Understanding Creativity from a Diversified Perspective

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The term "creativity" has multiple implications and meanings (Akiyama, 1975). "To understand creativity one should have an attitude to consider various aspects of creative activities (p.5), or to consider problems from various aspects (p.102)." Modern theories of creativity suggest that the concept of creativity should be understood from different perspectives. Creativity is not just scholastic. It exists in the arts as well as in the sciences. It can be found in music as well as in sports (see Gardner, 1993). Within one field various types of creativity may be shown (Tan, 1995). Creativity is an individual as well as a social and a cultural phenomenon. Many factors influence a person's creativity in a particular field, and the interest of a group in a certain type of creativity (see Csikszentmihalyi, 1988; Amabile, 1983; Simonton, 1988). This manuscript intends to introduce to teachers some recent theories of creativity. All teachers should follow the development in the research in creativity. With the rapid change in global environment, schools are responsible for preparing the younger generation to think and work creatively.

Types of Creativity

Creativity exists in multiple forms across disciplines, within a discipline and across cultures. Draeger (1991) defined that creativity is a prerequisite condition for discovery, invention and innovation. He claimed that all innovations of different degrees involve creativity.

Across Disciplines: Creativity appears in various disciplines. There is, for instance, technical creativity, musical creativity, artistic creativity, linguistic creativity, scientific creativity, social creativity or mathematical creativity. Gardner (1993) proposed a theory of multiple creativity. An individual can be creative in more than one discipline. Gardner investigated individual case studies. He adopted a developmental approach, examined instances of creativity drawn from a specific historical era. He focused on how individual breakthroughs, as well as the dynamic interaction of disciplines of practice and reactions of the surrounding community. He examined seven extraordinary individuals: Sigmund Freud (1856-1939, the neurologist-turned-psychologist), Albert Einstein (1879-1955, the theoretical physicist), Pablo Picasso (1881-1973, the Spanish-born painter), Igor Stravinsky (1882-1971, the Russian born composer), T.S. Eliot (1888-1965, the St. Louis born poet), Martha Graham (1894-1991, the Pittsburg born American dancer), and Mahatma Gandhi (1869-1948, the Indian political and
Creativity is more than just an individual's actions

Without a nurturing environment an individual's creative potential cannot be easily transformed into creative performances. The creator is like the performer on stage. In many respects, the creator needs social support and recognition.

Csikszentmihalyi's A Three-System Theory of Creativity

Csikszentmihalyi (1988) proposed a three-system model of creativity that consists of the individual, the social institutions (field) and the culture (domain). According to him, creativity is not the result of an individual's actions. It is a product of three main shaping forces or systems. The field (social institution) selects promising variations and incorporates them into the domain (culture). The domain (culture) preserves and transmits the selected new ideas or forms to the next generations. The individual processes variations and changes to the field (social institutions). All information is stored in the symbol system of culture, in the customary practices and in the language. An individual needs access to this information to be creative.

Simonton's Chance-Configuration Theory

Simonton adopted a social psychological approach toward creativity. He has done extensive empirical work from the historiometric perspective based on archival data of prominent creators. He believes that leadership is one of the important qualities of a creator. The creator uses his/her leadership quality to persuade his/her colleagues and the public to appreciate his/her new inventions. Simonton's (1988) chance-configuration theory comprises the chance permutation (elements placed in certain order) of

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Table 1: Multiple Creativity

<table>
<thead>
<tr>
<th>Strength</th>
<th>Weakness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freud, linguistic/personal</td>
<td>spatial, musical</td>
</tr>
<tr>
<td>Einstein, logical/spatial</td>
<td>personal</td>
</tr>
<tr>
<td>Picasso, spatial/personal/bodily</td>
<td>scholastic</td>
</tr>
<tr>
<td>Stravinsky, musical/other artistic</td>
<td>musical, bodily</td>
</tr>
<tr>
<td>Eliot, linguistic/scholastic</td>
<td>logical-mathematical</td>
</tr>
<tr>
<td>Graham, bodily/linguistic</td>
<td>artistic</td>
</tr>
<tr>
<td>Gandhi, personal/linguistic</td>
<td></td>
</tr>
</tbody>
</table>


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spiritual leader). Most of them were outstanding in more than one kind of creativity (see Table 1).

Within a Discipline: Within a discipline there are various types of creativity (Tan, 1995). Breakthrough creativity deals with the discovery of an idea or a product that other people have not thought of. This kind of creativity involves the ability to go beyond the traditions and the norms. It demands also the ability to free oneself from external (for example, from the environment) and internal constraints (for example, cognitive maps). An example of problem solving that requires breakthrough creativity is to avoid using noise to wake up a person. To overcome this constraint one has to search beyond the common practice of using an alarm clock, for example to wake up a deaf person sleeping in a locked room. Adaptive creativity concerns innovative improvements on existing products. An example of this type of creativity is to improve a bicycle that is suitable for winter. Creativity regarding human beings' behavioural patterns is individual creativity and group creativity. Individual creativity is likely common in individualistic societies. Group creativity is useful when the task involves collective efforts.

Across Cultures: The claim that people of one culture are more creative than those of another is not valid. Creativity exists in all cultures and in all levels of social classes. Researchers today agree that geniuses as well as laypersons show signs of creativity (see Sternberg, 1985). Lay as well as expert's conceptions of creativity provide information for understanding the concept of creativity. In societies where the industrialised culture is part of the daily life technical creativity can easily take place. In societies where human relationships are respected, creativity in social and interpersonal relations is likely emphasized. In a cross-cultural study, Japanese students showed their competence in improving a product incrementally (Tan, 1995). German students, on the other hand, redefined the problem and often proposed a new area when the given task did not match their cognitive map. The Japanese students tended to use materials that are proximal to the problem. For example, to design a silent "alarm clock" that is able to wake a sleeping person, one of them suggested changing the shape of the pillow into a chair. The Singaporean students, on the other hand, are interested in playful ideas. For instance, some of them proposed to use cold water or ice.
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mental elements; the formation of configuration (stable permutations); and the communication, social acceptance and social preservation of those configurations. The first two ideas concern cognitive processes, whereas the last deals with the presentations of the creative performances to the public and their conservation in a society and a culture. Communication configurations are stable permutations in suitable forms but contain linguistic or mathematical elements that make them accessible to other scientists. Simonton (1988) lists four requirements that influence the social acceptance of a configuration (pp. 17-18):

1. A similar repertoire of mental elements (methods, questions, etc.) of each member in a community.
2. These mental elements must be in comparative disarray in the minds of potential acceptors to initiate a more efficient approach to structuring information.
3. There must be a consensus on the meaning of the linguistic, logical and mathematical elements making up the communication configuration.
4. The originator must have successfully translated and communicated the initial conception so as to facilitate the requisite reverse translation by fellow scientists.

Scientists who accept the original configurations may recognise these configurations according to their conceptions. The social preservation of a configuration depends on whether it is competitive enough compared to the other new or existing configurations.

Components of Creativity

Similar to Simonton, Amabile uses a social psychological approach to study creativity. Contrary to Simonton who studies the genius, Amabile assesses common people's creative performances. According to Amabile's Componential Model of Creativity (Amabile, 1983), there are three components of creativity: domain-relevant skills, creativity-relevant skills and task motivation. All these components possess social elements such as education, training and environment.

1. Domain-relevant skills comprise knowledge about domain, technical skills and special domain-relevant talents. These skills depend on innate cognitive abilities, innate perceptual and motor skills, and formal and informal education.
2. Creativity-relevant skills comprise appropriate cognitive style, implicit and explicit knowledge of heuristics for generating novel ideas and conductive work style. They depend on training, experience in idea generation, and personality characteristics.
3. Task motivation consists of attitudes toward the task and perceptions of self motivation to understand the task. It depends on the initial absence of salient extrinsic constraints in the social environment, and the individual ability to cognitively minimise extrinsic constraints.

Implications for Teachers

Before introducing creativity in the classroom, teachers should update their knowledge base with the latest and the newest models and concepts of creativity. They should understand student-teacher and parent-teacher interaction, the influence of culture on each type of creativity and the selection of techniques of creativity, and the importance of knowledge in creative perfor-
mance.

**Student-Teacher Interaction:** Teachers should be aware of the existence of intellectual and non-intellectual creativity. A student may be creative in academic and/or non-academic disciplines (see Gardner, 1993). Teachers should pay equal attention to all types of creativity. They should introduce the concept of multiple creativity to their students. Creative activities in schools should cover both academic and non-academic domains. Students should be made aware that creativity in sport and music are equally important as creativity in academic fields. Non-intellectual creativity should not be neglected as it is essential in developing healthy personality and leadership. It is essential to allow students to be an independent thinker who possesses the opportunity to decide which kinds of activities they would participate in instead of being assigned to a fixed program. Students should be given the opportunity to self-discover their strength and weakness. Teacher is responsible to provide guidelines but not to impose a fixed structure of development to the students.

**Teacher-Parent Interaction:** Not only teachers but also parents should be exposed to methods of discovering and nurturing creativity. Early recognition may help students to develop their creative potential into creative performance. Home environment and classroom environment may nurture or prohibit creative performances of a person (see Csikszentmihalyi, 1988; Simonton, 1988). Thus, teachers and parents should help to create a creativity-friendly environment for the students.

**Techniques of Creativity and Culture:** Teachers have to recognise that techniques of creativity can be culture-bound. “Imported” techniques should be examined to find out if they are suitable for the group. Modifications to techniques of creativity are sometimes essential. For instance, verbal brainstorming may not be suitable for students who are not used to expressing themselves in the public or in a group. They should be given an option, for instance, to write down or to draw their ideas on cards or paper. In a cross-cultural study, it is found that most Asian students are not used to answering open-ended questions (Tan, 1995). Teachers should formulate the questions in such a way that they help motivate students to think and act creatively.

**Creativity and Culture:** Teachers should make use of the behaviours and thinking patterns of students in designing creative activities. Behaviours and thinking are influenced by culture. In cultures where collective behaviours are more appreciated, small groups’ activities should be promoted. Culture in this sense refers to the way of living of a group. A group can be identified by its gender, age, ethnic background and educational background. Between teachers and students there are different and similar behavioural and thinking patterns. Among the students such similarities (or differences) may also exist. Individual attention should be given to students who exhibit special behaviours.

**Knowledge and Creativity:** Without knowledge and training, creativity can rarely take place (see Amabile, 1983). Students should be equipped with knowledge that are relevant to their potential field of creativity. Teachers have to be creative and to be knowledgeable enough to guide the students to develop their creative potential.

**References**


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