, such as lack of resources, can spur action and increase motivation in the short-term. In discussing access to resources with Heather, she identified this lack of material resources not as a barrier to creativity, even though frustrating, but instead positively identified it as a challenge and an opportunity.

Specifically, teachers in this study identified money, materials, and time as the primary resources that they were lacking. Overall there was little money to purchase resources or to use to provide students with meaningful creative opportunities. Time was identified as a factor because fostering creativity takes time, and the teachers perceived the demands of meeting the curriculum goals as too high to be able to allocate what they saw as enough time to implement effective creativity-fostering activities. This is regretful, and a concern that is worth noting when government agencies suggest creativity and innovation is a high priority, while concurrently pressing for a stricter curriculum.

Teachers in this study viewed parents, co-workers, administrative staff, and members of the community as meaningful support that influenced their creativity-fostering behaviours. Most teachers identified that they had high levels of support from administrative staff, colleagues, and parents, and several drew on community support to help implement programs or to provide their students with experiences. Without support, many of them felt they would

not be able to implement meaningful opportunities or make use of the resources to which they had access.

Lastly, accountability measures, including the administration of EQAO testing in the spring of each year, was seen by some teachers as a barrier to fostering creativity, although other teachers saw it as an opportunity to build and develop students' basic skills. Though many teachers viewed the time preparation for EQAO testing took, as well as the prescriptive response format the testing requires, as incongruous with their creativity-fostering goals, several teachers stated that EQAO testing helped students strengthen literacy and numeracy skills. Those teachers who stated the benefits of EQAO testing often indicated that they built EQAO preparation into their curriculum, or used EQAO-type language throughout the year to help students feel comfortable with the testing language, and also to promote self-awareness around strengths and weaknesses. An alarming finding was the casual mention some teachers made of the severe stress reactions a few of their students had had with regard to the EQAO testing process. Though not a significant finding of this study, nor the purpose of this research, it certainly merits further study and attention.

In sum, the findings of this study demonstrate that teachers care, and have a genuine interest in the development of children's creative potential. Though the results of this study are sub-divided into three research questions for clarity, there is tremendous crossover in the perceptions and behaviours of teachers and how the environments in which they work differentially reinforce or punish specific behaviours. It is clear that emotional variables such as trust, safety, and self-esteem are an essential focus of teachers' practice. By creating an environment where students can share their ideas openly and trust that their experiences are important and valued, teachers can allow creativity to flourish. By providing their students

with meaningful opportunities to learn through experience, teachers can identify the diverse learning needs of students as well as the unique ways in which all students are, and can be, creative.

Limitations

All research is formed by the scope and the nature of the research questions. To be practical, qualitative research involving interviews and observations must be limited to a set number of participants within specific geographic boundaries. The purpose of this research study was to examine the perceptions, strategies, and environmental factors that influence elementary teachers' creativity-fostering behaviours. Therefore, this study is limited to a small group of teachers within the restricted range of Southern Ontario, Canada, who chose to participate in the research. It is expected that those teachers who chose to participate may have already had pre-existing interests in creativity, and/or were more interested in consciously thinking about, or improving their teaching practice, thereby agreeing to participate. The study is also limited by its size. Though a concerted attempt was made to recruit a large number of teachers for the initial survey (Stage 1), the number of participants remained low, limiting the kinds of analysis that could be completed with the survey data. Though 12 Stage 2 participants is considered to be a sufficient number for data saturation (Guest, Bunce & Johnson, 2006; Lincoln & Guba, 1985) more participants from a wider variety of locations may have provided additional insight into the themes that were identified. Due to the difficulties inherent encountered using a 45-item observation questionnaire in a classroom setting for a relatively short period of time, the intended triangulation process was also not completed as proposed.

Through the narrative description of multiple cases, readers can learn about a topic or area of interest, but this kind of research is not generalizable to the entire population in the

same way as large-scale statistical analysis (Merriam, 2002; Stake, 2005, Yin, 2006). From these “bounded systems” (Merriam, 2002, p.179), it is possible to add, subtract, or modify personal experience, as well as information that has been learned from other research in this area. Though this research study is not generalizable in the traditional sense of the word, there are concepts and ideas explored in this document that discuss the lives and realities of the participants who contributed their voices. From this, we are able to gain a better understanding of overarching themes, such as the ways in which the school environment is shaped by multiple, interconnected systems, and how those systems differentially influence creativity-fostering behaviours in students.

Future Research

Teachers’ perceptions, strategies, and the environments in which they work is a rich topic ripe for further research. Based on the findings of this report, three suggestions for further research are proposed. The first draws from the limited number of responses on the survey questionnaire. As Soh’s (2000) Creativity Fostering Index is not widely used but seems to address an important applied element of the research that examines only teacher perceptions and implicit beliefs (see Aljughaiman & Mowrer-Reynolds, 2005; Bamburg, 1994; Rosenthal & Jacobson, 1968; Runco & Johnson, 2002; Saracho, 2011; Scott, 1999), it is recommended that future research expand the scope of this study to include more teachers from a wider range of school districts and grade levels. This would provide a strong basis from which to compare and analyze the nature of the scale as well as develop stronger empirical data related to teacher characteristics, such as the preliminary finding shown in this report, namely, that teacher experience is related to increased creativity-fostering behaviours. Only with a larger and more diverse sample can any generalizable conclusions be drawn from this data. With regard to participant recruitment, it is strongly recommended that

incentives be put in place to encourage participation. Gifts such as monetary rewards or offering a draw for a highly-desirable gift may be perceived as enough of an incentive for teachers to dedicate time to responding to a somewhat lengthy questionnaire.

The second recommendation for further research involves the wider use and collection of lesson plans and curricular goals from teachers to further understand the deliberate strategies they use to foster creativity in their students. By identifying and analyzing artefacts related to the teaching profession, it is expected that outstanding exemplars can be given which more fully describe the ways in which teachers bridge content, creativity, collaboration, and emotional resilience within a single lesson. Analysis and discussion of these documents would provide researchers and educators with a stronger understanding of how, exactly, teacher perceptions are directly tied to teaching strategies and specific approaches to student development.

Lastly, very little has been written in Ontario with regard to EQAO testing and the nature of the classroom environment. Most of the research on this topic is adopted from American sources and draws insight from NCLB legislation and research that has been conducted in the United States, and exists in a very different political and social context from the schools in Ontario. This research study has shown that teachers view both challenges and opportunities as part of EQAO testing in Ontario, therefore further research into ways to maximize opportunities and minimize challenges seems to be warranted. In surveying the material written on this subject, most authors appear to be on one side or the other of what has been conceived of as a strongly polarized issue. It is recommended that a more positive approach, similar to the work of Baer and Garrett (2010), that analyses the issue from the standpoint of what is best for teachers, students, and the public demand for accountability, is adopted. This does not suggest taking the middle ground, but rather taking an informed

stance conducive to approaching the topic with an open and non-partisan mind. By looking at the process from both the student level, as well as the teaching level, it will be possible to gather a better understanding what ramifications assessment practices have on a positive, safe, creative, and inclusive school environment.

Ultimately, it is hoped that this research will inspire future research into the nature of creativity and the environments and behaviours that foster and support the development of creativity in formal systems of public education. Based on the responses of the teachers who participated in this study, there is every reason to be optimistic about the future of public education. The caring teachers who dedicate time and resources to student development, and who see their students from a holistic perspective as interesting, dynamic, and growing in a positive direction speak to the strengths of the system. What remains to be seen are the ways in which modern accountability measures, cost-cutting strategies, and labour disputes between teachers and the government affect student learning, engagement, and positive personal growth.

Conclusion and Summary

This study has presented further compelling evidence to suggest that creativity is a complicated and poorly defined construct that encompasses a wide range of behaviours, skills, and ideas. Teachers in this study defined creativity in idiosyncratic ways, and reported fostering creative thinking skills, behaviours, and ideas in their students and classrooms using numerous strategies and techniques. Though creativity tends to be defined based on personal experience and expectations, teachers in this study strongly identified creativity as a positive, and desirable trait that they wanted their students to demonstrate, indicating that it leads to higher levels of engagement, development, and knowledge. Even though individual means to achieving an encouraging emotional tone in the classroom may differ, teachers were seen to

be actively working towards the promotion and development of positive and safe environments in which their students could learn. In closing, it is important to acknowledge that very few teachers reported that their creative students, or traits related to creativity, were undesirable, disruptive, or negative, as has been reported in earlier quantitative research. It is hoped that this research has led the reader to a better understanding of the ways in which teachers understand, support, and develop creativity in their students, and how the school environment acts on teachers to promote and prevent creativity-fostering behaviours. Moreover, by illustrating the positive and inclusive approaches teachers take toward fostering creativity, this dissertation provides further impetus for advancing the meaningful integration of 21st century skills into public schools.

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Appendices

Appendix A

Definition of Terms

Creativity: Creativity is a uniquely human trait that reflects our ability to adapt to changing circumstances, and our effective cognitive abilities to combine and improve upon ideas to which we are exposed (Runco, 2007).

Educational Quality and Accountability Office (EQAO): EQAO designs and implements a program of student assessment in math and literacy in selected grades. It oversees the Ontario Secondary School Literacy Test required for a secondary school diploma. The office promotes research in assessment and accountability. Their website maintains an extensive archive of test results that allow for the comparison and ranking of schools in the Province of Ontario. The EQAO reports to the Minister of Education, the public and the education community (EQAO, 2012)

No Child Left Behind Act (NCLB): The purpose of this American act is to ensure that all children have a fair, equal, and significant opportunity to obtain a high-quality education and reach, at a minimum, proficiency on challenging State academic achievement standards and state academic assessments (Bush, 2001).

Appendix B

Online Survey

Teacher Demographic Form

Age _____

Sex _____

Years of teaching experience _____

Grade you are currently teaching _____

Is your school in an urban or rural area? _____

CFT Index

Different teachers have different teaching styles. They also handle students' ideas and learning problems differently. What, then, is your style? Please read each statement below and circle one of the six codes to indicate how often you do it.

All the time 6 5 4 3 2 1 Never

1. I encourage students to show me what they have learned on their own.
2. In my class, students have opportunities to share ideas and views.
3. Learning the basic knowledge/skills well is emphasized in my class.
4. When my students have some ideas, I get them to explore further before I take a stand.
5. In my class, I probe students' ideas to encourage thinking.
6. I expect my students to check their own work instead of waiting for me to correct them.
7. I follow up on my students' suggestions so that they know I take them seriously.
8. I encourage my students to try out what they have learned from me in different situations.
9. My students who are frustrated can come to me for emotional support.
10. I teach my students the basics and leave them to find out more for themselves.
11. Students in my class have opportunities to do group work regularly.
12. I emphasize the importance of mastering the essential knowledge and skills.
13. When my students suggest something, I follow it up with questions to make them think further.
14. I encourage my students to ask questions freely even if they appear irrelevant.
15. I provide opportunities for my students to share their strong and weak points with the class.
16. When my students have questions to ask, I listen to them carefully.

17. When my students put what they've learnt into different uses, I appreciate them.
18. I help students who experience failure to cope with it so that they regain their confidence.
19. I leave questions for my students to find out for themselves.
20. Students in my class are encouraged to contribute to the lesson with their ideas and suggestions.
21. My students know that I expect them to learn the basic knowledge and skills well.
22. I do not give my view immediately on students' ideas, whether I agree or disagree with them.
23. I encourage my students to think in different directions even if some of the ideas might not work.
24. My students know that I expect them to check their own work before I do.
25. My students know that I do not dismiss their suggestions lightly.
26. My students are encouraged to do different things with what they have learned in class.
27. I help my students to draw lessons from their own failures.
28. I teach students the basics and leave room for individual learning.
29. I encourage students to ask questions and make suggestions in my class.
30. Moving from one topic to the next quickly is *not* my main concern in class.
31. I comment on students' ideas only after they have been more thoroughly explored.
32. I like my students to take time to think in different ways.
33. In my class, students have opportunities to judge for themselves whether they are right or wrong.
34. I listen to my students' suggestions even if they are not practical or useful.
35. I don't mind my students trying out their own ideas and deviating from what I have shown them.
36. I encourage students who have frustration to take it as part of the learning process.
37. I leave open-ended questions for my students to find the answers for themselves.
38. Students in my class are expected to co-operatively work in groups.
39. Covering the syllabus is *not* more important to me than making sure the students learn the basics well.
40. I encourage students to do things differently although doing this takes up more time.
41. I allow students to deviate from what they are told to do.
42. I allow my students to show one another their work before submission.
43. I listen patiently when my students ask questions that may sound silly.
44. Students are allowed to go beyond what I teach them within my subject.
45. I encourage students who experienced failure to find other possible solutions.

Appendix C

Creativity Fostering Teacher Index Observation Form

Date _____

Teacher _____

School _____

Grade _____

Number of students (Female) _____ (Male) _____

Desk arrangement (columns, groups, circle) _____

Classroom activity/ lesson topic _____

Creativity-Fostering Teacher - Observation Form							
6: Often, 1: Rare N/O: Not observed							
The teacher...	6	5	4	3	2	1	N/O
Independence							
1. encouraged students to show what they have learned on their own							
2. taught students the basics and left them to find out more for themselves							
3. left questions for students to find out for themselves							
4. taught students the basics and left room for individual learning							
5. left open-ended questions for his/her students to find the answers for themselves							
Integration							
6. gave students opportunities to share ideas and views							
7. gave students opportunities to regularly work in a group							
8. encouraged students to contribute to the lesson with their ideas and suggestions							
9. encouraged students to ask questions and make suggestions							
10. had students who expected to work co-operatively in groups							
Motivation							
11. emphasized learning the basic knowledge/skills well							
12. emphasized the importance of mastering the essential knowledge and skills							
13. expected students to learn the basic knowledge and skills							

well							
14. main concern was not moving from one topic to the next quickly							
15. showed that covering the syllabus was <i>not</i> more important to him/her than making sure the students learn the basics well							
Judgment	6	5	4	3	2	1	N/O
16. encouraged students to explore their ideas further before he/she took a stand							
17. followed up suggestions with questions to make them think further							
18. did not give his/her view immediately on students' ideas, whether he/she agreed or disagreed with them							
19. commented on students' ideas after they had been more thoroughly explored							
20. didn't mind his/her students trying out their own ideas and deviating from what he/she had shown them							
Flexibility	6	5	4	3	2	1	N/O
21. probed students' ideas to encourage thinking							
22. encouraged students to ask questions freely even if they appear irrelevant							
23. encouraged students to think in different directions even if some of the ideas might not work							
24. liked his/her students to take time to think in different ways							
25. had students who knew that he/she expected them to check their own work before he/she did							
Evaluation	6	5	4	3	2	1	N/O
26. expected his/her students to check their own work instead of waiting for him/her to correct them							
27. provided opportunities for students to share their strong and weak points with the class							
28. encouraged students to do things differently although doing this takes up more time							
29. allowed students to have opportunities to judge for themselves whether they were right or wrong							
30. allowed his/her students to show one another their work before submission							
Question	6	5	4	3	2	1	N/O
31. followed up on student suggestions so that they know he/she takes them seriously							
32. listened carefully to student questions							
33. had students who knew that he/she do not dismiss their suggestions lightly							
34. listened to the students' suggestions even if they were not practical or useful							
35. listened patiently when students asked questions that may have sounded silly							
Opportunities	6	5	4	3	2	1	N/O

36. encouraged students to try out what they have learned from him/her in different situations							
37. appreciated students when they put what they've learnt into different uses							
38. encouraged students to do different things with what they have learned in class							
39. allowed students to deviate from what they were told to do							
40. allowed students to go beyond what he/she taught them within the teacher's subject							
Frustration	6	5	4	3	2	1	N/O
41. permitted frustrated students to come to them for emotional support							
42. helped students who experience failure to cope with it so that they regain their confidence							
43. helped students draw lessons from their own failures							
44. encouraged students who had frustration to take it as part of the learning process							
45. encouraged students who experienced failure to find other possible solutions							

Notes:

Appendix D

Semi-Structured Interview Questions

1. Can you tell me about your teaching style/ philosophy?
2. Can you tell me about how the lesson/ activity that was observed reflects your teaching style and goals for your students?
3. What are some of the strategies that you use in your classroom to nurture of foster creativity?
4. What do you think the role of creativity is in learning? Do you think being creative makes a difference?
5. Can you describe to me what a creative student looks like?
 - a. How do creative students behave in the classroom? How can you tell they are creative?
 - b. Do any of your students stand out as particularly creative?
6. Do you think that the school environment encourages creative children?
 - a. What about the school environment might discourage creativity?
7. Do you believe that standardized testing, like EQAO plays a role in changing the way teachers teach?
8. Do you feel EQAO testing has ever influenced your lesson planning? (If yes- in what way? If no- why not?)
9. Does EQAO testing promote or detract from encouraging creative students?

Appendix E

Participant Characteristics (Stage 2)

Pseudonym	Gender	Years of teaching experience	Community Type	Number of Students	Classes Observed*
Allison	Female	25	Rural	25	M, SS
Brad	Male	13	Town	21	L, M
Colette	Female	12	Rural	10	L, SS
Erin	Female	10	Town	20	M
Heather	Female	10	City	23	L, S
Laura	Female	11	Town	23	L, PE
Marilyn	Female	4	Rural	14	L, PE, SS
Paige	Female	10	City	28	L, S, SS
Ryan	Male	10	Rural	25	L
Sophia	Female	33	Town	24	L
Theresa	Female	16	Town	22	L, S
Trent	Male	11	Town	29	L, M, SS

* Classes observed: M=Math, L=Language (reading, writing, storytelling), S=Science, SS=Social Studies, PE: Physical Education

Teacher Profiles

Allison. Allison had a tidy classroom with walls filled with students' work and projects. During the interview she reflected mostly on teaching music and math to her students, and I watched students during math lessons and work in the computer lab completing some combined math/ social science activities. Students who finished early engaged in math games where they would compete against children around the world in real-time. Allison also coined the terms *collaborative differentiation* to refer to the ways she designed lessons to meet the needs of her learners. Through the observation with Allison it was clear that she valued collaboration among her students, but also spoke highly about the ways teachers in her school collaborated and worked together to create a supportive environment.

Brad. Brad's classroom was filled with technology. He hosted a class website, blog, and Twitter account, and while I was in the classroom was participating in an iPad trial program that allowed every student in the class to have their own tablet for the integrated lessons. Brad's philosophy of using technology stems from being a disengaged student himself and wanting to keep his class moving. He likes the constant accessibility of working with a SMART Board and the flexibility it gives him to engage students and pull up information at a moment's notice. One of the first teachers interviewed who explicitly mentioned learning styles, Brad indicated that his students were primarily kinesthetic and interpersonal, so he tried to keep them engaged physically and through collaboration and communication. Drawing on skills he saw as required on EQAO testing, Brad also focussed many of his lessons on problem-solving, facilitating conversation and encouraging students to find multiple ways to approach a solution.

Colette. Colette was an energetic young teacher who had most of her teaching experience in rural schools. Her classroom was full of light, and had reference material and children's artwork covering the walls. Though her class had few students, which she identified as presenting unique challenges, it was close-knit and allowed for flexibility when planning class trips and parent volunteers. During the observation period, I found her to have numerous connections to experiential learning and the personal benefit students could derive from experiencing the world on their own. During a language lesson, she encouraged students to explore and create at their own pace while working together to troubleshoot and problem-solve. Colette's philosophy towards children spoke to her desire to teach the whole child and a her holistic sense of child development. She prioritized compassion, manners, respect, and social justice, and saw the curricular teaching goals as important but secondary aspects to behavioural and life skills.

Erin. Erin's classroom was bustling with energy when I arrived, but during the observation period it was clear that she had a clear and organized plan for her students to follow, that enabled each of them to take responsibility for a part of the daily routine. During the observation, Erin indicated that she placed a heavy focus on keeping her students engaged, and finding ways for them to enjoy their learning, especially in math. Her lessons were structured, but frequently collaborative, and they often required students to teach or coach each other through problems. Erin orchestrated the collaborative activities, deciding who should work together depending on the activity or the need to disrupt tension or conflict in the room. During the math lesson, students were so engaged in what they were doing that not one moved when the bell rang for the first break. Erin indicated that this was typical in her room. Also, as the year progressed students began to realize and appreciate that instead of coming to her for help with problems, they could find ways to problem-solve on their own, thereby growing their problem-solving and investigative skills.

Heather. As one of only two teachers at urban schools in this study, Heather was faced with a number of environmental challenges and opportunities, mostly stemming from her involvement at a very large school with students from a variety of income and ethnic groups. The observation time in her classroom was also influenced by ongoing labour unrest in the Province, as further work-to-rule sanctions had just been put in place, eliminating the provision of extracurricular activities by teachers. Heather's classroom was warm and bright, and walls were covered with activities, lessons, and charts. During the observation period Heather had her students engaged in work with students sitting together at tables, and verbally encouraged students to keep going with their ideas when discussing questions they had about a book the class had just read. During the science lesson, students were putting the finishing touches on a project they had already completed. This opportunity to go back and

revise what had been completed gave students an opportunity to extend and express themselves, rather than remain content with the first presentation.

Laura. Students in Laura's class were very excited and full of energy on the very hot spring day when I visited their classroom. Programming her lessons based on the changing needs of the students, Laura decided to eliminate an activity she had been planning to do that would have required the students to sit still and listen, and implemented a centre-based activity where the students paired up and moved around the classroom to different tables, answering questions and agreeing on answers. This activity seemed to provide students with an outlet for their energy while still meeting the lesson plan which involved reading and text response. Within Laura's school, there was a strong indication that the arts were prioritized — Laura pointed out rooms that had been converted by the teachers and students into a jungle and castle setting, and she discussed with obvious pleasure and pride the drama, art, and music programs in which the students in her school participated.

Marilyn. Drawing from her own experiences as a disengaged student, Marilyn valued learning and engagement, and encouraged students to find their passion and strengths. Many of the lessons that I saw while observing Marilyn's classroom were designed to help students take on multiple perspectives, answer challenging questions, and determine what information was missing in an article or story. What surprised me during the observation period was the ease with which Marilyn drew her students into friendly debate, discussing challenging ideas and pointing out how information could be used to persuade people in one direction or another. Marilyn also prioritized authentic experiences as a means of teaching her students. She discussed with pleasure the opportunities she had presented her students with, including a large number and variety of field trips, expert guest speakers who engaged the class in a craft or skill, and other forms of hands-on learning opportunities.

Paige. The other teacher who was observed teaching in an urban school, Paige, had a unique classroom arrangement, in a pod of four classrooms divided by thin, ceiling-high moveable walls that allowed the sound to filter through. This setup provided a partial sense of seclusion, however students from the other three classrooms had to use Paige's classroom as a corridor to go into the hallway, to the office, or visit the washroom. This created a great deal of traffic and noise, which contributed to the general environment of the class. Physical space aside, the space was well-used, and during the lessons I saw, the students were frequently moving around, making use of all available floor and table space for activities and discussions. This was also one of the largest classrooms I visited, with 28 students present when they were all in attendance, several of whom had Individual Educational Plans (IEPs). Paige indicated that in spite of these challenges, she could almost always design her lessons to engage students physically and in an active way, and pay strong attention to her students' learning styles. Dramatic arts were a priority, as well as authentic self-expression. Though these activities, Paige felt that she could connect with students, manage behaviour, and encourage collaborative and positive group-work. She clearly had high expectations for her students to manage their work, as well as share their own ideas and opinions.

Ryan. Ryan was clearly passionate about engaging students through technological literacy. He identified technology as a 21st century medium as well as a key way of engaging students in text and discourse. Using collaborative and interactive teaching methods, Ryan frequently had his students working together in order to compose videos, presentations, and 'movie trailers' for books they were reading. Because of his comfort with technology, he was able to have his students post questions to a class Twitter stream while he was reading to the class from a book, and he intermittently stopped to respond to the questions students had about the text, clarifying and defining terms as he went. Reaching out to his students'

different learning styles, through his teaching style he recognized that not all students were able to listen and concentrate, therefore actively writing questions or reading the questions others posted helped them to engage with the material. It also helped them to understand that everyone has questions when they read, not just those who may be weaker readers or have a smaller vocabulary. During the interview, Ryan referenced Bloom's Digital Taxonomy, a reframing of Bloom's original Taxonomy of Educational Objectives, which in its revised form attempts to account for new behaviours and actions emerging as technology advances and becomes more ubiquitous.

Sophia. Though she had already passed the eligible age for retirement, Sophia was full of energy and clearly loved being in the classroom with her students. There was an abundant sense of joy in her classroom, and the students appeared to respond with equal pleasure to her requests and directions. Sophia started each day by actively engaging her students, whether with a math or language activity, as she saw the first part of the day as the best time for students to concentrate. This also provided an opportunity to get the day going in a positive direction. During the observation period Sophia indicated that the teaching staff at her school were all highly engaged and positive, and that there was a tremendous sense of collegiality among teachers and staff in the school. With a large variety of extracurricular activities, sports, and social justice groups at Sophia's school, it appeared that there was a school-wide push to develop the whole student and create a welcoming and inclusive environment. Sophia spoke to her years of teaching experience and indicated that for her, the creation of a safe and welcoming classroom environment was paramount to engaging students and allowing them the freedom to express themselves creatively.

Theresa. Located in a mid-sized community, Theresa's school was large and diverse. Her classroom was very neatly arranged, though sparsely decorated, and she indicated when I

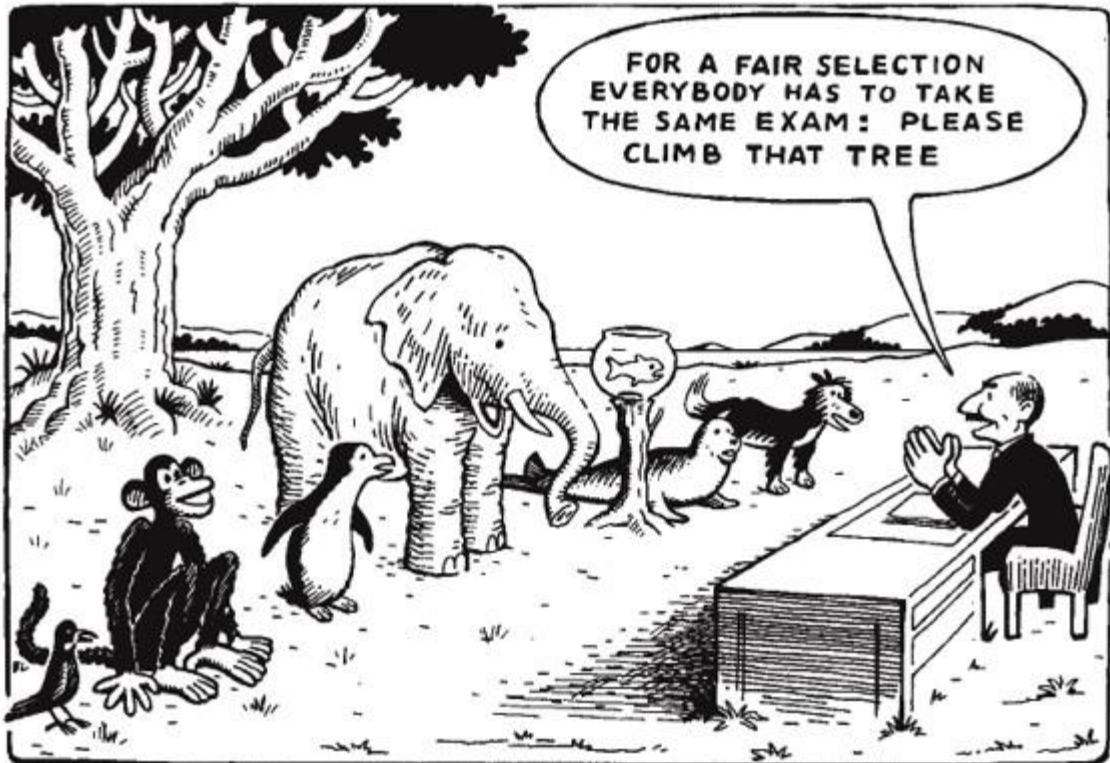
met her that she had planned to put up some artwork in advance of my visit, but had not yet had the opportunity to do so, thus explaining the empty bulletin boards. During the interview Theresa seemed a bit shy and hesitant to speak about her experiences. She did open up about some of the pressures of teaching, and especially what she felt to be divisions in the school among teachers, and administration, and between students who traveled in from rural areas and those who were from the local community. Though the interview was a bit stiff, her classroom demeanour toward students was warm, and Theresa was serious about her students' success and performance. She indicated, and it was clear to see, that she prioritized strong development of basic skills, precision, and guided practice to help students to improve their vocabulary and asking text-based questions. Theresa had some opinions regarding creativity which were mostly limited to what she viewed as the importance of art in schools. She encouraged her students to engage with art and design, and tried to infuse a sense of art appreciation in her classroom.

Trent. With a background in drama, Trent felt that a large part of his role as a teacher was to infuse the classroom with opportunities to connect to life through movement, public speaking, and discussion. His classroom was bright and airy, and the only one to be arranged in a 'U' shape, without assigned seats. Students frequently gathered in the middle of the 'U' to receive instructions or reflect on activities, and then during my time in the classroom appeared to be permitted to work in any space they found comfortable that met their learning needs at that moment. Trent's teaching philosophy was really about giving students individual learning opportunities and freedom to explore in a differentiated way. In demonstrating this commitment, he had pinned images of each of his students on one of the classroom walls, alongside each of their unique learning styles. Activities and lessons also showed a commitment to differentiated instruction. Some of the students in the class had

taken on a large-scale windmill project, investigating the role of power-generating windmills in a nearby community. They had been involved with writing letters to the editor at the local newspaper, reading research reports, and building windmills. This ‘team’ was made up of students who worked on their project together, and who were relating problems to the real world. Trent used terms like “structured flexibility” and “administrator of learning opportunities” to describe his teaching approach, which provided students with opportunities to engage at their own level, and manage their own learning goals and outcomes. Based on the observation session, this appeared to be a highly successful and particularly empowering strategy for the students.

Appendix F

Standardized Testing Cartoon



This is a cartoon forwarded to the researcher indicating the participant's perspective on EQAO testing. The meaning of this image reflected the participant's views on the importance of differentiated instruction and recognizing the individual potential of each student.

Image credit: Bern Dibner Library of Science and Technology (2012)

Appendix G

Ethics Approval Notice



THE UNIVERSITY OF WESTERN ONTARIO FACULTY OF EDUCATION

USE OF HUMAN SUBJECTS - ETHICS APPROVAL NOTICE

Review Number: 1110-5
 Principal Investigator: Ron Hansen
 Student Name: Catherine Dishke Hondzel
 Title: *An Examination of Ontario Teachers' Conceptualizations, Experiences and Creativity Fostering Behaviours at the Intermediate Grade Levels*
 Expiry Date: March 31, 2013
 Type: Ph.D. Thesis
 Ethics Approval Date: November 4, 2011
 Revision #:
 Documents Reviewed &
 Approved: UWO Protocol, Letters of Information & Consent, Advertisement

This is to notify you that the Faculty of Education Sub-Research Ethics Board (REB), which operates under the authority of The University of Western Ontario Research Ethics Board for Non-Medical Research Involving Human Subjects, according to the Tri-Council Policy Statement and the applicable laws and regulations of Ontario has granted approval to the above named research study on the date noted above. The approval shall remain valid until the expiry date noted above assuming timely and acceptable responses to the REB's periodic requests for surveillance and monitoring information.

During the course of the research, no deviations from, or changes to, the study or information/consent documents may be initiated without prior written approval from the REB, except for minor administrative aspects. Participants must receive a copy of the signed information/consent documentation. Investigators must promptly report to the Chair of the Faculty Sub-REB any adverse or unexpected experiences or events that are both serious and unexpected, and any new information which may adversely affect the safety of the subjects or the conduct of the study. In the event that any changes require a change in the information/consent documentation and/or recruitment advertisement, newly revised documents must be submitted to the Sub-REB for approval.

Dr. Alan Edmunds (Chair)

2011-2012 Faculty of Education Sub-Research Ethics Board

Dr. Alan Edmunds	Faculty of Education (Chair)
Dr. John Barnett	Faculty of Education
Dr. Farahnaz Faez	Faculty of Education
Dr. Wayne Martino	Faculty of Education
Dr. George Gadanidis	Faculty of Education
Dr. Elizabeth Nowicki	Faculty of Education
Dr. Immaculate Namukasa	Faculty of Education
Dr. Kari Veblen	Faculty of Music
Dr. Ruth Wright	Faculty of Music
Dr. Kevin Watson	Faculty of Music
Dr. Jason Brown	Faculty of Education, Associate Dean, Research (<i>ex officio</i>)
Dr. Goli Rezai-Rashti	Faculty of Education, Associate Dean, Graduate Programs (<i>ex officio</i>)
Dr. Susan Rodger	Faculty of Education, UWO Non-Medical Research Ethics Board (<i>ex officio</i>)

The Faculty of Education
1137 Western Rd.
London, ON N6G 1G7

Appendix H

An examination of Ontario teachers' conceptualizations, experiences, and creativity fostering behaviours at the intermediate grade levels

LETTER OF INFORMATION (Survey)

My name is Catharine Dishke Hondzel and I am a PhD Candidate at the Faculty of Education at the University of Western Ontario. I am currently conducting research on the topic of teaching styles and the concept of creativity in teachers of grade 5, 6, and 7 students.

The aims of this study are to capture a broad range of teacher styles, experiences, and attitudes toward creativity.

If you agree to participate in this study you will be asked to complete a 50-item online questionnaire, which will take approximately 15 minutes. At the end of the questionnaire you will be asked if you would like to participate in the second portion of this research, which will consist of a classroom observation session and one-hour interview with the researcher at your convenience.

The information collected will be used for research purposes only, and neither your name nor information, which could be used to identify you, will be used in any publication or presentation of the study results. All information collected for the study will be kept confidential. All data collected will be kept in a secure location in the Faculty of Education at the University of Western Ontario and will be destroyed no later than five years after the study has been completed and published.

There are no known risks to participating in this study. Participation in this study is voluntary. You may refuse to participate, refuse to answer any questions, or withdraw from the study at any time with no effect on your employment status. Should you decide to withdraw, all of your data will be destroyed and not used in the study. You may choose to only participate in the survey, or to participate in the survey, the observation and the interview.

Completion and submission of the survey indicates your consent to participate in this part of the study.

Questions

If you have any questions about the conduct of this study or your rights as a research participant you may contact the Manager, Office of Research Ethics, The University of Western Ontario at [redacted for publication]

Thank you.

<https://rabbit.vm.its.uwo.ca/Surveys/default.aspx?surveyID=771>

**An examination of Ontario teachers' conceptualizations, experiences, and creativity
fostering behaviours at the intermediate grade levels**

LETTER OF INFORMATION (Interview)

My name is Catharine Dishke Hondzel and I am a PhD Candidate at the Faculty of Education at the University of Western Ontario. I am currently conducting research on the topic of teaching styles and the concept of creativity in teachers of grade 5, 6, and 7 students.

If you agree to participate in this study you will be asked to have the researcher come observe a regular classroom activity or program you feel engages students in any aspect of the curriculum (writing, mathematics, art, drama, music, social studies etc...). This may take place over one or a few days time depending on the nature of the activity and your availability. During this time the researcher will act as a non-participant and take notes about the classroom interactions that take place. Following this observation, you will be asked to participate in an interview of up to an hour where you will be invited to discuss your experiences and perceptions of teaching and creativity.

The interview will be audio-recorded to ensure that I am able to accurately capture your thoughts, feelings and experiences. The audio-recording will be transcribed into written form. You will have the opportunity to review your transcript in order to confirm the accuracy of our conversation and to add to or clarify any points that you wish.

The information collected will be used for research purposes only. I will not disclose your name or any personal information that could identify you. No identifying information about you, including any specific details about your location or activity will be used in any publication or presentation of the study results. All information collected for the study will be kept confidential. Transcripts of the interviews and observation notes will be kept in a secure location at the Faculty of Education, The University of Western Ontario, and will be destroyed no later than five years after the study has been completed and published.

There are no known risks to participating in this study. Participation in this study is voluntary. You may refuse to participate, refuse to answer any questions, or withdraw from the study at any time with no effect on your academic or employment status. Should you decide to withdraw, all of your data will be destroyed and not used in the study.

Questions

If you have any questions about the conduct of this study or your rights as a research participant you may contact the Manager, Office of Research Ethics, The University of Western Ontario at [redacted for publication]

This letter is yours to keep for future reference.
Thank you.

Curriculum Vitae

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Graduate Thesis Research Award
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Dean's Honour Roll of Teaching Excellence
2009-2010; 2010-2011; 2011-2012

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2008-2013

Research Assistant
Western University
2009-2013

Publications:

Dishke Hondzel, C. & White, B.G. (2012). Service-learning in statistics: A success story.
*Interact: The newsletter of the ACU University Extension and Community
Engagement Network.*

Dishke Hondzel, C. (2012). *Self-silencing, agency, and communion in female student
leaders: A Canadian perspective.* Saarbrücken, Germany: Lambert Academic Press.