Conceptualizing Creative Thinking and Innovation

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One of the most persistent myths circulating within western societies is that creative thought and innovation are restricted to geniuses (such as inventors and artists) working in isolation. This perspective has endured partly because of the ways that creative thought has been conceptualized over time. From pre-history to the medieval era, creativity was regarded as supernatural – a process of external inspiration given voice through the work of the genius. By the late 1700s, scientific inquiry began to distinguish between “talent” and “creative processes.” As systematic research increased over the 20th century, scholars distinguished between Big-C and little-c creative thinking. Big-C creativity is mainly manifested by an elite few who have significantly changed fields of inquiry or societies whereas little-c creativity is thought to reside in the everyday thought processes that characterize all human populations. In short, “we may not all be creative geniuses, but we all have the potential to be creative.”

This paper outlines contemporary conceptions of creative thinking and innovation. In addition, it examines the varied ways in which researchers have probed these, the key components that have been identified and the nature of developmental stages across the lifespan. The paper closes with a brief discussion of implications for schooling.

**Conceptualizing Creative Thinking and Innovation**

In recent years, researchers have defined creative thinking as generating ideas that are “novel, appropriate, and of high quality.” Notably, creativity is not synonymous with originality. An idea may be new to a specific person within a specific context without being original within greater society. Creativity is further distinguished from mere novelty in that it must be appropriate to the context in which it is generated. For example, if a student writes a story when assigned to do a painting, the story – though novel – would fail the test of appropriateness. Researchers have also noted that creative processes are highly contextual. Therefore it is impossible to define precisely what constitutes “high quality.” Suffice it to say that one’s creative idea must be of value as judged within the context in which it is generated. Creative thought is also considered to be a continuum that spans from ideas that significantly transform an entire field or society (Big-C) to the multitude of creative thought processes that all individuals undergo in everyday life (little-c).

Innovation, on the other hand, is the implementation of a novel idea into practice often on a larger social scale, such as the marketplace. As such, innovation and creative thought are interrelated. Indeed, innovation consists of both creative thought and imagination, but is seldom considered within the domain of school-aged students. This is due to the deep levels of understanding required for innovators to be able to move beyond the accepted norms of their given fields of work or study.

**Research on Creative Thought**

The first wave of inquiry prompting modern conceptions of creativity was launched in 1950 with J. Paul Guilford’s proposed “structure of intellect.” Guilford argued that models of intelligence had placed too much emphasis on “convergent” thinking, which is the marshaling of information to arrive at one correct answer. He
proposed that thinking was also “divergent,” expanding on existing knowledge in interesting and unforeseen ways. Since that time, creativity – and in particular divergent thinking – has been probed by researchers working from multiple disciplinary perspectives including psychology, education, history, the arts, sociology, anthropology, and business). Approaches have been predominantly “psychometric” (to measure and define creativity); “experimental” (to measure outcomes from creativity-promoting interventions); “historiometric” (to create biographies and case studies of Big-C creators/innovators); and “biometric” (to measure cerebral activity).

In recent years, scholars have acknowledged that creative thought is context specific. This has raised the question as to whether creativity is also culture specific. Researchers working in culturally diverse contexts around the globe have determined that although there are culture-specific manifestations of creative thought, there also appear to be components that may be universal.

**Key components of Creative Thought**

The components of creative thought identified by researchers include:

- making connections; envisaging what might be; exploring/playing with new ideas; reflecting critically on ideas, actions, and outcomes, questioning and challenging; building on subject area and interdisciplinary knowledge; risk-taking
- valuing creativity; imagining; demonstrating curiosity,
- tolerating complexity
- open-mindedness
- thinking divergently
- demonstrating willingness to disagree often characterized by questioning and challenging
- making unusual connections as illustrated, for example, by metaphors and/or analogies

**Developmental Phases**

Researchers have identified three phases in the development of creative thinking. The pre-conventional phase is experienced by children up to ages six to eight. This phase is characterized by spontaneity and concrete visual displays. The conventional phase pertains children aged nine to 12 and is characterized by a diminishment of creative thought that researchers as early as the 1960s dubbed the “grade 4 slump.” At first, it was hypothesized that the slump might result from overly-conservative learning experiences. Nevertheless, international studies have revealed a universality to the slump prompting researchers to attribute it to children’s increasing awareness of and response to societal conventions due to maturation. **Children at this phase tend to be “more sensitive to conventions. They tend to react to peer pressure more than any other time; their art becomes highly representational and realistic; and they stick to the rules in their games rather than making them up as they go along.”** In addition, during this phase, students find it difficult to work with non-literal language such as idioms and metaphors.

Most children recoup their creative inclinations during what is termed the post-conventional phase, which encompasses children aged 12 to adulthood. “Here they are aware of conventions but choose in a mindful way, for themselves, which conventions
are appropriate for them, and which are not.” By about the age of 40, creative thought begins to decline over time.

**Creativity and Schooling**

Two main lines of scholarly inquiry are relevant for educators and educational researchers: domain specificity versus generality and the fostering of creativity. Researchers tend to agree that “creative ability is not a fixed capacity; rather it can be improved through interventions. Indeed, research studies show that both domain specific and general educational programs make a considerable improvement in creative capacity.” But researchers are still vexed by the following question: Would people who are creative in one domain (such as drama) necessarily be creative in another (such as language arts)? If so, creativity can be enhanced using general methods only. If, on the other hand, creativity is domain-specific, then particular creativity enhancing strategies must be employed within specific subject areas to facilitate students’ creative thinking. In light of findings that creative thinking skills tend not to be given high priority in schools, researchers are encouraging educators to foster creative thought in pupils using both domain-specific as well as general approaches.

Arthur J. Cropley’s synthesis of research findings indicates that certain general teaching methods can foster creative thinking. These include:

1. **discovery learning** – working alone or in small groups to work out connections or patterns
2. **play learning** – for example, acting out and elaborating on literary passages or scenes from plays; creating and demonstrating new games/activities
3. **problem solving** – open-ended science questions/ experiments
4. **learning via structural analysis** – breaking something down into component parts to determine rules/principles (such as rewriting Macbeth as a comedy)

To support creativity more generally, teachers can

1. encourage students to learn independently
2. have a cooperative learning style
3. motivate students to learn factual knowledge, so that they have a solid base for divergent thinking
4. delay judging students’ ideas until they have been thoroughly worked out and clearly formulated
5. encourage flexible thinking
6. promote self-evaluation
7. take students’ questions and suggestions seriously
8. offer students opportunities to work with a wide variety of materials and under many different conditions
9. help students to learn to cope with frustration and failure so that they have the courage to try the new and unusual
10. develop a classroom atmosphere that is tolerant of unexpected answers, questions, suggestions, and so forth
To this list, some researchers would add that it is imperative to allow sufficient time for children to investigate their interests, although this is difficult given increasingly crowded mandated curricula. For some observers, facilitating creative thought in schools is a matter of riding the societal wave shifting us from manufacturing to knowledge economies. Others have noted that the drive to improve learning through more meaningful, personalized approaches dates back to ancient times. Either way, interest in creative thought is currently experiencing a worldwide “renaissance of interest.”
Notes

1 It is important to note that western perspectives are not universal. For example, First Nations societies have tended to view creativity more in terms of “the psychological, emotional, and spiritual dimensions of human expression” than of “concrete products.” See Rita L. Irwin and J. Karen Reynolds, “Creativity in a Cultural Context,” Canadian Journal of Native Education 19, 1 (1992): 91.


9 Craft, Creativity in Schools, 23-28. A period of approximately 10 years of intense study is thought to be necessary for proficiency in disciplinary norms. See also Robert Boostrom, Thinking: The Foundation of Critical and Creative Learning in the Classroom (New York, NY: Teachers College Press, 2005).


22 Runco, “Fourth Grade Slump,” 744.
24 See, for example, Sharon Morgan and Jill Forster, “Creativity in the Classroom,” Gifted Education International, 14 (1999): 29-43; Lynn Newton and Douglas Newton, “Creative Thinking and Teaching for Creativity in Elementary School Science,” Gifted and Talented International 25, 2 (2010): 111-124; and Warren R. Lett, Creativity and Education (Melbourne, AU: Australia International Press, 1976). More problematic is the finding that few children “are typically afforded systematic opportunities to develop their creative potential in schools and classrooms. Moreover, this inequity is particularly pronounced for culturally diverse students” who tend to be under-represented in gifted education programs, particularly in the United States. See Ronald A. Beghetto, “Creativity in the Classroom,” in The Cambridge Handbook of Creativity, 448.
25 Maud Besançon and Todd Lubart found, for example, that the Montessori method is effective in promoting creativity. See “Differences in the Development of Creative Competencies in Children Schooled in Diverse Learning Environments, Learning and Individual Differences 18 (2008): 381-389.
27 Ibid., 637.
References


