Associating creativity, context, and experiential learning

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Abstract
One of the difficult aspects of defining creativity is that the term means many things to each of us, and reflects our unique perspectives and experiences. Our situatedness within a unique, personal context means that the concept of individual creativity defies formal scientific definition. This paper is an attempt to conceptualise creativity differently. It tries to break new ground by defining it through the process of being creative within a dynamic environment. We consider how individuals think about creativity, especially outside the confines of our institutionalised learning, and through the lens of experience. The context is a rising public and scholarly interest in the topic but using the complimentary frameworks of situated cognition and experiential learning. This conceptual paper takes a critical look at formal learning and human creativity, and the role teachers, educators and policymakers play in the process.

Keywords: situated cognition, 21st century skills, standardised testing, education theory

Introduction
As a society we use the term creativity 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 and Gardner 1994; Moran and John-Steiner 2003; Runco 2007; Sternberg 1999). For the purposes of this paper, 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.

The ways in which learning environments and education relate to individual creativity are not well understood. Missing is a body of research that exposes the educational and life-course experiences that contribute to human creativity (Baynes, Norman, and Stables 2010; Gulliksen 2008; Hansen 2008). It is clear that we need to form a more comprehensive understanding of the role social and educational

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environments play with regard to fostering the growth of creativity, and better understand how our experiences shape the development of creative ideas, and individuals. This paper is an effort to be critical of and explore the role of formal learning and human creativity. Through the discussion of alternative learning theories, we illuminate some of the barriers that the education system as currently operating has placed in the way of authentic learning and human development.

Rather than adopt the assumptions inherent in formal education systems we propose a fresh start. Current conceptions of schooling/knowledge and human development do not take into account variables, (e.g., economic and workplace realities, cultural differences, family diversities, and community) which ultimately shape our development as human beings (Lindfors 1999). Schooling, by singling out specific aspects of knowledge for dissemination, may be too narrow in purpose to help children grow in a wider sense. Education theorists have attempted to explicate human learning but failed to do so, at least with any widely accepted and full-proof positions (Hansen 2012). We believe this is partly because research designs are based on problematic assumptions, one of which is that learning has to take place in formalised, controlled and institutionalised settings. Another is that the institution is the repository of knowledge, and that a learner is often treated as an empty vessel to be filled. When we make these incorrect assumptions, this means that institutionalised formal learning has been privileged at the expense of non-institutionalised learning (Priesnitz 2008). Non-institutionalised learning paradigms assume that every human being has a natural instinct and tendency for acquiring knowledge and that all environments, not just ones designated as educational, foster intellectual, social and emotional growth (Holt 1967). Acquiring knowledge is a genetic requirement you might say, one that shouldn’t be tampered with or forged too much by social norms, government interventions or institutional standardisation. Heralding the natural spirit to learn is the single most critical factor in reaching one’s full potential as a person (Dewey 1929; Lindeman 1926). Lindeman also argued that institutionalised learning is limited in its utility. In a statement that remains as true today as it was when published, he proposed that “education conceived as a preparation for life locks that learning within a vicious circle. Youth educated in terms of adult ideas and taught to think of learning as a process which ends when real life begins will make no better use of intelligence than the elders who prescribe the system” (1926, 3). In short, human behaviour should not be shaped and controlled by adults who propose that education be conceived as preparation for life rather than life itself. Using this perspective, we then ask how we can better understand the ways creativity is shaped by life experience and, ultimately, what is the impact of traditional and non-traditional forms of learning on children’s creativity? We explore the educational/cultural determinants of creativity thereby positioning ingenuity and creative thinking in relation to situated cognition and experiential learning. This conceptual paper proposes some ways in which educators and leaders can think
differently about the determinants of creative thinking. If we can think about creativity in new ways, this allows us the possibility of assessing best educational practices, and what it takes to nurture the creative talents of young people. We argue that the cultural or environmental determinants of creative learning and thinking will prove more helpful in defining, valuing, and understanding this exciting but elusive concept.

## Contemplating a Life-Course Learning Framework

The overwhelming majority of our social structures, policy, norms, and local interactions all depend on the socialisation that has taken place through our systems of schooling (Farrell and Fenwick 2007). The lack of creativity bemoaned by economists (Conference Board of Canada 2007; Council of Canadian Academies 2009; Council of the European Union 2008; Manley and Lucas 2010; OECD 2008) is the result of an education system that has yet to support this new economic model and which does not recognise or appreciate the substantial learning that is gained through experience and meaningful work. Creativity is also consistently relegated to the side-lines within a factory-model system of education, with increasing emphasis on standardised testing driving the curriculum, the questionable value of IQ scores, and little to no emphasis placed on fostering creativity or creative outcomes in/from students. Steady declines in reports of student creativity were even reported in a recent Newsweek article where creativity was cited as the no. 1 competency sought by CEOs (Bronson and Merryman 2010; Hee Kim 2011), though evidence of a curriculum and school system designed to support creative development is lacking.

The recent literature on 21st century skills also speaks to this emerging awareness of the need for creativity in our society (Bellanca and Brandt 2010; Thomas and Seely Brown 2011; Trilling and Fadel 2009). Researchers in this field argue that environments need to shift away from rooms “superbly designed for a teacher to stand in front of a class of thirty students set in neat rows, listening, taking notes, and doing worksheets” (Pearlman 2010, 117) to interactive, collaborative, dynamic spaces wherein students learn to collect and sort through information while developing critical thinking and problem-solving skills. Though it is widely recognised that the skills of the future lie in technological literacy, creativity, innovation, problem-solving and collaboration, little in our current school system and classroom paradigm has changed, aside from a few ‘experimental’ schools open to especially precocious youth or forward-thinking parents (Wagner 2012). Unfortunately, though curricular standards often stress creativity, innovation and critical thinking, teachers rarely bring these standards to life as learning outcomes, objectives, or by rewarding students who persist with an idea through failure and reiteration; a skill well-known to be common in innovators (Greene 2001; Johnson 2010). Schools, if they are to be the source of relevant learning for future adults, must understand not only the ‘how’ of a creativity-based curriculum, but also the ‘why’. In order to understand and clarify the rationale for these changes, we use a framework which draws from two
well-established theories, situated cognition and experiential learning, and place them within a historical context.

**Theoretical Grounding**

Situated cognition theories use a neurological framework to argue that the human brain is sophisticated and processes information efficiently, dynamically and contextually. 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 and Aydede 2009, 7). Students then must draw on the environment, culture, accessible sensory information, schemas and conditioning to make decisions and solve problems. Assumptions of a static learning environment shape modern education. The 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 and Duguid 1989). A model of situated cognition would then support the thesis that a framework of learning is incomplete if we only attend to behaviouristic or information-processing theories that reduce learning to laboratory punishment/reinforcement, or computer-based models of mind. Therefore, in order to learn best and develop students capable of succeeding in a changing world, teachers and learners must be prepared to challenge thoughts and assumptions, using non-linear problem-solving methods alongside traditional methods with a purpose. Situated cognition gained recognition in the field of educational psychology in the late 20th century, but the roots of thought related to the development of the theory rest on Dewey’s “Copernican revolution” in psychology (1900; as cited in Bredo 1994). Revolting against one-sided educational positions, 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, 24) and reconcile arts with sciences when appropriate and work toward an integrated process of education as theory situated within practice. 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 recognised 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 understanding that the casual 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 than principles of biology, physics and engineering which
influenced the social and behavioural sciences, placing emphasis on dynamic change and interdependent processes (Clancey 2009).

Recognising the same human nature as Dewey, Vygotsky’s epistemological position which re-envisioned the Marxist methodology of dialectical and historical materialism stated that development and creativity are composed of and influence each other within and across people’s cognitions and lived experiences (Vygotsky 1997). Identifying the nature of learning through contextually situated reciprocal interactions reinforces the essentially social nature of cultural acquisition, and acknowledges that social situations, group learning and the influences 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 and 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 encouraging learners to produce their own new understandings; providing ever-decreasing levels of support and guidance until a student is able to succeed on his or her own (Sternberg and 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.

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 refer to it with terms such as “embodiment, enactivism, distributed cognition, and the extended mind” (2009, 3), and 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 and 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 cognition has been misused in everyday settings, such as within schools and 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 and 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 (both children and adults) 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 regardless of learning style or learning challenge can engage with processes in order to see, feel and experience how information fits into the physical world. Through effective educational practices that recognise 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 (Lindeman 1926; Kolb 1984; Wilson and Myers 1999).

Experiential learning theory states that knowledge is created through the transformation brought about by experience (Kolb 1984; Mainemelis, Boyatzis and Kolb 2002; Martinez Casanovas, Miralles, Gomez and Garcia 2010) and delineates a 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 and Caspari 2007) and 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 allow 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 style 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 learning environment and the learner (Kolb 1984). The theoretical traditions that inform experiential learning theory include the work of Dewey, Lewin, Rogers, and Kolb, among others. Each theorist re-affirms the ways creativity, situated cognition and experiential learning are bound together, reinforcing the maladjusted practices of our current content-driven education system.
The concerns of Dewey “are as relevant today as they were 100 years ago when they were forcefully brought to the attention of educators” (Berliner 2006, 13). The work of Dewey articulated the guiding principles of experiential learning and situated cognition, recognising 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 vocationalisation 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 embracing 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 lends influence to the pioneering work of Lewin, whose influence is perhaps wider in terms of scope of influence and a broader understanding of group dynamics and 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 with regard to his position that theory and practice must all times be integrated, and that a dynamic approach and systematic method be used to reflect and analyse the success or improvements required through the process of learning, collaboration and understanding the roots of social behaviours (Kolb 1984; Shaw and 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 dependent on their own life experiences and prior learning. The learning environment must then be tailored to respect and integrate the prior knowledge of students with the ultimate goal of positive social development and emphasis on subjective experience. This knowledge should then prompt role models, coaches and facilitators to create personal experiences for their fellow learners to engage in a subjective process of inquiry and understanding.

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 and 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, 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 and Georisdottir 2004; Rogers 1954).

Lastly, 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 of enduring cognitive structures that organise thought and action, 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 internalised, 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 organic nature of cognitive wiring which permits the formation of divergent thoughts and creative idea generation.

Example forms of learning that stand in contrast to formal institutionalised learning include home schooling, unschooling (Holt 1967; Priesnitz 2008), Waldorf/Steiner Schools (Clouder and Rawson 2003) and folk schools (Hansen 2012). These non-traditional forms of learning purport to provide youth with the opportunity to develop talents and skills associated with creativity, and to nurture natural inquisitiveness. They resist the standard ministry-mandated curricular format in favour of a learner-centred, inquiry-oriented method of education (Clouder and Rawson 2003; Holt 1967; Lange and Sletten 2002). Children or young adults are encouraged to explore topics that interest them, guided by curious, supportive parents who provide access to resources and as-needed assisted research projects.
The Free School literature notwithstanding (Graubard 1972; Snitzer 1968), very few formal research studies have been published which investigate the nature of alternative, non-traditional learning, and no study, as of yet, has fully investigated or measured the differences related to children’s creativity in these environments in a comprehensive way.

**The Talisman Effect and Human Creativity**

Creativity is an elusive concept, but a fundamental human quality. As mentioned at the beginning of this paper, a range of definitions persist, promoting greater and lesser degrees of precision. Ultimately, what can be stated unequivocally is 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). The concept of creativity in education has arisen all around the world, but is of particular interest in developed countries and industrialised nations where technology and ingenuity are of paramount importance to continued and ongoing prosperity (Aud, McCammon, and O’Farrell 2007). Educators, parents, employers, and policy-makers realise 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 civilisation forward (Hennessey and Amabile 2010) and is a key element of the skills needed for success in the 21st century (Bellanca and Brandt 2010; Pearlman 2010; Wagner 2012).

Though creative potential and products fill an economic and industrial need, creative individuals who are capable of innovation or creative implementation of their ideas are required for the sake of improving our communities and addressing pressing problems. Creative environments engage people and improve achievement and agency, allowing and encouraging cross-fertilisation among ideas, and problem-based critical thinking which promotes self-initiated learning (Moran 2010; Robinson 2001). This social and dynamic process encourages us to think of solutions to problems in an applied, experiential way, and capitalises on our innate capacities to construct new ideas from past experiences. Drawing from theories of situated cognition, this aligns with and promotes our natural way of engaging with the world. 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 success in school (Guilford 1967; Isaksen and Treffinger 2004; Karpova, Marcketti and 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 methods are combined in creativity-fostering environments (Runco 2007). Unfortunately, the current and more modern focus on explicit content standards as well as the public pressure for school accountability
may 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 process or complex ideas (Baer and Garrett 2010). This dichotomy has not been widely explored.

Teachers have differing and sometimes inaccurate views of creativity, which leads to both positive and negative application in the classroom (Andiliou and Murphy 2010; Dishke Hondzel 2012). Moreover, the school structure itself, by way of prioritising standardised 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’ they may not want to embrace teaching techniques to enhance or foster creativity. Though there is a promising body of literature that provides a hope for how to foster creativity (Isaksen and Treffinger 2004; Parnes 2000), the current educational climate and structure may not allow for a means to do so. Teachers feel constrained in the types of activities and depth of learning they can foster within their students.

Perhaps more important is that standardised testing is being used by students and teachers as a talisman. Teachers are like ornaments or pawns of government testing advocates; accessories to a crime of sorts – stripping students of their individuality; wards of the state. It is hard to argue that the formal school system fails children and drives independent thought and creativity out of them but ignoring the latent and manifest outcomes of schooling would be foolish. This conceptual paper challenges the conventional wisdom on how to define, value and understand/foster creativity and innovation in schools. On the one hand, formal forms of learning have a foothold and standing in the community and minds of parents, on the other hand confining our youth in one-size-fits-all environments for too long may not be appropriate. The individuality and agency of students stands in contrast to the need for economic supremacy and like-minded citizens. For these teachers who view creativity as something important, it is seems somewhat natural to feel that any activity that constrains the expression of individual ideals and pushes everyone to a common standard would go against the practices of a classroom which nourishes creativity.

The benefit of this analysis is that it provides context for a new way of thinking about creativity, both the nurturing of it in a human development sense and the design of research needed to better understand and tie it to cultural development. Future research must examine the issue of creativity in schools, especially as related to the nature of standardised achievement testing and formal evaluation generally. When governments encourage improvement as measured by test scores and hold them as a marker of school success, educators and administrators need to understand the implications. At a policy level, government policymakers need to think of ways of moving forward that better reflect the goals and values of students, ultimately, and we as a society need to ensure that making schools and teachers accountable for
student progress will not tie the hands of the knowledge experts working with our children each day.

Current conceptions of schooling/knowledge, we argue, do not take into account environmental, dispositional and community variables which ultimately shape our development as human beings. Is there a culture of compliance in educational institutions that goes unchallenged? Unnoticed? We must recognise that every human being has a natural instinct, disposition, and tendency for learning and creativity which should be honoured above all else. It is a genetic requirement that is being undermined in the face of government conceptions of human capital and global economics. Heralding the natural spirit to learn is a critical factor in reaching one’s full creative potential, as Dewey (1929) and Lindeman (1926) documented nearly a century ago. Understanding that formal and non-formal education needs to be balanced may be the single most important outcome for nations seeking to live/govern productively, creatively and ecologically on the planet. Human behaviour need not be shaped and controlled by elders who propose education be conceived as preparation for life rather than life itself. There are opportunities to give teachers and schools the freedom to be creative in their pedagogical choices. This paper suggests that readers trust their beliefs and instincts about traditional and non-traditional forms of learning in relation to their own creativity and that of others. The determinants of creativity are clear enough to be acted upon and cultivated in many learning situations. Formal education policy needs to comply with a culture that celebrates human creativity.

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