Arts and Design Studies
ISSN 2224-6061 (Paper) ISSN 2225-059X (Online)
Vol.64, 2018

Developing Creativity among Design Students at Jadara University, Jordan

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Abstract

Creativity is often referred to as *"...the act of making something new or the ability to produce original and unusual ideas".*

In order to be creative, you need to be able to view things from a different perspective. Amongst other things, this requires not only the ability to generate a number of alternatives but also to perceive the uniqueness of those alternatives.

Students in Eastern countries are often more conservative in expressing and forming arguments against ideas. For example, in Jordan, society is culturally traditional and closely related to, and dominated by, customs and traditions that govern decision taking. This situation reflects on the Jordanian education system, which stimulates copying and reproduction. In addition, students are 'the recipients', they submit to the authority of instructors and this makes the process itself less interactive; this is why it does not usually consider individual approaches for different students.

This Paper proposes methods of thought that could be developed in particular design students so that they can use unorthodox techniques for learning the process of design. It also intends that practices of thinking should be developed so as to enable design students, in particular, to participate in the education system so that it becomes more productive both for themselves and society in general.

Keywords: Creativity, Jordanian Designers, Unorthodox

Introduction

When studying creativity one of the important issues is that of 'referential context'. This defines the perceptual, functional, and conceptual aspects of the phrase.

A large number of theories have been proposed in the past, define creativity as a psychological process marked by originality. Joseph V. Anderson (1992)(p.41) has defined creativity as *"nothing more than going beyond the current boundaries, whether those are boundaries of technology, knowledge, current practices, social norms, or beliefs".*

In Jordan, culture tends to act as a deterrent to thinking imaginatively or metaphorically. The author has witnessed such situations herself in her work as a senior lecturer in the graphic design department at Jadara University. This is located in the northern part of Jordan, which is regarded as a ruler community due to the fact that it contains the largest number of villages. The problem is that many students find difficulties in learning whenever instructors introduce other ways of thinking or try to break the traditional, or standard, way of looking at things. Consider a typical seminar structured for the purpose of learning, for example a seminar in graphic art printing, students hoping to learn the techniques of printing would rather work with copy images rather than try to illustrate new ideas to work with.

The principal components for shaping an environment for creativity are education and interactive learning where designers have the ability and opportunity to stimulate creativity through practice. Therefore, the

fundamentals to be studied relate to understanding the different problems in various ways when trying to think of original ideas.

Bryan Lawson (2005) in his book '*How Designers Think'* indicated that traditional design education fails to reflect sufficiently on the design process due to the fact that students focus on 'making' rather than on the process of analysis itself (p.7)

He added that designers cannot escape the influences of science, art or technology, and therefore design is an integrated process rather than the end product of design (p.13).

Design at its core requires an understanding of two principal factors - understanding the user, and the environment in which the design is to be carried out. The main objective is to know the state of empathy for the users by observing what they do and don't do. Therefore, designers must be able to understand themselves and to understand the users more than a design student's personal feelings of sympathy, habits and beliefs.

The primary questions to be considered were:

1. How does education currently inspire a culture of creativity in design schools?

2. What actions should be taken to promote creativity and innovation among traditional design students?

This paper presents a study that aims at developing methods that motivate creative thinking in conventional graphic design students, with the objective of assisting designers in the early stages of design.

The study involved twenty-seven students using a 'generating' method, a tool for design that aims at nurturing creativity in the design process.

In the final part, where the results of the study are reviewed, the findings and conclusions are derived and discussed and from which the documented material can be used further in future deeper studies and thereby instilled in the next generation.

Literature Review

Creativity in the Design Process

Creativity was described by John Gero (2002, p.1) as *"an elusive concept involved with the production of an unexpected result, since it is used to imply various abilities".* Coming up with a new solution to any problem involves the consideration of physical laws and secondly, approaches in learning about creativity range from cognitive psychology to artificial intelligence. In his studies he followed the cognitive side of creativity revealing its relationship to the intuitive content of the design process.

He also indicated that one of the important concerns in studying creativity was the referential context that highlighted the field of evaluation. He majored the potential creative design process into three assessments-novelty, value, and unpredictability; 'value' being strongly connected to the referential context, which is based on domain knowledge.

Vygotsky, the Soviet physiologist, felt that creativity develops gradually from the more simple and elementary form to the more complex.

"Creativity is present whenever a person imagines and creates something new, no matter how small a drop in the bucket, this new thing appears. Collective creativity combines all these drops of individual creativity that are insignificant in themselves. This is why an enormous percentage of what has been created by humanity is a product of the anonymous collective creative work of unknown inventors" (Vygostky, 2004, pp. 4-5). He also added that creation is a reproduction of the past and it is closely linked to memory.

Haefele added, "In brief, creativity is the ability to make new combinations, which means that images are not constructed from nothing which would be regarded as something spiritual and metaphysical, but rather they are taken from real human experience. Moreover, there is no opposition between imagination and reality, as it is necessary for our process of consciousness (Lindqvist, 2010, p.249).

Creativity was also defined by psychotherapist Carl Rogers in his study entitled 'Towards a Theory of Creativity' (1954) as *"Novelty grows out of the unique qualities of the individual in his interaction with the materials of experience"* (p. 250). The element of 'novelty' is standard in definitions of creativity and he described it as coming from (Lateral) or (Divergent) thinking (p.250). Rogers also made a major statement on the ideas relating to 'view of self', improving the human condition and applying his ideas. He found that social environmental factors played a major role in fostering creativity as the climate of freedom and psychological safety, which included accepting the individual as one of unconditional worth, empathic understanding, and providing a climate of non-judgment.
Other studies have shown that students' creative thinking can be developed by teaching them in an environment that reigns within tolerance, openness and fun (Baloch,1994, Sparapani et al,1997 and Fleith, 2000).
A notable researcher in the field of creativity, Guilford (1967) distinguished between divergent and convergent types of creative problem solving, in that they were two types of human response to a set problem appointing it with general characteristics such as fluency, flexibility, originality, and elaboration.

In addition, despite the world getting more and more homogenous, coming up with new ideas also involved a number of possibilities to solve a problem (Plucker & Renzulli, 1999).

Gilford has emphasized the importance of the characteristics associated with creativity and he believed that personal mental abilities were also indicators of creativity. Divergent thinking allows many new ideas to be generated with more than one correct solution; in contrast, convergent thinking is considered to be a process of generating one possible solution to a particular problem**.**

Generally, design thinking is viewed as a comprehensive multi-discipline stage for user-centred innovation. Important features include discovering the needs of people and the possibilities of technology. The purpose is to create a holistic solution with the future in mind.

In the context of learning, creativity is about the differences in approach to learning such as looking for many possible answers rather than one or doing things a different way (Stickdorn &Schneider, 2011). The ability to generate many different possible solutions to a problem is an important aspect of creative thinking and has been specifically addressed in divergent thinking tests (Guilford, 1971; Guilford, Christensen, Merrifield & Wilson, 1978).

How can this creative process be applied to the design process?

This core question was derived from the author's personal experiences during her academic career at Jadara University in Jordan.

At present, the traditional understanding of design does not correspond fully with the assumed high level of complexity of the rapid and high-tech era (Fatt, 2000, p.744).

The main problem was to find an implicit method that could foster creativity in students who were used to conventional systems of learning. This required determining what skills, knowledge, and attitudes were essential to becoming a successful designer.

The core process of creative thinking is based on the urgent need to solve a particular problem, and which can be described by considering two concepts- Analogy and Mutation (Gero& Maher, 2006, p.330).

Analogy is a particularly useful approach for solving an unfamiliar new problem without adequate or directly applicable knowledge, and which depends on relating a new problem to past experience so that a new design can be generated.

Mutation, on the other hand, is the deliberate action of changing features or attributes of an object or a concept in an unconventional manner.

Moreover, design concepts based on a non-routine design situation often produce ideas that cannot be closed (p.330). This also involves the use of terms such as 'source' and 'target', and which are representations of previous design experiences in a particular domain (p.263).

There are numerous ways of identifying methods to help humans to be creative. The entire design process is based on a series of steps that lead to the outcome of creative thinking and which would solve the problem designed to be studied. These steps could be identified as 'strategic skills'.

The process of creative thinking is based on specific steps from the stage of understanding, which requires access to basic knowledge, identifying basic questions on the subject or having a definition of the problem that requires understanding, according to the target audience (Ambrose, 2010, p9**).** Based on Graham Wallas' 'Art of Thought' (1926) the four stages of the creativity process are

- Preparation
- Incubation
- Illumination,
- Verification.

Accordingly, a methodology has been adopted as a result of experiences in the classroom that would allow the exploration of multiple possibilities and approaches. This was accomplished by encouraging students to explore a number of variable options during their design work.

Methodology

Population of the Study

The study reported in this paper was performed with the senior graphic undergraduate students at Jadara University in Jordan.

Sample of the Study

A total of (27) students were involved, (17) males and (10) females, their ages ranged between (18-23) years, with 37.9% being aged eighteen and 32.2% aged nineteen.

Procedures of the Study

The research benefits from the 'qualitative data approach', as it is the most engaging towards the students' fluctuating responses to the visually designed cards. The study was planned to be carried out in natural settings, attempting to make sense of, or to interpret, the responses in terms of the following:

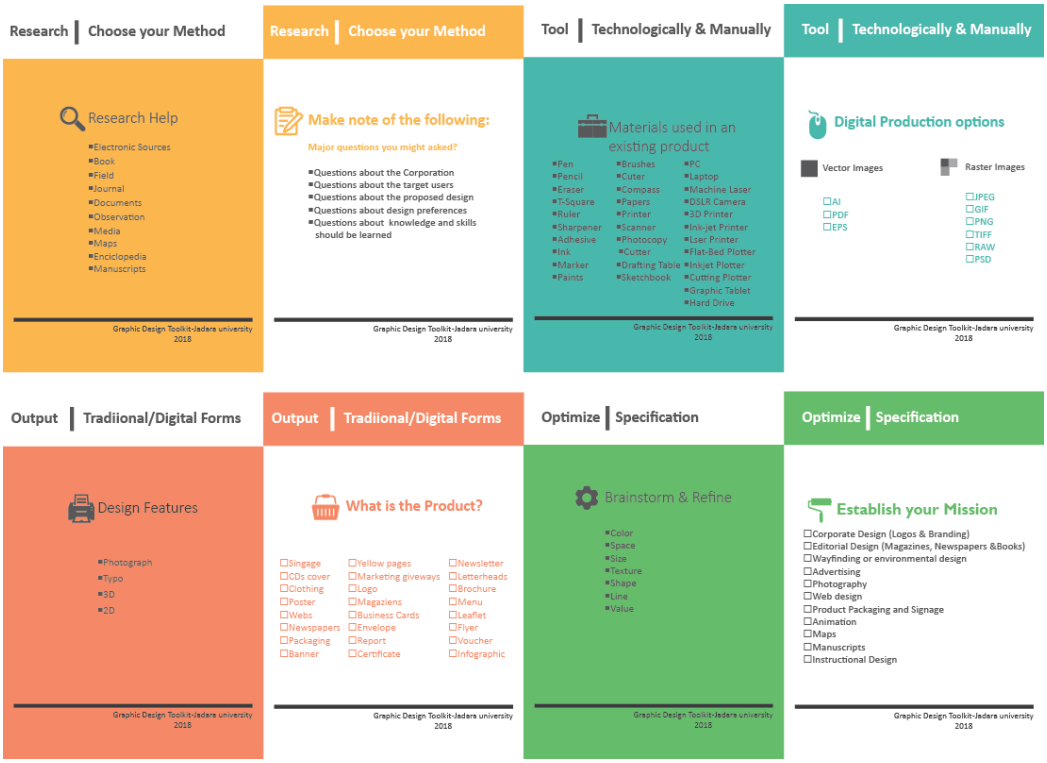
1. The sum of generated ideas
2. Unexpected and novel thoughts
3. Desire to learn and learning effectively
4. Encouraging brainstorming at all levels.

In this research, the nature of the responses forms the overall framework with the optional visual designs being applied as the tools of investigation.

The research would discuss various perspectives on the new concepts with the aims and objectives having been outlined by the author. The methodology would illustrate the creative thinking processes of conventional students (who are used to systematic tasks and text books in practice). Moreover, the general perception of the students' level in creative thinking has been distinguished whilst teaching at Jadara University. For example, as stated above, the author has noticed a common situation of copying and replicating other works, mostly from the Internet or other references, whereas creativity from a holistic viewpoint, involves an ability to come up with new and different ideas and attitudes.

To explore this, the author responded by asking and discussing a number of stimulating questions around the concepts that the students were thinking of, with the intention that the answers could motivate them to look at things differently. However, at an academic level, the author found that this course of action was not sufficient and was characterized by a chaotic and disorganized lack of generating strategy and interactive communication.

Following this phase of teaching and observing, the author thought to conduct a study in qualitative methods using the 'aid of thinking' tool that could, at some level, change thinking patterns or attitudes and could then be evolved with the cooperation of the design students for future reference.



figure(1): Cards representing stages in the Design Thinking process

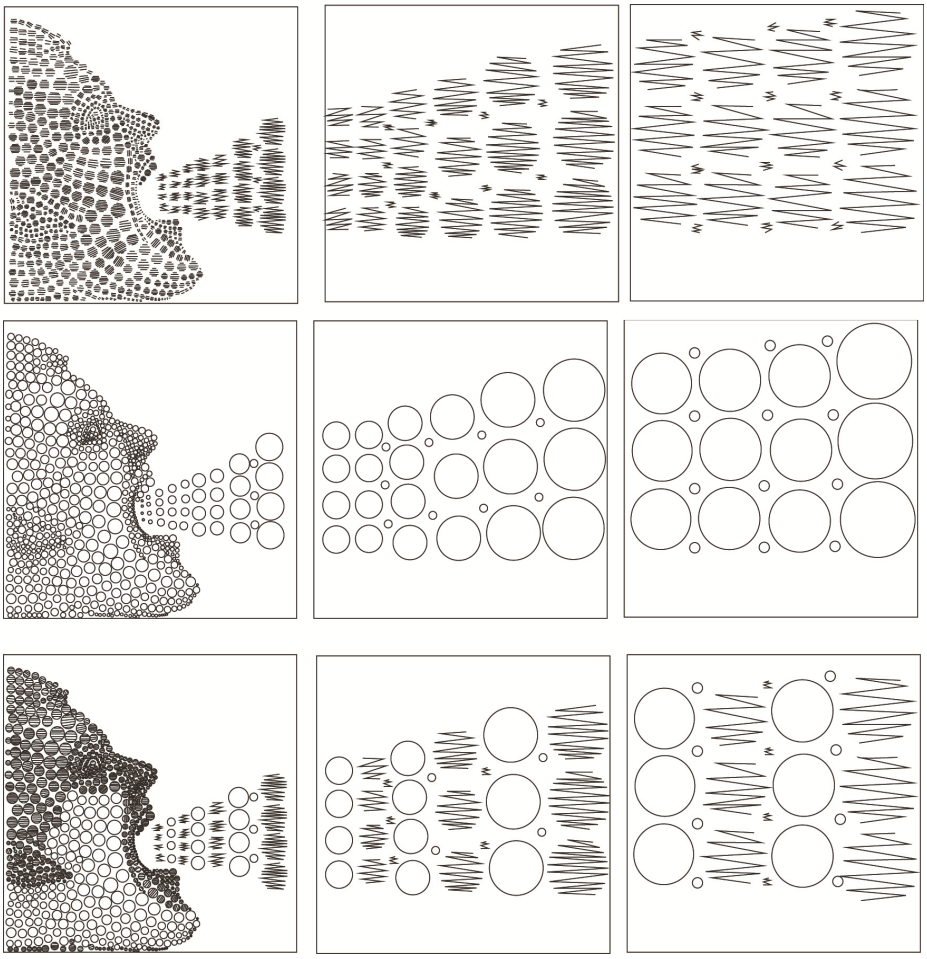
Firstly, students were informed about the activity they were going to participate in and the various stages in which the activity was going to be performed. The author did not define any design task but simply introduced a list of open questions, the purpose of which was to free the students from any task and clear their minds- *"To think creatively, we must be able to look afresh at what we normally take for granted"* George F. Kneller (1909–1999).

Each session began by introducing the breakdown of a broad object into more specific elements that would be easier to manipulate and improve. This was followed by brainstorming between individuals in order to create diversity. This brought no new knowledge into the innovation process, but instead stimulated the knowledge already present in the group interaction.

Example of the study: students would make a list of the materials, data and knowledge that possibly would facilitate the making of the product, and then simplified those elements in order to come up with the best possible solution thereby discovering new ideas.

figure(2): Design Students& Thinking process

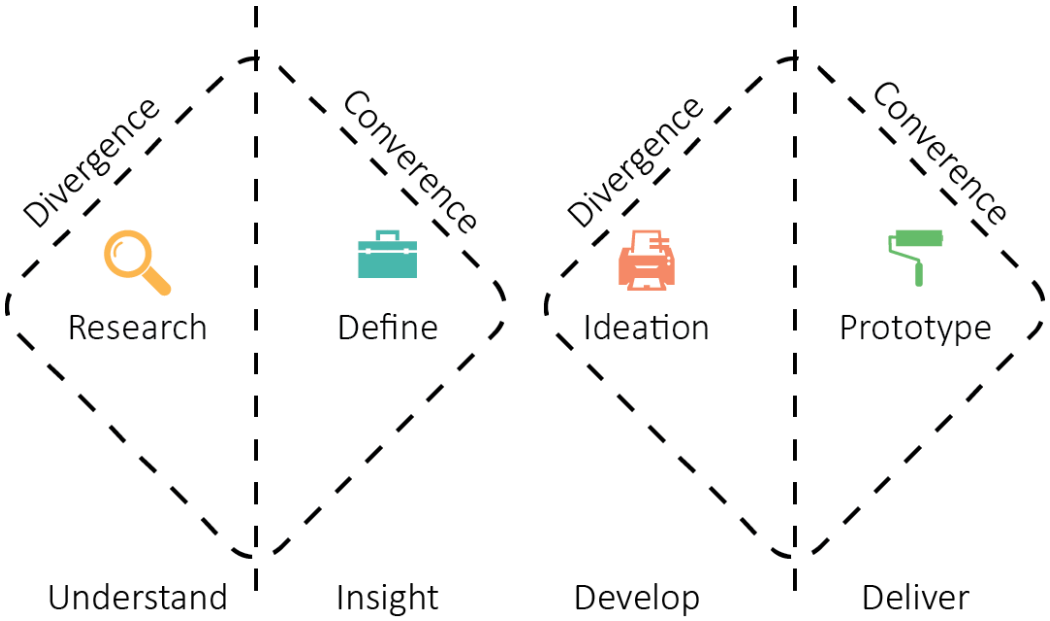
Then, following an extensive brainstorming session the author had to help students to visualise their thoughts. The purpose of this stage was to establish a tool that included structured categories. Here it was found that the students' reactions were improved by being more dynamic and more able to share their personal reflections.
Shown below is a work series from one of the participants who worked within the established guidelines. The task involved the criteria being applied to dot/line design combinations using fundamental ideas about the practice of design elements. Most of the students looked for new ways in which dots and/or lines could be drawn or made to interact with each other. According to the student's description the work expresses the power of unspoken words of society.



figure(3): Overview Design Research Results

Cards & Design Process Through the Double Diamond

The workshop has focused on descriptive models of thinking. The double diamond method was developed by the British Design Council in 2005. It was used as a method for designing and developing services that aim at nurturing creativity and innovation in the development of interactive solutions. In the double diamond method, the two major modes of thought exist in most methodologies, where the divergence and convergence describe modes of thinking that designers use (Norman 2013) depicted in Figure. (4).



Figure(4):The interaction between two different thinking styles: Divergent and Convergent.

This approach has developed a great variety of tools and techniques on how to solve different kinds of creative problems. In addition, the model is also able to feature the stages of creative thinking as put forward by psychologist Scott Barry Kaufman:

1- Perception

Where perspectives are kept wide in order to gain understanding and insights on user needs.

2- Incubation

Where the insights from the Discover stage are filtered into one or more of the concepts that seek to address the problems identified in the Develop and Deliver stages.

3- Illumination

A stage that is often highly iterative where a Brief may, for instance, be re-defined based on findings made in the Development phase.

4- Verification

The Deliver stage takes the final concept through final implementation and testing before launch.

Reflections from Practice

Most students have shown concern and confidence in design when using expressive forms instead of starting with their own. The tools have been tested by the author with the graphic designer students in an intensive four weeks through different design sessions. Students tended to generate more than one type of idea, and one way or another, the number of generated ideas depended on the given and available techniques. Accordingly, the designers reacted to generate solutions connected to the design methods that have been categorized in the form of stimulating questions.

Another important point should be mentioned and that is that the designed tool is limited to graphic designers and is only available through the course at Jadara University. However, this is not to say that the tool is not effective; testing by other educators' in the design field may be an interesting domain for future research.

Conclusion

This paper suggests that creativity is an essential ability that a designer must attain and should be an area that has to be developed, mainly in education where students must be orientated towards productive (creative), rather than reproductive, knowledge.

This study has endeavoured to generate ideas based on novelty by providing a tool that could enable students to classify the major elements of products abstracted by experiments with the view to overcoming limitations of thinking.

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