

Creativity – An Overview

Creativity – we all desire it, and we all know it when we see it.

Don't we?

As it turns out, in our society today, there is still disagreement as to what the conditions for creativity really are, how they can be worked with most effectively – and what creativity is in the first place.

How could this be?

Confusion about creativity

Creativity, as a field of study and formal research, is less than a hundred years old. In the first several decades of the last century, that study was mostly confined to a few educators, as well as the early psychotherapists, behavioral psychologists and, eventually, humanistic psychologists.

It was only in the 1950s that interest in creativity broadened, and then exploded in the following decades, driven initially by industrial and technological demands of science, created by the cold war. This drive placed a high value on novelty and innovation, an influence that still lingers today. In fact, given the challenges and complexities we face moving further into the 21st century, the call for innovation and creative problem solving has come full circle.

People's ideas about creativity are always shaped by their society and their historical time (Sawyer, 2012). But today, even after the explosion of creativity research and the contributions made by cognitive psychology, there is no single, universally accepted definition of creativity.

We often misuse the term as a form of general praise (Gilchrist, 1972). And, although we say we value creativity, some research indicates that even when we explicitly say we value it, we can actually hold hidden negative associations with creativity, choosing practicality instead when given the opportunity, as a way of reducing uncertainty. In fact, this implicit bias against creativity can

hinder us from recognizing a creative idea (Mueller, Melwani, & Goncalo, 2011).

Given our misconceptions and hidden biases, how can we gain clarity and engage in constructive dialogue?

Creativity Research

Even though the field is young, there are scores of definitions and theories of creativity in the research, as well as hundreds of books and thousands of articles.

Here's the problem: creativity is not just one thing (Kaufman, 2009). It is not a single trait or attribute. It is a complex system of traits, behaviors and processes, making it difficult to define.

What can we hope to discover from the research?

Over time, researchers have developed their understanding of the underlying components of creativity and the creative process. Theories that used to exist in isolation from each other now have more common ground for comparison. Different fields of inquiry, including psychology, education, business, social sciences, neuroscience and others, are now sharing their research findings. What is emerging is pluralism, where a multitude of theories, with different assumptions and methods, all contribute to a more robust understanding of creativity (Kozbelt, Beghetto, & Runco, 2010).

Definition of Terms

Creativity: The type of definition most commonly agreed upon by creativity researchers includes at least two elements: some form of **novelty**, originality, or uniqueness, and an element of **appropriateness**, relevance, or usefulness. (Beghetto, 2005). Both parts of the definition are necessary, because something that is simply novel may be of no use at all – it may just be irrelevant.

But this definition doesn't do full justice to creativity. Another often cited definition goes further: "Creativity is the interaction among aptitude, process and environment by which an individual or group produces a perceptible product that is both novel and useful as defined within a social context." (Plucker, Beghetto & Dow, 2004).

This definition acknowledges more of the complexity of creativity. It includes a **process** component as well as acknowledging the

environment in which creative work is taking place. The definition calls for a **product**, result or outcome, as well as agreement in a **social context**. It also refers to **aptitude**, which could refer to the need for at least some skill level with the materials of a discipline, whether paints, movement or mathematical equations - a criterion for creativity widely agreed upon in the research.

Creative Process: A term very closely related to creativity – especially considering that creativity is sometimes defined as a process. The term implies a conscious focus on the mental processes used and physical steps taken when engaged in creative work.

As with creativity, there is currently no single accepted definition of the creative process, but here are a few models to consider:

One of the earliest stage-based models consists of **preparation**, **incubation**, **illumination** (including a sub-stage of **intimation**, or feeling of an impending insight) and **verification**, developed by Wallas (1926).

Although this model is still sometimes used, its linear nature has been discredited (Kobelt, Beghetto, & Runco, 2010). The advances of cognitive research reveal that the creative process is actually much more complex. More recent models focus on the reality that these stages may be cycled through many times, and in different combinations, over the course of creative work.

Wallas himself cautioned that these stages constantly overlap each other in everyday life, and cannot be considered separately (1926). His view may be validated by the views of more recent researchers like Scott Cawelty, who find that the creative process, rather than following a sequence of stages, involves **simultaneity** of steps and processes (1992).

Some models focus on the creative process as a **system** of processes. The system is sometimes framed as the interaction of a **divergent stage** and a **convergent stage** of thinking (Beghetto, 2005), where divergent thinking focuses on finding novel ideas, and convergent thinking focuses on evaluating and choosing ideas. Models like Geneplore (Finke, Ward & Smith, 1992) focus on an interplay of **generating** and **exploring** new ideas.

More recent models focus on an interaction of **components**. One example would be the Componential model (Amabile, 1999), where three variables are needed for creativity to occur – **domain-relevant skills, creativity-relevant skills, and motivation**. Motivation refers to enjoyment or passion and most often works best for creativity when it is intrinsic, or internal, rather than extrinsic, or external. Motivation is widely regarded as an important component of the creative process.

Create/Creating: These terms interchangeably represent the top level of the Revised Bloom's Taxonomy, and are foundational pillars in both the Maine Learning Results and the National Core Arts Standards.

Although these words involve higher order thinking (they are renamed from Synthesis in the original taxonomy, and moved up one level, above Evaluating,) they do not necessarily equate with creativity. They can be used to refer to an artistic process, as in the National Core Arts Standards, or to the process of using higher order thinking to make anything.

Creative: A derivative of the broader term creativity; an adjective applied to a person, process, product or idea deemed to meet the basic criteria for creativity.

Creative Problem Solving: Attempting to solve an often ill-defined problem in a new or original way that is also useful. This term does not equate to the creative process, although some creativity theories explore the creative process as mainly a problem solving process.

One such model is CPS, created by by Owens (the originator of brainstorming) and Parnes. CPS has been developed over time from a linear model, focusing on a series of steps with alternating divergent and convergent thinking, to a system of components with multiple entry points called the Thinking Skills Model. This system has three broad phases: **clarification** of a problem or challenge, **transformation** from an idea into a solution and **implementation** (Puccio & Keller-Mathers, 2006).

Another creative problem solving framework has been developed over time with steps including: problem construction, information encoding, category search, category selection, conceptual

combination and idea generation, idea evaluation, implementation planning, and monitoring (Mumford, Mobley, Uhlman, Reiter-Palmon & Doares, 1991).

Other theories argue that the creative process may be more of a problem finding process (Runco, 1994).

Still other researchers argue that the creative process is not mainly a problem solving process at all (Cawelti, 1992), although it may include problem solving as one aspect. It may also be true that some creators consider their process to be mainly a problem solving process, while others do not; the relevance of problem solving may also vary from domain to domain.

Additional Components of Creativity

Each theory of creativity has its strengths and weaknesses. Several of these theories make significant contributions to the overall picture of creativity, including the following:

- Creativity is both **general** and **domain-specific**. Theories advocated by Baer (1993) and others have argued that creativity is at least partly domain specific; its nature changes from discipline to discipline. Current belief supports domain-specificity, while at the same time, accepting that at least some characteristics of creativity and the creative process, such as openness to experience, are general – unchanging across areas of expertise.
- Creativity can sometimes vary by **culture**. Different cultures may have different priorities when it comes to creativity. Anna Lee Walters, a writer of Pawnee and Otoe-Missouria descent, points out that in the hundreds of Native American languages, there is no word that comes close to our definition of art, because in traditional Indian thinking there is no separation between art and life, or between beauty and functionality (Walters, 1989). In the research, we find mixed results about the influence of culture on creativity. But according to Averill, Chon & Hahn (2001), Western cultures may value novelty more than the East, while Eastern cultures may value authenticity more.
- A creative person is organized as **a unique system**. A creator's work cannot be considered separately from the rest of his or her life; context is important. According to this view, the creative person is best assessed by case studies.

Novelty and value are valued, as well as **intent** and **continuance** of work (Gruber & Wallace, 1989).

- Creativity is seen as a **decision**, with the significant implication that creativity can be taught, according to the Confluence Theory (Sternberg, 2006).
- Creativity has a **developmental** component. The 4C model, developed by Kaufman and Beghetto, focuses on the context of creativity and addresses the myth that creativity is only for a select few. In this model:
 - “Big C” creativity refers to the more prominent, domain changing genius level of creativity, i.e. the work of Albert Einstein, Martha Graham, or Pablo Picasso.
 - “Little c” creativity is sometimes called “everyday creativity” and refers to the creativity any of us might experience: cooking a delightful meal, or making a special birthday present for a loved one.
 - “mini-c,” or the precursor to creativity that might be found in students who are beginning to explore a discipline. Students are gaining the skills and ways of thinking that could lead to greater creativity over time.
 - “professional c,” which would include experts who have been working in a field for a significant period of time.
- **Emotions** can be seen as both mediators and products of creativity; they help build associations between seemingly unrelated ideas, i.e. metaphoric thinking. They also are expressed as symbolic forms through language and the arts. (Averill, 2004).

The “Four Ps” Creativity Framework

Let’s drill down into the specific traits and characteristics involved in creative practices, as revealed by the research. Ross Mooney, a professor of education at the Ohio State University, introduced his framework in 1957, and it is still widely used today as a quick, easy way to understand the specific traits and characteristics involved in creative practices. Creativity is viewed in terms of People, Products, Process, and Place (environment).

These lists represent some of the more commonly agreed-upon qualities of creativity found in the research:

People – What are the characteristics of creative people?

- | |
|--|
| <ul style="list-style-type: none"> • Openness to experience, which can be split into: <ul style="list-style-type: none"> ○ Imagination or fantasy |
|--|

- Artistic or aesthetic factors
- Feelings
- Actions or behaviors
- Ideas
- Values
- Motivation
- Flexibility
- Ability with the materials of a discipline
- Independence, or autonomy
- Tolerance of ambiguity
- Willingness to make mistakes or fail
- Willingness to take risks
- Curiosity
- Sensitivity to aesthetic characteristics
- High meta-cognition – an ability to think about creativity
- Self-discipline
- Persistence
- Self-efficacy – believing oneself to be creative
- A positive mood and emotions

Products – What are the qualities of creative outcomes or results?

- Novelty, or originality
- Appropriateness or relevance
- Authenticity (sometimes culturally dependent)
- Value, usefulness, or effectiveness
- High quality, depending on the domain and context

Process – What are the qualities of creative methods or approaches?

- Divergent thinking, which can be further broken into:
 - Fluency – how many ideas a person can come up with
 - Flexibility – how many different types of ideas a person can come up with
 - Originality – what are the most unusual ideas a person can come up with
 - Elaboration – the ability to develop ideas
- Imagining
- Making unexpected or unlikely connections
- Combining disparate elements

- Incubation
- Insight or discovery
- Evaluation
- Work with the materials of a discipline

Place/Environment – What are the qualities of settings that support creativity?

- Rearing practices based on psychologist Carl Rogers' work, including: curiosity and exploration, letting children make decisions, and respecting children's opinions, lead to increased creative potential (Kaufman, 2009)
- Eight factors that increase creativity in the workplace (Amabile & Gryskiewicz, 1989):
 - Adequate freedom
 - Challenging work
 - Appropriate resources
 - A supportive supervisor
 - Diverse and communicative coworkers
 - Recognition
 - Sense of cooperation
 - An organization that supports creativity
 - And 4 factors that restrain creativity:
 - Time pressure
 - Too much evaluation
 - Emphasis on keeping status quo
 - Too much organizational politics
- **Performance goals** when combined with moderate ability in students increase creativity; otherwise performance goals may inhibit less self-assured learners; **learning goals** tend to be supportive of creativity (Kaufman, 2009)
- Rewards may decrease creativity in already motivated students (Kohn, 1993).

More About Openness to Experience

In the above lists of qualities related to creativity, we saw that “openness to experience” is considered a common and highly valued characteristic of creative people. This quality is important

for engaging deeply and successfully with the creative process - but may not be as straightforward as it seems.

Openness to Experience is one of the Big Five theory of personality factors, developed over time by several researchers. This factor is generally agreed upon as being most closely related to creativity, and has six sub-factors, as noted in the list above.

In recent years, creativity researchers have explored the possibility that three of these factors – ideas, values and actions - are more cognitively based, and referred to simply as **Intellect**. The other three factors – imagination, artistic factors and feelings – are more affective, or emotionally based, and are referred to as **Openness**.

Dr. Scott Kaufman, among others, has conducted research indicating that Intellect and Openness may have different roles to play in different creative domains, including the arts and the sciences. The results of these studies indicate, for example, that factors of Intellect tend to positively correlate with increased creative output in the sciences, but not in the arts. On the other hand, factors of openness tend to positively correlate with increased creative output in the arts, but not the sciences. (S.B. Kaufman, 2013.)

Dr. Kaufman suggests that Intellect and Openness are equally important sources of study for creative development. His book “Ungifted: Intelligence Redefined,” contains a more in-depth discussion of Openness to Experience.

Although these results have not yet gained widespread agreement in the field of creativity research, they hold many implications for education. Just how much will the development of creativity in education benefit the crucial affective, emotional qualities of human experience if the arts are not included? How much crossover benefit will there be from the creative exploration provided by the arts to the creative exploration of the sciences, and vice-versa? How can both the sciences and the arts be taught in ways that develop and incorporate both the Intellect and the Openness components of the single quality we have been calling “Openness to Experience?”

Educational Standards and Creativity

Now that we have delved into creativity research, it is natural to wonder how these insights might play out in the classroom. One place to look is in the standards: the Maine Learning Results (MLRs) and the revised National Core Arts Standards (NCAS).

A detailed comparison of the two sets of standards viewed through the lens of creativity is beyond the scope of this overview, but one reasonable question to ask is: how do the structure and guidelines of the standards address the exploration of creativity and the creative process in the classroom?

Both sets of standards address creativity in varying ways. Here are four observations about how creativity is incorporated in the standards:

1. The actual terms **creativity**, **the creative process**, etc. are used on a very limited basis in both the MLRs and the NCAS.
 - The MLRs directly call for creativity mainly in service of creative problem solving. In the guiding principles, they call for each graduate to leave school as a “creative and practical problem solver” (Principle C) and as a “responsible and involved citizen who participates positively in the community and designs creative solutions to meet human needs and wants.” (Principle D). In the actual standards, Standard C calls for Creative Problem Solving, and includes a reference to the creative process.
 - The NCAS directly call for creativity in the Framework, where four pages are devoted to creativity. The framework states that the standards are based on the four fundamental creative practices of: imagination, investigation, construction and reflection.
 - Both sets of standards use Creating as a foundational pillar, which can relate directly to creativity. In this context, Creating at least refers to an artistic process.
2. Both sets of standards include guidelines, indicators and outcomes that support the development of many **underlying components** of creativity and the creative process.
 - The MLRs, in the Guiding Principles, call for self-directed and lifelong learners, who apply knowledge in new contexts, demonstrate initiative and

- independence, as well as flexibility. In the standards themselves, we see calls for disciplinary literacy, as well as aesthetics and criticism.
- The NCAS call for learners to explore, express ideas and feelings, develop artistic statements and work with artistic intent.
3. Both sets of standards encounter the same challenges and inconsistencies with the language of creativity and its components found in society at large.
 - In Standard C of the MLRs, terms related to creativity and problem solving appear several times, but often in varying ways that could have subtly different meanings. Keywords provided for the creative process include “fluency, flexibility, originality and elaboration.” All are mainly aspects of divergent thinking, which is only one possible aspect of the creative process. Keywords for Creative Problem Solving seem to overlap some steps in the Creative Problem Solving models mentioned earlier without clearly aligning.
 - In the NCAS framework, the four creative practices can relate to creativity, especially imagination, but do not appear to be grounded in a specific model or theory of creativity.
 4. The NCAS place greater emphasis than the MLRs on the rationale and context for creative practices in arts education.
 - The introduction to the visual and performing arts standards in the MLRs provide a two-paragraph rationale for the arts in education, with no mention of creativity or any of its components.
 - The NCAS provides a twenty-seven-page framework, with a rationale for arts education directly addressing **motivation**, one of the core components of creativity.
 - The NCAS provide additional **context** for creative exploration by providing an enduring understanding and a guiding question for each standard.

Assessing Creativity

In the context of creativity research, there are many tests to measure creativity and its different aspects. Most well known are the Torrance Tests of Creative Thinking (TTCT). They contain verbal and figural components, and are based on the divergent thinking traits mentioned earlier – fluency, flexibility, originality and elaboration. Results in the past have shown a solid relationship to

creative achievement. However, as Kaufman (2009) points out, creativity is more than just divergent thinking, and the TTCTs may not provide a full picture of creativity if used alone.

A more recent development in assessing creativity that bridges the worlds of research and education is the development of the Consensual Assessment Technique (CAT) by Theresa Amabile (1999). Opinions of qualified experts are used to measure creativity. Their inter-rater agreement tends to be high. Even gifted novices (usually students who have some background and training in the discipline being assessed) have relatively high inter-rater agreement, although complete novices do not (Kaufman, 2009). This method has been used to successfully evaluate public school student writing samples.

The essence of this approach is also used to evaluate student art portfolios for the AP studio art assessment. Although not an assessment of creativity per se, the effectiveness of a student's body of work is evaluated, providing an overall score and sub-scores for the portfolio's depth, breath and quality. Because different disciplines entail different materials and processes, students submit a portfolio in one of three different disciplines: 2-D Design, 3-D Design, and Drawing.

In this case, the experts are university and high school art teachers, who are also required to be working artists in their own right. All the experts are brought together for training on a holistic rubric and calibrated with carefully chosen benchmarks representing the different holistic score points. The AP studio art exam has enjoyed one of the highest test reliabilities of any AP program.

The above examples provide validation that both experts and gifted novices can effectively evaluate and assess creativity and artistic work. They also illustrate points that have relevance for assessing creativity in the classroom: the importance of defining clear project parameters, proper training on those parameters and on the components being assessed, incorporation of clear benchmarks as part of the educational process, and the use of key components to arrive at a single holistic score.

Guiding Questions

For Teachers:

- What are my beliefs about creativity and the creative process?
- How do I talk about creativity and related terms in the classroom?
- What role does novelty play in my teaching and in the students' work, on a project-by-project basis? Authenticity?
- How do I incorporate and encourage intrinsic motivation in student learning?
- What role do feelings and emotions play in creative process work in my classroom?
- How do I balance and blend idea generation and exploration with skill building?
- Do students have supported opportunities to make mistakes?

For Students:

- What kinds of activities and study topics motivate me?
- Am I open to new experiences? Why or why not?
- How much do my current skills allow me to develop and express my artistic ideas?
- How do I feel about making mistakes?
- What is one recent example of something I saw, heard or read that was very creative? Why was it so creative?

For Administrators:

- What are my beliefs about creativity and the creative process?
- How supportive is our school's environment for creative exploration? Do they have adequate time? Materials?
- Is creative exploration supported across all core content areas?
- Is there ample opportunity for students to be motivated and engaged in their learning?
- Are there appropriate rewards for students' creative work?

For Teaching Artists:

- What are my beliefs about creativity and the creative process?
- How would I clearly describe and/or demonstrate for students my own creative process for one of my projects?
- What qualities do I draw on most when doing creative work?

For Parents:

- What are my beliefs about creativity and the creative process?
- How supportive is our home environment for creative exploration?
- How do my children express feelings, thoughts and ideas?

References

- Amabile, T.M., & Gryskiewicz, N.D. (1989). The creative environment scales: Work environment inventory. *Creativity Research Journal*, 2, 231-253.
- Amabile, T.M. (1999). Consensual Assessment. In M. A. Runco & S. Pritzker (Eds.), *Encyclopedia of creativity* (pp. 346-349). San Diego, CA: Academic Press.
- Averill, J.R. (2005). Emotions as Mediators and as Products of Creative Activity. In James C. Kaufman & John Baer, (Eds.), *Creativity across domains: Faces of the muse*. Mahwah, NJ: Lawrence Erlbaum.
- Averill, J.R., Chon, K.K., & Hahn, D.W. (2001). Emotions and creativity: East and West. *Asian Journal of Social Psychology*, 4, 165-184.
- Baer, John. (1993). *Creativity and divergent thinking: A task-specific approach*. Hillsdale, NJ: Lawrence Erlbaum.
- Beghetto, R. A. (2005). Does Assessment Kill Student Creativity? *The Educational Forum* 69 (1), 254-263.
- Cawelti, S., Rappaport, A., & Wood, B. (1992). *Journal of Creative Behavior*, 26(2), 83-94.
- Finke, R. A., Ward, T.B. & Smith, S.M. (1992). *Creative Cognition: Theory, research and applications*. Cambridge, MA: MIT Press.
- Gilchrist, M. (1972). *The Psychology of Creativity*. Hong Kong: Melbourne University Press.
- Gruber, H., & Wallace, D.B. (Eds.). (1989). *Creative people at work – Twelve cognitive case studies*. New York, Oxford: Oxford University Press.
- Kaufman, J.C. (2009). *Creativity 101*. New York: Springer Publishing Company, LLC.
- Kaufman, S.B. (2013). *Ungifted: Intelligence Redefined*. New York: Basic Books.
- Kohn, A. (1993). *Punished by rewards*. Boston: Houghton Mifflin.
- Kozbelt, A., Beghetto, R. A., & Runco, M. A. (2010). Theories of Creativity. In James C. Kaufman & Robert J. Sternberg, (Eds.), *The Cambridge Handbook of Creativity* (pp. 20-47). Cambridge, UK: Cambridge University Press.
- Mueller, J. S., Melwani, S., & Goncalo, J. A. (2011). *The bias against creativity: Why people desire but reject creative ideas* [Electronic version]. Retrieved [6/2/15], from Cornell University, ILR School site:<http://digitalcommons.ilr.cornell.edu/articles/450/>

- Mumford, M.D., Mobley, M.I., Uhlman, C.E., Reiter-Palmon, R., & Doares, L. (1991). Process analytic models of creative capacities. *Creativity Research Journal*, *11*, 151-164.
- Plucker, J. A., R. A. Beghetto, and G. T. Dow. (2004). Why isn't creativity more important to educational psychologists? Potentials, pitfalls, and future directions in creativity research. *Educational Psychologist* 39(2): 83–96.
- Puccio, G. J., & Keller-Mathers, S. (2006). Enhancing thinking and leadership skills through creative problem solving. Retrieved July 12, 2015, from the New Jersey Institute of Technology website: <http://tsf.njit.edu/2006/fall/puccio-creative-problem-solving.pdf>
- Runco, M.A. (Ed.). (1994). *Problem finding, problem solving and creativity*. Norwood, NJ: Ablex.
- Sawyer, R.K. (2012). *Explaining Creativity: The science of human innovation*. Oxford, New York: Oxford University Press.
- Sternberg, R.J. (2006). The Nature of Creativity. *The Creativity Research Journal*, *18* (1), 87-98.
- Wallas, Graham. (1926). *The Art of Thought*. Great Britain: Butler & Tanner.

A Credit, With Gratitude: This resource was created for the Resource Bank as part of the Maine Arts Leadership Initiative, an education program of the Maine Arts Commission.