Rethinking Architectural education: a focus on creativity

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Introduction

The design studio is the core of architectural education. Through the design studio, students learn how to gain creative skills and produce innovative and creative solutions and this would be considered as the real value of design studio's education. The design studio's education helps students to use their creative problem-solving approach and skills during the professional practice to develop creative design outcomes. This research aim is to find out the relation between the creative design outcome and the design studio settings represented by the design studio culture, the teaching style and student’s communications. Also, whether this relation is changing over a period of time and why.

Keywords: creativity, innovative design products, design negotiations, creative environment.

The literature review

Definitions of creativity

The term ‘creativity’ term is used to reflect a psychological view of creativity on a personal level, in contrast to ‘innovation’ as used in the world of business on an organisational level (Stemberg and Lubart 1999). Innovation traditionally focused on products and processes. Hargreaves (2000) suggests that ‘you can have creativity without innovation, but you cannot have innovation without creativity’. Warr (2007) examines the work of a number of researchers such as Ford and Harris (1992), Starko (1995), Eisenberger and Cameron (1998) and Sternberg (2001), and points out that there was no definite consensus regarding how creativity is defined. He finds out that the creative process looks different to different researchers. There is general agreement among researchers that the act of creation does not occur as a fixed point in time, but that it manifests as a process that extends through time, varying in duration (Ford and Harris 1992). Rogers (1995) defines an innovation as ‘an idea, practice, or object that is perceived as new by an individual or other unit of adoption’. Diffusion is ‘the process by which an innovation is communicated through certain channels over time among the members of a social system’ (Rogers 1995). Mumford (2003) defines creativity as the production of novel, useful products. In the fields of art and literature, originality is considered to be a sufficient condition for creativity, unlike other fields where both originality and appropriateness are necessary (Amabile, 1998, Sullivan and Harper 2009). So can we define creative architectural projects as the production of novel, useful and original architectural projects? Such definition may look too general. Within the design studio context, the definition of creative architectural projects would be constrained by or feature the goals/objectives and prospected outcomes of the design studio course. Gero and Maher (1993) argue that groundbreaking designs are those which possess innovative and creative qualities and provide solutions that were previously unknown (innovative design) or subsequently produce entirely new products (creative design).

The problem of the present design studio's teaching from creativity’s perspective

A close examination of the reviewed literature (Lawson 1979, Seidel 1994, Salamah 1995, Sachs 1999, Davis, Kogan & Soliman 1999, AIAS 2003, Salamah 2005: Schon 1980s, Coffield et al 2004, Ostwald and Williams 2008a& 2008b, Salamah 2009, Williams et al 2010) from the creativity perspective shows that in many cases, students were able to produce new architectural solutions but not creative ones. It also demonstrates that the aim of various architectural pedagogies and architectural programmes is to produce new design solutions but not necessarily creative solutions. Consequently, the literature did not state how to define the creativity scope for architectural projects, nor how to implement creativity dimensions into the architectural design curriculum and pedagogy. There is an emphasis on frequent and democratic social communications. Nevertheless, the literature did not specify how to communicate, from whom useful information can be obtained, rules of communications and how to filter and
incorporate the outcome of the communications in the design scheme to enable the production of creative projects. Previous research suggests that the design studio’s culture restricts the intelligent students from using their knowledge and this would have a negative impact on their design communications and progress. The literature did not test how far design communications and activities of students; and instructors’ support and style of teaching would affect the production of creative design projects.

The literature motivates students to explore design from unorthodox perspectives and the inspection of possible solutions. This would help to produce new design products but not necessarily creative products. The previous research indicates the design studio’s tools, systems and climate that would initiate creativity. However, these issues are not specified in the architectural curriculum thus would be considered as a hidden curriculum.

The research objectives

The literature review above has briefly highlighted the degree of complexity and characteristics of the creative design approach, communications and environment. Meanwhile, it revealed a number of potential research gaps that should be bridged to help developing better understanding of the relationship between creativity and design studio’s education. This research explores one of these potential areas of research. It investigates the significance of impact of social factors on creativity in the design studios of Years 3, 4 & 5, College of Architecture, UoD. Therefore, the objectives of the research were set as the following:

- to explore the social hindrances and drivers for innovation in the design studio; and how students’ creativity would be affected by these forces;
- to compare between the communications routes and techniques that students use to get innovative ideas under certain design studio settings, as found by 2009 and 2012 surveys;
- to compare between the level of hindrances, drivers for innovation in the design studio as revealed by 2009 and 2012 surveys;
- to make recommendations

The research methodology and tools

Two surveys have been conducted in 2009 and 2012 at the University of Dammam, college of Architecture and they inspected possible factors that impact innovation. It showed that the present design studio suffers from persistent and ongoing issues that affect the student’s ability to produce creative design outcome. Two questionnaire surveys were carried out in 2009 and 2012 to find out the level of general agreement on the raised issues. Each of these questionnaire surveys was followed by interviews. The interviews’ aim is to explore the hidden causes behind the issues that were considered significant by the respondents, to validate the questionnaire surveys results, and to clarify ambiguous points. The use of mixed methods i.e. quantitative and qualitative research methods is because the findings that relate to each method will be used to complement one another and to enhance theoretical or substantive completeness (Morse 1991, Ausubel 1968). The sample was chosen from the third to fifth year’s students. This is because that the first and second academic years provide basic design architectural education and are shared between the College’s departments. There is no female students at the College of Architecture. In 2009, one hundred and ninety four male students from third to fifth year were targeted with a questionnaire that asks about tools, systems and conditions that help in producing innovative products. Forty eight replied, which constitutes 25% of the total number of third to fifth year students from Building technology and Architecture departments. In 2012, another questionnaire survey was carried out on the male students from third to fifth year. Also, forty eight replied, which constitutes 46% of the total number of third to fifth year students from Architectural department. Two software programs were used to analyse the quantitative data; SPSS 16 and AMOS. The following statistical tools were used to analyse the data: Mean calculation, percentage, and path co-efficient. Consequently, third, fourth and fifth year’s students were invited for an interview. Nine students from the fifth year accepted the invitation in 2009 and seven students from the third, fourth and fifth year accepted the invitation in 2012. These were interviewed using unstructured interviews. The interview’s data were analysed by classifying it into categories and making comparisons using cross-referencing (i.e. similarities and non
similarities) which allow interpretation and judgment.

**Discussion of the results**

The field survey, supported by the research findings that found by researchers from various schools of Architecture around the world (see for instance Austerlitz and Sachs 2006, Seidel 1994, Salamah 1995, Sachs 1999, Davis, Kogan and Soliman 1999, Sachs 1999, Salamah 2005: Schon 1980s, Williams et al 2010, Sidawi 2012 a and b, 2011), has shown main problematic areas that explain why the interaction between the student and instructor is not functioning and design negotiations do not reach a fruitful innovative result, despite the frequent communications between them. This would affect negatively the student’s ability to produce innovative design products. These areas are:

**The design studio culture**

The study found a number of negative design studio culture aspects. The design studio environment suffers from:

a) the dominance of the instructor’s opinion and design approach’s style (Seidel 1994 and Salamah 1995). The dominance is increasing from 2009 to 2012.

b) autocracy at the design studio and College levels (Davis, Kogan and Soliman 1999, Salamah 2005: Schon 1980s). This is decreasing from 2009 to 2012.

c) lack of support from other departments’ instructors and students. This is decreasing from 2009 to 2012.

d) the student’s poor levels of trust in the instructor’s design ability; and

e) some intimidating practices. This frequency of these practices is decreasing from 2009 to 2012.

**The pedagogy of architectural design**

There is relatively more encouragement from tutors to students to produce creative design work from 2009-2012. However, in 2009 there is lack of support mostly regarding the following issues (arranged from less supported to more supported):

- misapplication of one of the design requirements;
- low level of knowledge regarding one of the design aspects;
- hesitation to take the next step;
- lack of the design skills required to design the project; and
- following a wrong route during the design process.

Whereas in 2012, there is lack of support mostly regarding the following issues (arranged from less supported to more supported):

- lack of the design skills required to design the project;
- misjudgement about the resulted design of one of project aspects;
- following a wrong route during the design process;
- confusion over the context of the prospected design outcome/result; and
- hesitation to take the next step.

It can be noticed that there are three overlapped cumbersome situations (i.e. in 2009 and 2012 surveys) that the student experience and these are:

- Lack of the design skills required to design the project;
- following a wrong route during the design process; and
- Hesitation to take the next step.

The interviews showed that teaching of architectural design is affected by the lack of tutors’:

a) support, whether in the type of support, the timing or the clarity (Seidel 1994).

b) performance and clear ways of instruction (ibid);

c) commitment and knowledge (ibid); and
d) flexible thinking and understanding of creativity (Williams et al 2010).

The design studio communications

The path co-efficient results showed a number of potential factors that affect the student’s creativity. The study found that the frequency of the student’s communications with his colleagues from the same year, higher year, his instructors affect the student’s ability to undertake certain design tasks such as to comprehend quickly the design problem, carry out a quick analysis of the design problem and set quick conceptual design solutions. There is lack of communication with other departments’ instructors and students and this study sees that the communications is affected negatively by the design studio’s culture and style of teaching.

Conclusion and recommendations

The research findings suggest that the design studio environment is very slowly improving over the past three years whereas it should be radically enhanced to initiate students’ creativity and help them producing creative projects. The study recommends that corrective measures should be undertaken on a number of fronts.

Instructors should be sensitive to the indications of students’ needs so they provide them with their support at the right time. Clear instructions and objectives should be set at the start of the course. These should be linked to the creativity dimensions. However, this requires deeper understanding of creativity dimensions in the architectural design and how to assess them. So, instructors should clearly define the creativity criteria for the given project and how it should be applied. Also, they should set a clear roadmap on how to apply it during the design project, and thus discuss it with students to reach a common understanding of the application of the creativity dimensions in the design project. Shared understanding regarding creativity is also required with the jurors. Students should be taught how to look for innovative architecture solutions, explore the innovative aspects of each case study, experiment with possible links between innovative design aspects/solutions and each dimension of the design problem, in line with expert designers’ usual practice. Also, they should experiment with possible links with the ideas that they have obtained from the design negotiations. Instructors should not impose their own ideas on students but introduce them to students and encourage students to explore how the potential solutions can be integrated with the students’ design ideas. Instructors’ communications and interactive skills and their ability to perceive students’ creative abilities and needs are essential. These can be improved through training courses. The College should set and apply professional conduct mechanisms that regulate the relationship between the instructor and student and provide the democratic environment that is necessary for initiating innovation.

Students should be encouraged to communicate frequently with their instructors and other students and explore the potentiality of various design solutions. Keeping a record of the design negotiations and innovative design precedents would be useful as it may help the student to track the progress of the design, explore new links between design negotiations at the various stages of design, and the design problem. Students should frequently discuss design ideas with colleagues and instructors as this would substantially improve their design abilities. Students should be open-minded and ‘think outside of the box’, have a flexible attitude and negotiate design ideas. This would help them to find new design variables as the expert designers do, and this subsequently produces entirely new products. However, frequent communications and learning from experts would not achieve their objectives without providing solid foundations and changing the way of teaching instruction and methodology. The teaching instruction in the design studio and assessment of design projects should not focus on form issues and to follow solution-based approach to find new solutions for design problems as it does nowadays at the College of Architecture, (University..) or elsewhere. The focus should be on adopting innovative-based design approach and how to find innovative solutions rather than merely new solutions to the design problems. Future research should explore how to apply creativity dimensions in design projects at different levels of architectural education. With regard to the design process and innovation, it would be useful to find out how to devise the design process/decision-making process to initiate innovation.
Notes


