Ideas Generated through Studio of Interior Design Principles

(AASTMT)

Assist. Prof. Dr. Hala Barakat Elnaggar

Architectural Engineering – Arab Academy for Science, Technology and Maritime Transport (AASTMT)

hbalnaggar@gmail.com

Abstract

Students of architectural engineering, continually, deal with complicated, undefined design problems. All the time, such students keep looking for systematic organized curricula that may help them to explore and generate new ideas which could help them to tackle the challenges, and in particular the challenges and problems of internal architectural design. Relying on traditional teaching techniques hinders creativity and deprives students from exploring new ideas and trying different avenues for solving design problems. For such reasons there is a great demand for courses of internal architectural designs that can provide students with tools to develop their creative and thinking abilities. Exploring students' imagination is considered to be a very effective and valuable tool which enhances their techniques to generate new ideas and to develop creative thinking skills and strengthen the flexibility of design thinking. The aim of this study is to combine thinkertoys with design thinking in the course of forming and design basics. They are both practical and applicable techniques as effective tools for generating ideas that are usually called for to creatively solve problems pertaining to internal architectural design.

The study is based on qualitative explanatory approach which combines the methods of collecting and analyzing different data. 60 students participated in the workshop. Analyzed data confirmed the positive effect of proposed techniques on the students' thinking skills and their ability to solve complicate design problems.

Subjective analysis proved the presence of five important comprehensive subjects: doubtful nature, preparedness for initiatives, flexible stand, generating behavior and self criticism as auxiliary factors that may help the student to solve design problems and generate ideas.

Keywords:

Ideas Generated ,Thinkertoys , Design Thinking , Analogical thinking , SCAMPER

- the introduction :

Various educational institutions need to provide more curriculum development opportunities to nurture and stimulate students' creativity in the context of interior architecture design education. More specifically in the Arab world. Design thinking has gained importance in teaching courses in the modeling studio and the foundations of interior architecture design. It helps students understand design concepts and methods, while supporting their discovery of innovative design solutions and giving them a new vision of interior space. This paper presents a review of the literature on teaching design thinking and Thinkertoys. This paper also discusses the impact of applications of integrating the proposed strategies in the process of learning design and problem solving. In addition to its impact on design development in the context of university education for interior architecture design for students, and its role in solving problems.

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The study adopted a qualitative approach, through a series of workshops to allow an in-depth exploration of students' design skills and development and the role of group discussions in such a process.

Design Process / Design Thinking is a multi-disciplinary process that uses multiple ways to perceive and apply knowledge, such as thinking, feeling, sensing and intuition to produce a creative solution to problems (Teixeira et al, 2012). This is the mental action behind the physical results of the design process (Orthel, 2015). Design thinking also involves a number of cognitive abilities closely related to idea generation activities (Cross N., 2001). It is also necessary for designers to have a clear understanding of the nature of the design process. (Stolterman E., 2008).

This paper also explores how architectural design education can benefit from the exploratory method by applying SCAMPER-Thinkertoys (Eberle et al, 2007; Michalko, 2000) and helping students learn techniques to enhance creativity.

Since creativity is fundamental in designing interior architecture, design education should foster synthetic, analytical and practical intellectual skills, risk-taking, tolerance of ambiguity, divergent thinking, flexibility, open-mindedness, experimentation, originality, intrinsic motivation, and resistance to early closure is essential for innovation and open-mindedness in the student. . (Sternberg, R. J., & Lubart, T. I., 1999)

The main purpose of this study is to create an interactive educational model for the course of formation and foundations of interior architecture design based on the integration of design thinking, social learning, Thinkertoys, and analogical thinking. In this system, students get a limited time of guidance from teachers. They often rely on their intuition or existing concepts (existing experiences and capabilities) to sketch out their initial design drafts. They then submit their drafts to the professor for review and comments, and the professors return the drafts to the students for review. This process is repeated several times before the students produce their final designs, to enhance learning efficiency. Inferential analogical materials were used as learning cases in this study to guide students to discover the gap between their current concepts and the concepts they will learn in the course. Students then become more motivated to learn and resolve the cognitive conflict caused by the gap.

Heuristics in higher education are an effective tool to help students generate creative ideas, achieve clarity in design projects, improve creative thinking skills, resist premature closure, enhance flexibility, and assess creativity.

The study was conducted in the fall and spring of 2018-2019 and 60 students participated in two different classes. It focuses on analyzing the various exercises conducted during the formation course and the foundations of interior architecture design AR 327 Interior Design Principles, an elective subject for students of the Department of Architecture and Environmental Design at the Arab Academy for Science, Technology and Maritime Transport.

Finally, the results of the questionnaire survey were consistently analyzed and compared to measure the differences in students’ knowledge about interior architecture design before and after teaching in this study.

The study demonstrated that the integration of the social learning model and Thinkertoys is useful in inspiring students' creativity by converting new knowledge of interior architecture design into blueprints and thus preserving the new knowledge for future application.

Linking design thinking to the design process plays an important role in developing the student's ideas, expanding his awareness, and providing multiple ways to reshape and design. In this context, design thinking can help in developing the design concept, which is defined as the essence of the idea and is considered the basis for all decisions that shape the character and appearance of the interior space solutions. (Travis, et al., 2011)

Design thinking can be translated into a distinct educational curriculum to guide design students in ways of perceiving and judging knowledge. The main goal of the design studio is to get students to the conclusion of thinking like professional designers, and to provide ways to enhance collaborative learning between students and professors through an iterative process of planning - acting - observing - reflecting (Egan, 2017). (Cross, 2001).

Design education can be improved by including clearer explanations of the thinking process, which may help designers understand solutions to design problems and lead to unleashing innovation (Ambrose & Harris, 2010). Problem-solving techniques for designers are taught in studio courses, which teach design as a work or skill and technique (Oxman, R., 2004).

Consultations between students and professors take place regularly. Through clarification and reflection, "knowledge in action" the professor transfers tacit knowledge to the student (Mawson, 2003). Using teaching methods that use talking and drawing in tandem, the professor demonstrates how to explore and work as a designer (Broadfoot & Bennett, 2002). This reflects the image of the professor as a professional and reflective practitioner who provides guidance and inspiration to students (Schön, 1988). Revans' model considers the process of repetition to be an essential benefit in learning

Research problem:

The elements of formation and the foundations of interior architecture design are an integral part of the education of architecture students. It is important that they be taught within the framework of design thinking and to focus on its meaning, content and application, and to address the shortcomings in learning these foundations and to continue improving teaching methods (Eberle, 2007). , Polya, 1945, Michalko, 2000), the research problem was the scarcity of using exploratory methods to teach interior architecture design through the application of SCAMPER Thinkertoys.

Research questions:

The focus of this study explores the meaning of design thinking in a studio learning environment. Therefore, this study poses the following research questions:

1. How do design students conceptualize the important concepts of interior architecture design as a discipline?
2. How does the learning process affect the communication and understanding of the elements of formation and the foundations of design?
3. Explore how students envision solving design problems and generating ideas?
4. How do modern methods (Thinkertoys - analogue) influence expanding the horizon of perception, design and creativity?

This study aims to explore students' views of this tool. The last research question explores students' views on different learning technologies and their educational value on the design process. And reaching an understanding of design tools, and the impact of the researcher's

previous experiences in teaching and the practice of using tools for learning formation and the foundations of design, and dealing with them as basic mental tools in the design thinking process.

methodology

The study adopted a qualitative approach to explore the impact of in-depth design thinking on students' skills and abilities in solving problems and the impact of Thinkertoys in generating ideas.

The study is based on the analysis of workshops. Data is collected from various sources (student's oral and written reflections and ideas, researcher's field notes, photos, and samples of students' work).

Search goal:

The aim of this study is to integrate social learning strategy, analogical thinking and Thinkertoys to help students think and learn effectively through teacher-student and student interactions, so that they are able to develop creative ideas and know how to solve design problems on their own in the future, and explore students' perception towards using thinking Design and Thinkertoys help in generating ideas in order to solve design problems creatively.

Search parameters:

This study was conducted on the course AR 327 Interior Design Principles, an elective subject for students of the Department of Architecture and Environmental Design at the Arab Academy for Science, Technology and Maritime Transport (AASTMT).

- 60 students participated in two different semesters, fall and spring 2018-2019.

The study relied on measuring the changes resulting from the integration of design thinking, social learning, Thinkertoys (SCAMPER), and analogical thinking, and exploring ways that allow students to innovate and not lose the passion for education, discrimination, and generating ideas.

Results - recommendations

The study recommends that researchers and academics in design colleges support exploratory and research methods that allow students to innovate and not lose the passion for learning and differentiation. It is important to explore more strategies and techniques that can help enhance the creativity levels of students in different design disciplines and encourage initiatives that work. To integrate creativity into teaching interior architecture design. It is also recommended to constantly work on linking new knowledge, developing current knowledge with design, and working to exchange experiences within the design studio.

The results of this study help answer the research questions that architectural teachers can positively influence students' thinking skills and creativity levels, helping them acquire new skills and stimulating existing skills that are essential for creativity in design. This study highlighted the important role of a structured approach, specifically Thinkertoys, in coming up with new ideas that help design students solve ill-defined problems with confidence. Students become process-oriented rather than product-oriented only until they reach the following results:

1- The ability to come up with design and functional solutions contributes to creating a successful design environment.
2- The ability to develop design solutions that take into account the integration between functional relationships and formal and spatial change, as well as the cultural, intellectual, and interface dimensions.
3- Developing the ability to analytically study internal surface treatments and spatial, functional and kinetic analysis.
4- Integrated interaction with different styles and choosing the appropriate style for each student.
5- Developing the ability to criticize and self-evaluate architectural works and support the independence of creative logical thinking.
6- Effectively develop educational curricula in the field of design that support exploration and idea generation.
In view of the above, students have begun through the comprehensive design process, starting with visual analysis of vocabulary, defining the problem, choosing a style, design thinking, communicating, collecting data, reviewing previous work, and reflecting ideas through drawings and three-dimensional models. In order to integrate ideas and concepts for design and reach the level of creativity and intellectual skills necessary to solve design problems.

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