Available online at www.sciencedirect.com

ScienceDirect

Procedia - Social and Behavioral Sciences 93 (2013) 925 – 929

Procedia
Social and Behavioral Sciences

3rd World Conference on Learning, Teaching and Educational Leadership – WCLTA 2012

The design process as a life skill

Linda Selwood Choueiri [a], Simon Mhanna [a]

[a]*Notre Dame Univeristy - Louaize, Zouk Mosbeh, P.O. Box: 72 Zouk Mikael, Lebanon*

Abstract

Problem-solving and decision-making are highly desirable assets when facing the unpredictable and complex environments of today and tomorrow. Education promotes innovative approaches and leadership skills capable of coping with change and embracing human qualities, and guiding students to embrace holistic thinking. Universities of Lebanon can play a major role in reforming students from the out-dated schooling system that focuses on teaching critical thinking only to solve problems of yesterday and does not prepare them for surviving in an ambiguous future. This paper presents a new design process as a teaching tool that allows instructors and students to alternate between creative and critical thinking that is not bound to context, encouraging them to accept change proactively.

Selection and peer review under responsibility of Prof. Dr. Ferhan Odabaşı

Keywords: Design Process; Creative Thinking; Critical Thinking; Leadership; Education.

1. Introduction

Various fields such as education, business, economics, and healthcare are all seeking innovative approaches, novel insights and unique perspectives through creative thinking, as well as rapid and effective decision-making through critical thinking. Hence the increasing interest in the design process.

Franken defines creativity as the tendency to generate or recognize ideas, alternatives, or possibilities that may be useful in solving problems, communicating with others, and entertaining others and oneself (Franken).

Schafersman defines critical thinking as "the practice of processing information in the most skilful, accurate, and rigorous manner possible, in such a way that it leads to the most reliable, logical, and trustworthy conclusions, upon which one can make responsible decisions about one's life, behaviour, and actions with full knowledge of assumptions and consequences of those decisions" (Schafersman, 1991, p. 3).

Realizing the broad application of the design process and its importance as a way of thinking and a way of being, education plays a major role in inducing this novel approach as a teaching methodology and criteria of evaluation.

This paper presents a new model published in Palma Research Journal (Notre Dame University – Louaize) that is based on a literature review of existing models. Furthermore, the paper re-examines the model through a questionnaire in an attempt to transform students' insight into a balanced model that serves as a common ground between educators and students.

This paper argues that this redefined, balanced, and precise process can serve as a methodology of both creation (creative/innovative) and evaluation (critical/quantifiable) for more effective learning experiences in higher education.

The study goes further to explain that the versatile design process entails human qualities that help shape

Corresponding Author: Linda Selwood Choueiri. Tel: +00 0000000
Email: simon.mhanna@gmail.com

Selection and peer review under responsibility of Prof. Dr. Ferhan Odabaşı
doi:10.1016/j.sbspro.2013.09.305

leadership skills and thus qualifies as a life skill.

2. "Design Flows Process"

After consulting existing literature on creative processes, the initial proposed model summarized the previous models described in the literature in seven distinct steps. Some of the steps where purely critical or creative, the rest had both components equally. The aim was to achieve a balance of critical and creative steps in the process.

1. You Identify (creative/critical); 2. You Investigate (critical); 3. You Create (creative); 4. You Test (creative/critical); 5. You Evaluate (critical); 6. You Actualize (creative/critical); 7. You Project (creative) (Choueiri & Mhanna, 2011).

In order to study the process further, a questionnaire was designed to gather students' insights in terms of understanding the function of the process and their expectations of each of its steps. The research targeted graphic design university students in the second, third and fourth year. Only Notre Dame University – Louaize, main campus, students enrolled in the graphic design major participated in this survey. The 72 students that answered the questionnaire were randomly picked. The questionnaire is designed to collect basic information in order to build a general impression about the subject matter. It has the two types of questions: open and closed. The closed questions focus mainly on the different steps of the process (quantitative), while the open questions aim to gather students' personal insights (qualitative).

The questionnaire was designed in a way to test how critical or creative each of the steps is. In the closed questions the participants were given a choice between 3 or 5 options that oscillated between purely critical to purely creative.

Following the collected results, the model was redesigned in order to achieve a clearly mapped structure. Figure1 presents the new model named Design Flows Process.

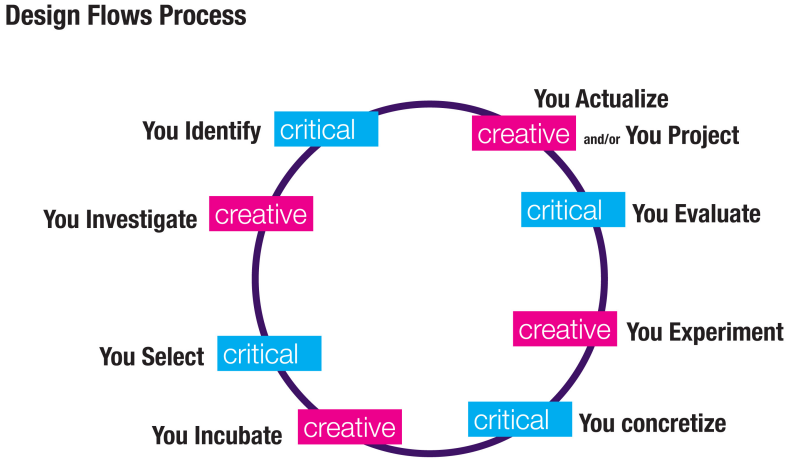

Figure 1. Design Flows Process

You Identify (critical)

In reaction to a brief, a problem statement, a hunch or a frustration, identification is the drive of the design process. Critical thinking is the belief that upon existing knowledge it will be possible to find that solution. It implies that the goal is set according to the context, functions, facts and assumptions.

You Investigate (creative)

Whether one goes online, reads an article, visits museums, interviews people, research is a crucial approach based on existing facts or visuals. If one experiences the urge or need to sketch, to visually investigate, that means one has started a creation phase. The mind starts generating new combinations and links.

You Select (critical)

With an inquiring analytical mind, existing investigations are reviewed and evaluated. The least relevant possibilities to the problem statement are then rejected.

You Incubate (creative)

It is a prerequisite for any creation to happen that one has done a good investigation to serve as inspiration, a point of departure. This is an absolutely important step to avoid reinventing the wheel. It is understood that incubation has this exploratory nature to ensure multiple ideas are generated without any judgment or evaluation.

You Concretize (critical)

The abstract ideas that are most suitable to the problem statement, show most potential for innovation and are selected for exploration through hands-on application.

You Experiment (creative)

This is the step where one tests the models built, the trial prints, and other concrete versions made in the previous step. Other actions in this stage include exploring the use of different materials, and placing the product to consumer reactions. New hunches happen on this level, maybe by changing the perspective, which are then explored by building something different, new and unique.

You Evaluate (critical)

Using logical and rational thinking, we then judge, argue, classify and categorize the data collected and experiences of the previous step using comparison, verification, deduction, and reflection. The goal is to make sure that the outcome is effective according to the problem statement.

You Actualize and/or you Project (creative)

At this phase the action takes place. Executing, designing, assembling, formulating, refining … An idea manifests into a concrete final shape.

Through the process you become an expert in a certain domain. At this point it is incredibly valuable to formulate what your hunches tell you about possible solutions in the future. You dare to imagine and project, dream of future possibilities, ideas that are not yet achievable.

At this level it is obvious that these hunches would result in a new start of the process.

This paper proposes that an improved understanding of the alteration between creative and critical is needed in order to ensure that creative thinking is addressed and stimulated contentedly throughout the process, Critical thinking has been dominant, mainly because it is measurable, and therefore easier and more convincing to work with than the creative contra-part that is not so controllable.

3. Design Flows Process and human qualities

Design Flows Process deliberately and in full awareness alternates between these two qualities: critical and creative thinking. Critical thinking is rational and logical (mechanical) and creative thinking encompasses a wide range of human qualities such as empathy, mindfulness, humour, play, compassion, imperfection … in a few words, what makes us human.

In every area of life, creativity and critical thinking are essential. These mutually supportive skills are intimately integrated in the problem-solving methods used in a wide range of "design" fields — such as engineering, architecture, medicine, mathematics, music, art, literature, philosophy, history, business, athletics, law, and science — where the goal is to design a product, strategy, or theory. Broadly defined, this includes almost everything in life (Rusbult, 2000).

It may thus be deducted that there has been a predominance of left-brain control, and it is now clear that left-

brain alone is not capable of problem-solving, whether professionally or in daily life.

The equality between critical and creative thinking assures that the thinking process is not purely mechanical, (automatic download of information) heavy on one side of the brain (left). Emotion (right brain) qualifies as human skill and is triggered by creative thinking, thus the importance of the creative steps of the process.

4. Design Flows Process and education

Education has since centuries been focused on transfer of knowledge, teaching to the test, and ignoring and maybe not understanding the more human and creative side of holistic education; though neuroscience education realizes that higher mathematics depends on creative skills as problem solving in general.

In a recent study on the curriculum goals perpetuated in the school-leaving examinations of the Middle East and North Africa (MENA), Valverde (2005) asserted that more than 70% of core performance expectations in Lebanese exams are directed towards knowledge and recall of basic facts as well as performing routine procedures.

In middle school, when students are requested to use analysis and synthesis in mathematical problem solving, 83.7% of students scored below 60% of the maximum score (CERD, 1997).

In higher education, the goal of our teaching for the 21st century goes beyond the goal of previous knowledge transfer. According to Varghese Manimala, our goal is *humanization*, especially in view of the grave problems the world is facing today. Could these problems possibly be due to a *dehumanization* of the previous centuries of education? "The unfinished character of human beings and the transformational character of reality necessitate that education be an ongoing activity" (Alam, 2009, p.127).

Nowadays, in order to compete in the global economy, businesses require an increasingly complex array of skills. These skills include, but are not limited to, critical thinking. Economic pressure, as William T. Daly explains, falls on educational institutions, which should impart the skills needed in potential employees (Schafersman, 1991). As early as 1975, in his article "On Teaching to Be Critical", John Passmore called for "critico-creative thinking". What is further notable is that he is one of the few who explains the full spectrum of skills needed, from creative to critical, whereas it has only begun to be generally understood now (Passmore, 1975) .The new dean at the Rotman School of Management at the University of Toronto, Roger Martin, realized that "students needed to learn how to think critically and creatively every bit as much as they needed to learn finance or accounting (…) how to approach problems from many perspectives and to combine various approaches to find innovative solutions (…) we need to produce holistic thinkers who think broadly and make important moral decisions" (Wallace, 2010)

Design Flows Model offers an educational tool with its clearly mapped out steps, enabling students and instructors to go through both qualities of thinking; knowledge-based and human-based with full awareness and understanding how and what to aim for; thus facilitating communication and assessment. This model with its multidisciplinary aspects serves as a perpetual learning tool.

5. Design Flows Process and leadership

According to The Leading Teams with Emotional Intelligence Collection, both ways of thinking are linked together. "They both draw considerably on social-emotional reasoning, particularly in the brains of the most adept strategic thinkers. Indeed, strategic thought entails at least as much emotional intelligence as it does IQ". In their study, managers who displayed the best strategic performance during solving- problems had considerably more activity in the areas of the brain that are linked to "gut" response, emotional intelligence and empathy compared to the areas associated with strategic thinking (Goleman, Boyatzis, McKee, & Katzenbach, 2010).

The awareness around the implication of the creativity of human beings in the thinking process brought to light new concepts in problem solving and leadership skills.

Most of today's leaders, being part of the dynamic and global market, are not afraid of showing self-awareness in their business model. Those leaders realized that the purely rational and unemotional hierarchical business model of the industrial age can no longer suffice to the complexity of the present challenges (Googins & Mirvis, 2004).

The Design Flows Model as a teaching and learning tool goes beyond the institutional setting to instill students with skills that prepare them for effective leadership. With the unpredictable close future and the continuous changes, the holistic thinking becomes an asset to survive ambiguity, and as such, the Design Flows model qualifies as a life skill.

6. Conclusion

The design process includes creative and critical thinking. Creative thinking is free-flowing. Critical thinking is rational. When critical thinking leads, creative is induced for innovative insights. When creative thinking leads, critical evaluates if the solution is applicable. Both are complementary; this alternation between them generates a balance that results into novel and effective solutions.

Induced, at any level of the educational life cycle (school – higher education – professional), the clearly mapped steps of the process become an important learning and evaluation tool that ensures innovative problem solving skills to yet undefined circumstances.

The formulated model is a simple module that could be taken into consideration for a more efficient application of the design process when dealing with any specific problem/project related to design thinking and innovation in any field.

The study explores the application of the design process in the academic program that is still considered untapped despite the potential it represents. This potential is not only relevant to the students who can learn a methodology of thinking considered key, but also to the instructors who can use it as a teaching tool as well as an evaluation criteria.

The combination of humane qualities such as emotion and empathy with analytical and systematic measurement tools results in a guided process that encourages the development of ideas and simplifies the act of decision-making; it qualifies as a life skill to promote leadership.

References

Alam, E. (Ed.). (2009). *Christianity, culture, and the contemporary world: Challenges and new paradigms*. Louaize: Notre Dame University Press.

Chahine, I. (2011). The role of translations between and within representations on the conceptual understanding of fraction knowledge. *Journal of Mathematics Education. 4*(1), 47-59

Choueiri, L. S., & Mhanna, S. (2011). Critical and creative thinking: Education for life. *Palma Journal, A Multidisciplinary Research Publication*, *12*, 28-29.

Franken, R. E. (1994). *Human motivation* (3rd ed.). Belmont, CA: Brooks/Cole Publishing Co.

Goleman, D., Boyatzis, R., McKee, A., & Katzenbach, J. (2010) *The leading teams with emotional intelligence collection*. Harvard Business School Review Publishing. Retrieved December 20, 2010 from http://hbr.org/product/baynote/an/4075BN-BUN-ENG?referral=00505&cm_sp=baynote-_-featured_products-_-4075BN-BUN-ENG

Googins, B., & Mirvis, P. *Best of the God*. Harvard Business School Review Publishing. Retrieved December 20, 2010 from http://hbr.org/2004/12/the-best-of-the-good/ar/1

Passmore, J. (1975). On teaching to be critical. In R. F. Dearden, P. H. Hirst, & R. S. Peters (Eds.), *Education and reason*. Boston: Routledge & Kegan Paul.

Rusbult, C. (2000). *An introduction to design method.* Retrieved April 12, 2010 from http://www.asa3.org/ASA/education/think/intro.htm

Schafersman, S. (1991). *An introduction to critical thinking*. Retrieved April 20, 2010 from http://www.freeinquiry.com/critical-thinking.html

Wallace, L. (2010). Multicultural critical theory. *At B-school*. Retrieved January 25, 2010 from http://www.nytimes.com/2010/01/10/business/10mba.html