

# **CREATIVITY AND EDUCATION**

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## **Abstract**

Creativity is one of the most important features of humans. Creativity is a phenomenon that has always fascinated lay people as well as scientists. In old times, creativity thought a feature of artists and musicians. However nowadays, we are hearing this word for all job issues. Creativity related cognitive, environmental and personal issues and all these features can be developing via education. If you would like to develop creativity via education, encourage children to identify and surmount obstacles, sensible risk-taking, and tolerance of ambiguity and help children build self-efficacy, find what they love to do, teach children the importance of delaying gratification, and provide an environment that fosters creativity.

**Keynote:** creativity, charesteristics, steps of creativity, education,

## **Introduction**

According to Ryhammar and Brolin (1999), producing new ideas or novel products is one of the essential characteristics of human beings. Creativity is one of these characteristics and it is a magical key for human beings to tackle with the challenges of the 21st century and to solve problems in daily life (Yılmaz, 2011).

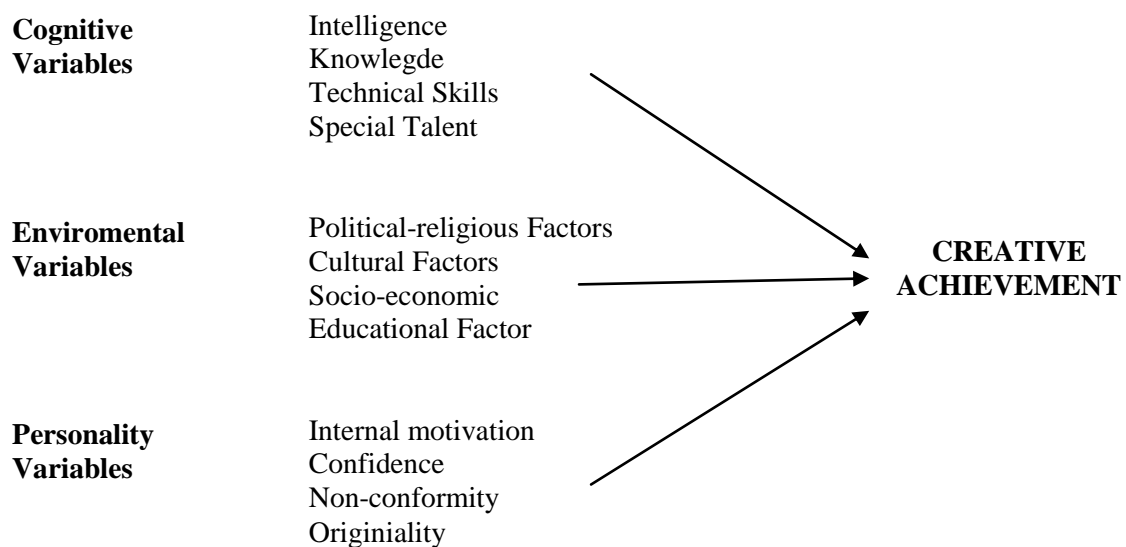
According to Woodman (1981), creativity is a phenomenon that has always fascinated lay people as well as scientists. It is for example valued as a property of pieces of art or literature, musical compositions, scientific works, narrations, witty comments, decorations, and technical or social inventions. In all these various facets, creativity is a prime source of cultural progress and responsible for a multitude of small contributions to our everyday enjoyment and well-being. Because of these effects, it is also appreciated as an attribute of employees, artists, entertainers, scientists, friends and mates. Its social and cultural importance led just about every major personality psychologist of the 20<sup>th</sup> century –be it Freud, Jung, Adler, Skinner, Maslow, Murray, Rogers, Kelly, Guilford, Cattell, or Eysenck – to write about creativity (Penke, 2003).

People often use the concept of creativity and innovation in an interchangeable way; “others view them as symbiotically related phenomena necessary for the development of new systems, products, and technologies” (Ford, 1996). However, “creativity is a prerequisite of innovation”(Batey & Furnham, 2006). Creativity is composed of domain relevant skills, which are knowledge of the individual about the domain, skills and talents required to complete the task. Creativity relevant skills are the creativity trait of the individual and training on generating new ideas (Özakar, 2010). According to Guilford (1950), creativity is “a behavior pattern which includes the following factors; sensitivity to problems, perception, fluency, novel ideas, flexibility of mind (ease with which one changes set), synthesizing ability, analyzing ability, reorganizational or redefinition ability, complexity or intricacy of conceptual structure of which one is capable, motivational factor, attitudes and temperament“ (Antley, 1966).

The definition of creativity is associated with four potential research paradigms: the creative person, the cognitive processes of creativity, environment issues to shape or inhibit creativity, and the product of creative performance (Batey & Furnham, 2006). In the literature, creativity is defined in two senses; the first direction is describing creativity as a personal trait. This trait is the trait of originality; originality in this case is the ability to make unusual associations. The second is creativity as a unique achievement, the achievement of a finished product (Eysenck, 1993). Creativity as a personal attribute is often measured simply as occupation, raising the question of domain-generalty versus domain-specificity of creativity (Batey & Furnham, 2006).

Creative achievement depends on many different factors: (a) cognitive abilities- for example, intelligence, acquired knowledge, technical skills and special talents (e.g. musical, verbal, numeric); (b) environmental variables – such as political-religious, cultural, socio-economic, and educational factors; (c) personality traits- such as internal motivation, confidence, nonconformity and originality. All or most of these, in greater or lesser degree, are needed to produce a truly creative achievement (Eysenck, 1993).

**Figure 1.** Factors interacting synergistically to produce creative achievement



## **The Characteristics of Creativity**

In creativity literature, various and considerable efforts have contributed to the knowledge of creativity from the perspective of cognitive (e.g., Diakidoy & Kanari, 1999), personality (e.g., Helson, Roberts, & Agronick, 1995), humanistic (e.g., Gardner, 1993), social (e.g., Shalley, Gilson, & Blum, 2000), environmental (e.g., Niu & Sternberg, 2003), psychology (e.g. Amabile, 1996), and neurobiology (e.g., Mumford & Caughron, 2007). Because of the diverse frameworks of each approach, the results of this phenomenon cause conceptual and empirical fragmentation. Against this backdrop, however, a substantial number of creativity scholars have contributed to a repertoire of theoretical frameworks, which delineates creative achievement under the influence of possible variables, including cognitive ability (e.g., HyounSook & Jin Nam, 2009), personality factors (e.g., Kim, Hon, & Crant, 2009), cognitive style (e.g., James & Asmus, 2000), motivation (e.g., Amabile, 1983), knowledge (e.g., Baer, 2003), environment (e.g., Oldham & Cummings, 1996), and the contextual influences (e.g., Woodman et al., 1993; Tsai, 2013).

## **Steps to the Creative Process**

Creativity comes through a process which includes many steps. Runco and Chand (1995) state that the creative process can be partitioned into problem finding, ideation and evaluation of the processes. Creative performance is typically operationalized in one of three ways: divergent thinking tasks; insight tasks or external judgments of creative products (Murray and Johnson, 2010).

According to Guilford, there are five steps to the creative process. This process does not take place in neat steps, always forward. It always much teetering back and forth between experiencing and focusing or illumination and the sudden perception or order or meaning. It is a process which takes time, but the time may be a five minutes or several years. These steps are as follows (Guilford, 1973):

1. Preparation (acquisition skills, techniques and information),
2. Concentrated effort (to find a solution or suitable form),

3. Withdrawal from the problem,
4. Insight or illumination,
5. Verification, evaluation and elaboration.

However, one of the interesting analyses is presented by Arthur Foshay in Alice Mile's book, 'Creativity in Teaching'. The parts of the creative process are described as follows (Guilford, 1973):

1. **Openness**: Deliberate letting in of data and new experiences with no effort to give order to or to judge. What comes in may be threatening, disorganizing; the creative person sometimes tries to handle the threat by delaying tactics, elaborate arranging of materials, and similar rituals.

2. **Focusing**: Back-and-forth mental efforts to give order and meaning to the data, the experiences.

3. **Discipline**: The self-discipline, concentration, hard work and the creative person works out his ideas or product.

4. **Closure**: The product is finished when creator feels it is, he might destroy it start over, or simply decide unfinished is the best he can do.

### **Promoting Creativity in Classrooms**

According to Duffy (2006) in all communities, there is a need for creative people who can deal with difficult problems, comprehend the connections between past and present knowledge and understand the values of their own culture and those of other cultures (Yılmaz, 2011). For this reason, education is very important in order to train such people.

There are ten different lenses of creativity that help to inform teaching, learning, and curriculum of creativity in higher education: (a) creativity as an ordering process, (b) creativity as rhythm and cycle, (c) creativity as originality and spontaneity, (d) creativity as the irrational, (e) creativity as problem solving, (f) creativity as problem stating, (g) creativity as inspiration, (h) creativity as serendipity, (I) creativity as resistance to the uncreative, and (j) creativity as withdrawal and absence (Bleakley, 2004).

Viewing creativity as a habit, Sternberg (2007) observed that creative people habitually look for ways to see problems that others do not look for, take risks that others are afraid to take, have the courage to defy the crowd and to stand up for their own beliefs, and seek to overcome obstacles and challenges to their views that others give in to, among other things. He then provided 12 keys for promoting the creativity habit in children: redefine problems, question and analyze assumptions, do not assume that creative ideas sell themselves, encourage idea generation, recognize that knowledge is a double-edged sword and act accordingly, encourage children to identify and surmount obstacles, encourage sensible risk-taking, encourage tolerance of ambiguity, help children build self-efficacy, help children find what they love to do, teach children the importance of delaying gratification, and provide an environment that fosters creativity (Tsai, 2013).

In order to have a place in this exciting future, teachers need to be constantly aware of the new skills required for the next century and to be receptive to learning these skills so as to impart them to their students (Fatt, 2000). Therefore, teachers should develop the ability to identify the creative potential in students, to recognize creative outcomes, and to encourage the cognitive processes related to creativity. For the sake of development of creativity, teachers should utilize creativity-fostering pedagogy, including a set of skills: pattern recognition, connectivity to diversity, synthesis training, and a schema of problem-solving and divergent thinking exercises (Johnson and Arunachalam, 2013).

According to Torrance (1981), the purpose of creative teaching is to create a “responsible environment” through high teacher enthusiasm, appreciation of individual differences, and so on (Fasko, 2000). Teachers should develop a learning orientation that motivates students to advance creative self-efficacy to engage in creative activities. Taken together, the feelings of enhanced capacities or competencies are likely in turn to heighten creative effects. Teachers can reap the benefits of student’s creativity by the careful use of a reward and evaluation system, providing ample opportunities for free play with tasks, making intrinsic motivation as

a conscious factor, focusing on the intrinsically enjoyable aspects of activities, and training students as active and independent learners (Johnson and Arunachalam, 2013).

Feldhusen and Treffinger (1980) and Davis (1991) also believed establishing a “creative climate” was important to stimulate creative thinking (Fasko, 2000). For this reason, classes need not be conducted in the traditional way. Students can have lessons outside the classroom in parks, on the road, even in the canteen, so that they can use the surroundings to stimulate their thinking and come up with unexpected ideas (Fatt, 2000).

Teachers should realize that there is no lack of thoughts for promoting creativity in the classroom (Fatt, 2000). Thus, Feldhusen and Treffinger (1980) suggested some several recommendations for establishing a classroom environment conducive to creative thinking by (cited: Fatt, 2000:754-755):

1. Support and reinforce unusual ideas and responses of students.
2. Use failure as a positive to help students realize errors and meet acceptable standards in a supportive atmosphere.
3. Adapt to student interests and ideas in the classroom whenever possible.
4. Allow time for students to think about and develop their creative ideas. Not all creativity occurs immediately and spontaneously.
5. Create a climate of mutual respect and acceptance between students and between students and teachers, so that students can share, develop, and learn together and from one another as well as independently.
6. Be aware of the many facets of creativity besides arts and crafts: verbal responses, written responses both in prose and poetic style, fiction and nonfiction form. Creativity enters all curricular areas and disciplines.
7. Encourage divergent learning activities. Be a source provider and director.
8. Listen and laugh with students. A warm, supportive atmosphere provides freedom and security in exploratory thinking.

9. Allow students to have choices and be a part of the decision-making process. Let them have a part in the control of their education and learning experiences.

10. Let everyone get involved, and demonstrate the value of involvement by supporting student ideas and solutions to problems and projects.(p. 32)

11. Allow students to design websites based on their desired themes. (p. 754)

12. Engage students in thought-inspiring activities like debates on both local and international issues. (p. 754)

13. Get students to role play real-life cases or problems. (p.754)

14. Plan extracurricular activities that involve problem solving tasks like organizing certain school events (inter-school or inter-class competitions, exhibitions, carnivals, fund-raising and charity projects, etc.) (p.754)

15. Encourage students to share their interests in class by getting them to talk or to write about their hobbies, reading habits, outside and family experiences. This can improve their knowledge of each other and set the tone for group work which can inculcate group effort in generating ideas and sharing risks. (p. 755)

16. Reward class participation and creative answers with points or words of encouragement. (p. 755)

Universities and schools should not be constrained by budget to increase the number of books and computer programs on creative thinking. These should be easily accessible to students doing library research. Furthermore, information can be made more accessible to students if universities and schools have a page on creativity on the internet (Fatt, 2000). Therefore, the following possible avenues can be suggested so as to facilitate creativity in the classroom:

✓ **Knowledge Construction:** Dominant-relevant skills, such as knowledge, intelligence, and expertise, are an essential component that affects individuals with creative potential. These skills are determined by

antecedent conditions (e.g., in-born talent), experience, and education (Amabile, 1998).

✓ **Creative Thinking: Sternberg (2003)** maintained that teaching creative thinking could benefit the students' academic performance. He also provides suggestions toward creative thinking: redefine problems, analyze solutions, defy the crowd, take risks, open minds, tolerate uncertainty, and be patient.

✓ **Motivation and Self-Efficacy:** Teachers should develop a learning orientation that motivates students to advance creative self-efficacy to engage in creative activities (Johnson and Arunachalam, 2013).

✓ **Goal Setting and Work Group:** Goal setting is a useful strategy to overcome the reluctance of involvement in creative attempts, thanks to inertia and attachment to one's comfort zone (Mayfield & Mayfield, 2008).

## ANNEX

**Figure 2.** 25 ways to develop creativity

### 25 Ways to Develop Creativity

#### The Prerequisites

1. Modeling creativity
2. Building self-efficacy

#### Basic Techniques

3. Questioning assumptions
4. Defining and redefining problems
5. Encouraging idea generation
6. Cross-fertilizing ideas

#### Tips for Teaching

7. Allowing time for creative thinking
8. Instructing and assessing creativity
9. Rewarding creative ideas and products

#### Avoid Roadblocks

10. Encouraging sensible risks
11. Tolerating ambiguity
12. Allowing mistakes
13. Identifying and surmounting obstacles

#### Add Complex Techniques

14. Teaching self-responsibility
15. Promoting self-regulation
16. Delaying gratification

#### Use Role Models

17. Using profiles and creative people
18. Encouraging creative collaboration
19. Imagining other viewpoints

#### Explore The Environment

20. Recognizing environmental fit
21. Finding excitement
22. Seeking stimulating environments
23. Playing to strengths

#### The Long-Term Perspective

24. Growing creatively
25. Proselytizing for creativity

1. Do you really care about teaching? Does it renew or exhaust you? Is it a way of life and not just a way or earning a living?
2. Do you teach today the same as you did one year ago? Five years ago? Twenty years ago?
3. Are you doing highly unusual, different, and exciting things in your teaching this year? Are you experimenting with new teaching materials, methods, and ideas?
4. Do you read about education in general (not just your own speciality) and about areas other than education?
5. Do you really care about children? Do you respect them? Do you anticipate differences in each child? Do you see children not as gifted or retarded, average or accelerated, alike in some basic ways and yet each unlike any child encountered before or to be encountered again, each unique, different from other people, and exciting in potential?
6. Do you let some children feel inferior to other children? Do you put one child against another, "See what neat work John does?"
7. Do you emphasize sex roles? Do you say, "Girls usually like this," or "Let's not do that, Sue, that is for boys"?
8. Do you sometimes use flashes of insight which come to you? When a pupil says, "Hey, I just got a crazy idea," and tells you about it, do you say, "That's an interesting idea; let's try it out"?
9. Do you welcome changes in curriculum, such as the so-called "new" mathematics or "new" science? Do you seek information about such changes eagerly, receptively, yet critically? Or do you resist changes and speak of the "good old days when children learned their numbers without all this nonsense?"
10. Do you rely primarily in your teaching on the textbook? Is most of your class period devoted to talk about what is in the textbook?
11. Do you set up the daily schedule and make all classroom decisions? Do children feel free to suggest changes in classroom procedures? Are their suggestions ever adopted?
12. Do you need and require specific and authoritative answers to most questions?
13. Do children in your class feel free to express ideas contrary to yours and those in the textbook?
14. Is there much purposeful movement and activity in your room on an average day?
15. Do you allow time regularly for individual study projects? (kel)

16. Does your classroom invite new experiences and individual 1.0 projects? Is there a good classroom library? Materials for examination and handling? Readily available art and construction materials?

17. Do you use a wide variety of teaching materials and methods; such as, films, filmstrips, recordings, charts, demonstration, and dramatics?

18. Do you ever discuss controversial issues in your classroom?

19. Outside the classroom, are you deeply involved in some community activities or causes? Have you acquired any exciting new interests in the last five years?

20. Do you feel competent to think about and come to some conclusions about such big questions as, "What is the purpose of life?" and "What is the purpose of education?"

**Reference:** Guilford, 1973

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