



## **CREATIVITY IN HIGHER EDUCATION: GREAT EXPECTATIONS**

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### **ABSTRACT**

Creativity has been highly emphasized in higher education and identified as one of the essential graduate outcomes by many institutions. The issue however remains do we inculcate creativity among our learners? It is therefore important to know if an adequate place for developing creativity exists in our curricula not only in terms of teaching strategies but also the assessment component. Using examples from the literature on health professions education this paper will encourage participants to reflect on what is creativity within a professional course, what approaches are currently being used and how do we evaluate creativity in order to restructure the curricula.

### **INTRODUCTION**

In the current era of knowledge based economy there is pressure on higher education institutions to ensure that the graduates meet with the demands of industry and society. For educators and policy planners it is essential to know how best this objective can be achieved. One strategy is to identify what are the core competencies required of a university graduate irrespective of the course and program studied? The set of these core competencies are usually called as generic attributes or graduate outcomes. These outcomes include the disciplinary expertise as well as a wide range of other skills for example research skills, information literacy, critical thinking and problem solving skills etc. Creativity is one of these skills, which is increasingly emphasized by policymakers in last two decades (Craft & Jeffrey, 2008) and is identified as one of the essential graduate outcomes by many institutions worldwide. A review of policy document has indicated that 85% of universities in Australia have incorporated creativity within their strategic planning statements and graduate outcomes. In the area of graduate outcomes 75% of the Australian universities have specifically included creativity as a desired graduate outcome to be fostered among their graduates (McWilliams & Dawson, 2008). It is therefore important to know if an adequate place for developing creativity exists in the curricula and what strategies may be useful in fostering this essential attribute among our graduates. This paper is divided into three sections. The first section discusses the definition of creativity and its parameters. Second section will focus on the teaching strategies that may enhance creative thinking abilities and the last section has been devoted to issues related to creativity.

### **I. DEFINING CREATIVITY**

Amabile (1996) defines creativity as a set of skills and attitudes needed in generating ideas and products that are relatively novel, high in quality and appropriate to task in hand. Beghetto (2005) also proposes that the creativity requires both novelty and usefulness which implies that an idea or concept may be novel but if it has no use, cannot be termed as a creative idea and vice versa. Costello (2007) added two more dimensions to the definition of creativity the first one being *future orientation* i.e. not looking backward but being concerned with what future may hold and

dealing with the resulting uncertainty and insecurity. The other dimension involves *problem solving ability* i.e. thinking outside the box and capability to identify new solutions to the problems.

Noller (cited in Isaksen, Dorval, & Treffinger, 1994) proposed three parameters to define creative behaviour which include knowledge, imagination and evaluation.

$$C = f(K, I, E)$$

where 'C' represents creative behaviour, which is a function (f) of the interaction among knowledge (K), imagination (I), and evaluation (E). On the other hand Sternberg (2002) identified six parameters which in addition to Knowledge include Intelligence, Thinking, Personality, Motivation and Environment. If we add imagination to this framework also supported by Simon (1962) it seems more appropriate and a comprehensive framework to define creativity. It is also important to note that all of the proposed models emphasise that for any creative behaviour a learner must have relevant discipline specific knowledge and skills,

Another model that is commonly discussed in the context of creativity is four 'Ps model' which distinguishes between four components including;

- The creative process
- The creative person.
- The creative press (environmental)
- The creative product

A comprehensive definition of creativity can then be 'the ability to make something new, whether a thought, or idea, an object, a product or a process, a work of art or performance, or an interpretation (Morrison and Johnston 2006).

## **II. CREATIVE LEARNING EXPERIENCES**

Creativity is highly influenced by the learning environment and experiences provided by the teacher in addition to elements of spontaneity (Howard, 2008). In this section an overview some of the creative teaching approaches with examples from literature where available is presented.

### **A. Case studies and scenarios**

To teach epidemiology concepts, a fictitious scenario is created (Robertson, 2002). In this scenario, students needed to choose a building on campus and determine the causes of a variety of health complaints from faculty and students in the chosen building. A framework is provided to students or assessment where they have to focus on nine environmental areas example: the building's physical condition, air quality, presence of vectors, safety hazards in and outside the building etc. The university's Environmental Health and Safety Department used the results of their investigations to correct problems.

### **B. Co – created Curriculum**

In a co-created curriculum students and teacher both negotiate the content to be learnt. The learner is not only involved in planning but also in the managing and evaluating phase of the learning. This is usually preceded by the discussion with the teacher where an agreement is reached on learner's needs, activities intended to pursue learning and how the evaluation will take place Fig.1. Various names have been given to these plans such as Individual Training Agreement (Robertson & Dean, 1997), and Learning Contracts (Coles 1991). The design of a Personal Development Plan can follow two different strategies (Honey and Mumford, 1992). One is to suggest activities, which support the existing style of an individual and avoid the learning experiences that are least helpful. The second strategy is to deliberately provide activities not congruent with preference for the development of the learner. This may be a preferred strategy if teacher can provide explanation, encouragement and support.

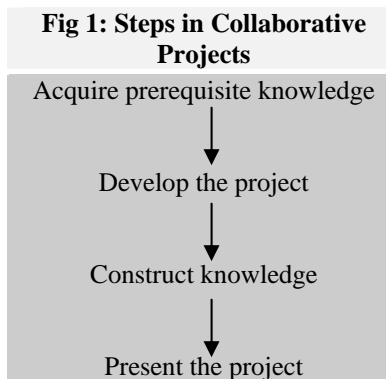
### C. Group work

Small Group learning is interaction among students within small groups while working together on academic tasks to achieve a learning outcome (Johnson & Johnson, 1986). This provides an excellent opportunity to engage students in active learning and can be used at varied stages of learning. Beside competency in discipline specific knowledge group/collaborative work promotes a number of generic skills among the students such as team working, negotiation, conflict resolution, effective communication etc. A number of strategies have been reported in the literature that can be used in small group setting (Brown 1982; Davies 2000). These include;

- **Case discussions:** *Presentation of a case followed by group discussion with aim to solve a problem.*
- **Buzz groups:** *Brief 1 – 2 minute discussion of a clear question or topic, in pairs. Ideas generated then discussed among whole group.*
- **Syndicate:** *Minor project work done by individuals or 2-4 students together, reported back to the whole group.*
- **Brainstorming:** *Rapid idea generation from whole group. Ideas received with no criticism by tutor. Discussion and evaluation of all ideas by the whole group.*
- **Fishbowl:** *2-4 students discuss or present topic in front of the remainder of group who watch and then discuss. The small group then observes the rest of group discussion.*
- **Seminar:** *Participants present different pieces of information on a similar topic*
- **Pyramids:** *Starts in pairs, then work in-groups of four, then eight, then sixteen until whole small group is involved.*

### D. Collaborative Projects

Projects and assignments where students have opportunity to work together serve a variety of objectives as they pass through different phases of the project (Fig.1). The pediatric faculty at the University of Nevada, Las Vegas, and (UNLV) Department of Nursing has created an experience that uses a three pronged approach. A collaborative project is assigned to each group of nursing students where they are expected to teach school students on topics identified in their health education curriculum. Another facet attached to this activity is an attempt to recruit prospective nursing students by planting the seeds of interest at an early stage using nursing students as a role model.



**E. Problem based learning (PBL)**

Case based methodology and PBL are widely adopted in health professions education and are commonly used within small group settings. PBL sessions are structured around problems and seven-step approach is used to study those problems (Table I) (Schmidt, 1984).

**Table 1: Seven steps in problem based learning**

1.	Clarifying terms and concepts
2.	Defining the problem
3.	Analysing the problem
4.	Formulating a systematic inventory of the explanations deduced from earlier steps
5.	Formulating learning objectives
6.	Collecting additional information outside the group
7.	Synthesizing and testing the new information

Like all other small group methods the goals of PBL sessions besides gaining discipline specific knowledge and skills are to;

1. facilitate learning
2. develop the attitudes and skills that will foster self directed learning, and
3. develop social skills that will advance one’s professional relations with patients as well as with colleagues

**F. Experiential learning**

Anatomical concepts and surface anatomy are taught using non toxic body paints. The session comprises a series of exercises where students select a concept or structure of their choice and paint their colleagues. Students are given a choice to work in single or mixed gender group and they alternate between painting and acting as a model. Students thoroughly enjoyed this learning experience and commented ‘*its fun, educational, it will be remembered.*’ In another course on genetics the instructor uses pool noodles to teach basic concepts of Mitosis or Meiosis.

Pool noodles are colored, flexible foam rods which encouraged student to think about the basic concepts of genetics in a four dimensional sense (Locke & McDermid, 2005).

**G.** Space and permission to experiment and grow new knowledge

Theme afternoon is the name used for the teaching sessions in obstetrics and gynaecology. Each session runs for three hours weekly. The session is structured in different segments. Students are required to study pre-session readings provided beforehand. A targeted tutorial is facilitated with a short test in the end. A short coffee break follows after which student rotate through clinical skills assessment stations (OSCE) and in the last segment they have opportunity to role-play and receive feedback.

**H.** Use of Metaphors and Analogies

The literal meaning of metaphor is ‘ a way or phrase used in an imaginative way to describe something’ (Wehemier, 2000). These have been primarily used in the language teaching but Pugh (1989) suggested that these can work in a variety of ways e.g. as insights, discoveries, arguments, models and as theories. Educators use metaphors as conceptual tools for making a connection between students’ existing knowledge and new or unfamiliar information, and also for ‘grounding’ abstract concepts in concrete forms (Cameron 1997).

*Titanic* has been used as an analogy to describe patient’s description of the pain. Students think of the walls of the ship as the mechanism of action of pain medications and water as the pain that flows through the Titanic (Bradshaw & Lowenstein).

**I.** Story telling/drama/role play/ self observation/role modelling

In order to discuss ethical issues concerning patient care an hour long case discussion/ role-play approach is adapted (Durbin,1991) The residents from six departments are encouraged to present their cases, which are encountered in daily rounds before a mock ethics committee. One resident is responsible for presenting the cases and a faculty member from humanities department facilitates the discussion towards a reasonable decision. Apart from dealing with ethical issues these sessions also aim towards becoming more tolerant of opposing viewpoints and conflicting situations, which is a very important attribute of teamwork.

**J.** Encouraging reflection

Reflection is integral to learning which allows student to process their experience, explore the understanding of their actions and the impact it has on themselves and others (Boud, 1999). This allows student to identify their strengths and limitations as well as knowledge deficits towards defined learning outcomes. There are different tools available to encourage reflections like journals, student diaries and logs, one on one discussions etc.

**III. ASSESSING CREATIVITY**

A number of issues relate to the assessment of creativity. The foremost issue is the criteria for the assessment of creativity and if actually the notion of assessment reduces or diminish creative abilities among students. At institutional level the discussion is also being directed towards the selection of students with creative abilities in tertiary education and how to integrate it within large scale admissions and assessment. Kaufman & Sternberg (2007) have

cited example from their institution where applicants are encouraged to submit evidence of creativity although it is not required to support Wisdom, Intelligence, Creativity Synthesized (WICS) model of successful intelligence.

Researchers have developed certain guidelines that can be used by educators while assessing the creative abilities of the students (Table 2).

Students when encouraged for self assessment are more likely to take risks and accept challenges rather than concentrating on performance of others (Stipek, 1998). It is very difficult to gauge one's creative expression to other's product. Amabile (1996) has

**Table 2: Assessing creativity**

1.	Encourage collaboration not competition.
2.	Permit a wide range of possibilities.
3.	Situational and based on life and culturally relevant experiences.
4.	Interesting, challenging, motivating, enjoyable and assist students in learning new things
5.	Opportunity to revise and refine products
6.	Opportunity To ask new questions or revisit old ones from a different perspective
7.	Use Project/assignment work to plan/design/develop
8.	Introduce consensual assessment
9.	Include self and peer assessment
10.	Negotiate assessment with students
11.	Reduce the pressure of assessment

described use of consensual technique where experts assign ratings to the creative products and tend to agree on what is creative. Stress and anxiety deter learners from creative expression and when students are faced with the pressure of being assessed they are less likely to express creative ideas. (Runco,2003). This implies that assignments, which require expression of creativity, should have realistic timeframes and also expect periods of minimal sensory stimulation where perhaps learners are involved in reflective thought process rather than actively participating.

It is worthwhile to set deadlines and establish criteria in consultation with learner. An assessment that is student-driven rather than exclusively tester designed promotes learning in a positive direction. Negotiated assessment involves agreements between teacher and student(s) on assessment of the learning outcomes. A common negotiation method is to develop a written learning contract discussed earlier, which spells out the conditions of assessment.

An example is provided as exhibit I which addresses guidelines provided in Table 2 (Siddiqui, 2007). Students have an opportunity to select the format of presentation from a range of possible options. They negotiate the criteria for assessment within their group. Later the criteria are discussed in plenary format and teacher also participates in the negotiation process to arrive at a final consensus. The groups undergo same process as described in the Fig:1 and are able to construct new knowledge based on the

### Exhibit 1: Example of an assessment

iii. **Group Presentation 25%**

At the beginning of the sixth week each of you will be provided with a topic and the list of group members who will be working on the similar topic.

Each Group will be required to create a

- poster OR
- A4 size two paged information sheet OR
- A brochure on the said topic OR
- A video movie

This will be accompanied by a 15 minutes talk/presentation to the class during week twelve. You will be assessed by your peers and course coordinator/ faculty member. The assessment criteria will be negotiated among students and unit coordinator during week ten and will be made available before the session.

information acquired and are able to create a product which they all own. Similar assignments and projects provided they are situational and based on life and culturally relevant experiences are evaluated as *interesting, challenging, motivating and enjoyable* learning experiences by the students.

## CONCLUSION

This paper addressed a number of issues related to creativity which is an important part of professional practice and hence an important student outcome. Higher Education Academy, UK has contributed a lot of research work in this area and has been able to list and define eighteen indicators listed in Table 3 that can be used to measure creativity in any course (Jackson & Shaw, 2005). These indicators enforce the principles of adult learning where learner is active in the pursuit of knowledge and not a passive recipient. If we reflect at the cited examples in this paper in light of these indicators it is clear that educators are contributing to the development of creative abilities using relevant approaches.

**Table 3: Categories and indicators of creativity**

Categories	Indicators
Student thinking abilities	Divergent and convergent thinking
	Lateral thinking
	Operating in complex and ambiguous settings
	Taking risks and coping with 'failure'
Student ideas	Generation of ideas
	Reflection on ideas
	Review and evaluation of ideas
Student imagination and originality	Development of new knowledge
	Development of new practice(s)
	Making new knowledge connections
	Transfer & application of new learning in new contexts
	Engages in systematic process of enquiry/research
Student activities with potential to promote creativity	Open-ended problem solving
	Project/assignment work to plan/design/develop
	Personal/interpersonal skills for teamwork/pdp/reflection
	Skills: analysis, review, synthesis, evaluation
	Negotiated and experiential learning
	Negotiated, self & peer assessment

One of the limitations of this paper is the absence of the role that technology is playing in the development of graduate outcomes like creativity. This is an intentional act on the part of author because institutions in Pakistan are in an early phase of technology-oriented learning. This should not undermine the effect of technology because it will continue to play a vital role in the global economy and needs to be emphasised in all educational settings in order to equip students with necessary skills to face the challenges ahead. Similarly it should be very clear to institutions and academics that fostering creativity is not a process that can occur in vacuum rather it is an interaction among different components (See **4Ps** model) that results in producing creative abilities among learners.

Unfortunately in Pakistan creativity is not part of any curriculum at any level except perhaps in Creative Arts and there is lack of awareness among educators on how to foster creativity among their students. Our education system at all levels from primary to tertiary level rewards students who follow rigid course of studies rather than presenting creative ideas. It is therefore perhaps right time for institutions to support student and staff and devote resources that may contribute towards fostering creativity: a walk through a road less travelled.

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