

Effects of Design Studio Culture on Creativity of Architecture Students

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Abstract

Architectural education will not be complete without due reference to its studio culture. This Culture consists of habits, patterns and experiences expressed by students in their design studio. The design studio culture has been observed to have affect creativity of students over the years. This paper examines the effect of design studio culture already existing from the review of literature. The study survey method was adopted to obtain quantitative data from the students through the use of structured questionnaires which were administered in the selected schools in southwest Nigeria. The data gotten were subjected to factor and regression analysis using the statistical package for social sciences (SPSS). Results gotten showed that the students perceived the other factors to be the core components of design studio culture in addition to those already identified in the review of literature. The findings also indicated that only five(5) of these components affects architecture students' creativity. This paper recommends that the awareness of studio culture should be promoted through the departmental policies as a way of improving students creativity. Findings for this study are expected to provide the universities with empirical grounds that will aid policies and reforms directed at improving academic performance of architecture students

Key words: Architecture, Creativity, Design studio, Studio culture, Studio-student.

1 Introduction

Design studio culture is a key concept of the architecture practice and would have no meaning without the mention of the design studio. The design studio has been described as a territorial domain place or environment where learning, teaching, assessment and other activities of the design studio culture occur (Aderonmu, 2014). It is the way of life in the design studio that has given rise to and encapsulated by a phenomenon known as Design studio culture (Fallman, 2007).

2 Design Studio Culture

Defining design studio culture would be no easy task because the concept of design studio culture is central to its practices; it is through the students that each architecture school and program have developed their distinct culture (Abdullah, Beh, Tahir ,Che Ani, & Tawii , 2011). There are different perceptions on the concept and definition of design studio culture.

The architecture design studio is king in the life and practice of architecture students because it is where knowledge about the design of buildings is applied. It is also where the act of designing, generating, evaluating, and developing alternatives is learned and practiced. Within this area is where design studio takes place; where the designers learn and practice the expression and exploration of different and multiple ideas in their current design brief, generate and evaluate the proposed alternatives to the brief, and ultimately make decisions and take action. They can go as far as making external representations of such ideas in drawings and three-dimensional models, and using these representations to inquire, analyze, and test hypotheses about the designs they represent and have been challenged with (Nijhol, Veer & Vyas, 2012). Going through all the linked acts of making drawings, looking through different works, and deducing designers proposed alternatives, and also interpreting and exploring the consequences as seen and gotten in their sketches, the architects find visual analogies, recall relevant examples made during such activities, and discover new shapes and geometric configurations also called and referred to as architectonics. In this way, they use the representations to test their designs against a-priori performance criteria. And in the highly

social environment of the design studio, students learn to communicate, to critique and criticize, and also to respond to criticism, as well as to collaborate amongst them (Ellen & Mark, 1997; cited in Gray, 2013). The need for all this to take place and occur within this given space gives rise to certain behaviors within the design studio, these behaviors and patterns have been encapsulated in what is known as Design studio culture.

A typical design studio has a high visual and material character, in the sense that it is full of material objects and design artifacts. Studio walls and other less permanent vertical surfaces are full of post-it notes, sketches, posters and magazine clips for sharing ideas and inspiration; physical models and prototypes lying on the desks, amongst other things. Many of the objects in a design studio may have seemingly little to do with the projects at hand, but in fact serve to challenge and inspire new ideas, to create cross-contextual reminders that lead to breakthrough thinking and conceptualization (Blevis, Lim, Stolterman, Sato & Wolf, 2007) and this environment is core to architectural education, because it is where students get ideas, develop ideas and share their ideas (Nijhol, Veer & Vyas, 2012). It has been traditionally been emphasized as the center of architecture student interaction (Adeyemi, 2012). The design studio environment should be able to delight the senses of the students, because it is a place where the design process is preferred to be done, especially when team work comes to play, for this reason the design environment should be conducive and should foster these activities. This will allow for efficient dissemination of knowledge amongst students, so that ideas can be generated and transferred around rapidly (Abdullah, Beh, Tahir, Che Ani, & Tawii, 2011). The physical surroundings of the studio environment and the continuity which how different materials are arranged and represented play a key role to the design activity because they serve as organizational memory.

Design studio culture is simply the way of life of architecture students in the design studio. It has also been said to be the representation of different holistic practices expressed by students and architects within their area and field of practice, which defines their person as designers in the design studio. (Fallman, 2007), which are central to its practices. Each architecture school and program have developed their distinct culture

though the students (Abdullah, Beh, Tahir, Che Ani, &Tawii , 2011). These cultures transcend through different architecture schools and have been recurrent over the years. Stevens (1995) cited in Gray (2012) describes the studio culture as a culture or set of social norms that is defined or formed by a construct that is both individual/psychological and social, and through an individual to group relationship. He described it as an active, unconscious set of unformulated dispositions to act and to perceive which produces the feeling of a given culture or culturally derived space, which in this case is the design studio. He goes further to say that the design studio culture does not determine, but it guides. Individuals are both completely free and completely restrained. It also comprises of multi-faceted developments which are consciously or unconsciously deducted (Fallman, 2007). Aderonmu (2013) described studio culture as the implication of the experiences, habits and patterns found within the architecture design studio. This experiences, habits and patterns exhibited by this culture are not purposeful in many cases, but a by-product, nonetheless it still plays a non-negligible influence on the creativity and performance of architecture students (Abdullah, Beh, Tahir, Che Ani, &Tawii , 2011). These habits and patterns actualized by studio culture are not usually written into the curriculum or even the design assignments, but they are likely the most memorable and influential. Some of these patterns exhibited by the studio culture have transcended different architecture schools and have become recurrent over the years (Koch, Schwennsen, Durrón, & Smith, 2002) and they are (i) Social interaction (ii) Environment of the studio (iii) Critique (iv) Myths associated with design studio (v) Motivation/ Encouragement.

2.1 Design studio and social interaction

Social interaction involves the act of communication in the design studio, either peer to peer or peer to mentors. Solving design problem requires designers to come up with a set of solutions that meets the needed requirements, and this often requires communication and collaboration amongst designers, which involves showing of works between students and tutors (Cross, 2006). This will encourage reflection during the design process and lead to more effective design solutions. The design studio is important for fostering these designerly practices (Nijhol, Veer & Vyas, 2012). In design studio, most of the design work is

collaborative and group-oriented and the physical setting of the design studio can stimulate communication, collaboration and sharing. Social interaction allows for proper dissemination of knowledge amongst students, so that ideas can be generated and transferred rapidly (Abdullah, Beh, Tahir, Che Ani, & Tawii, 2011).

2.2 Design studio environment

Tadao Ando once said that the design studio is not an important learning space for students; he travelled a lot to see nature with his sketchbook, but his plans were eventually drafted in his studio. The classroom walls are not just the core for architectural education, everyday learning experiences and observations are also as important. The built environment and landscape are also powerful tools that influence learning. The planning and building design within an environment also influence architecture learning. Space is a resource that must be managed. Effective use of a space can increase the authenticity of implementation and the number of jobs we handle at once (Kirsh, 1995; cited in Abdullah, Beh, Tahir, Che Ani, & Tawii, 2011). The way we use and manage space is not a concurrence but it in fact manifests the way we think plan and act, and it can also be affected by the spaces we inhabit (Vyas, 2009). The design process is not a rigid one, rather it can be described as freestyle process which. Greater mobility in the design of spaces allows students have a choice in where they can work, and they usually tend towards spaces they enjoy. Mobility also allows for activities to blend, and spaces become less specialized, dissolving boundaries between disciplines and extending working hours (Abdullah, Beh, Tahir, Che Ani, & Tawii, 2011). For this reason, the physical surroundings and ecological richness of a design studio and its surrounding environment should be ecologically rich because this helps to stimulate the creative minds of the designers, and in turn reflects in their design solving problem (Ackerman & Halverson, 1999; cited in Nijhol, Veer & Vyas, 2012). Architecture students have preference for open spaces rather than enclosed reading spaces, because the latter is restricted to use. Same thing applies to the design studio, although tangible, it is sometimes limited by function. Analysis and synthesis of information requires a detached space that is not committed to a single use, but rather allows for various learning and living activities, and also caters to different users.

These spaces nonetheless shouldn't just be empty spaces; rather they should stimulate the user's minds or allow for activities to be carried out. The design studio should be one that functions in synergy with its adjacent space. Effective use of space can be seen in a garden with chairs and tables; allowing for activities such as chess, designing, reading etc, but without them, these activities will probably not occur in the garden (Abdullah, Beh, Tahir, Che Ani, & Tawii, 2011). The same thing can be seen in the design studio. The design studio is more often than not a highly material and ubiquitous environment. It has high visual material character; it is full of material objects and design artifacts, vertical surfaces full of post-it notes, sketches and magazine clips for sharing ideas and inspiration; physical models and prototypes lying on desks (Nijhol, Veer & Vyas, 2012). Many of these objects in a design studio may have little to do with the project at hand, but serve to challenge and inspire new ideas, to create contextual reminders that lead to breakthrough thinking and conceptualization (Blevis, Lim, Stolterman, Sato & Wolf, 2007).

2.3 Critique in design studio

The studio has an integral obligation to prepare students for architectural professional practice; for this reason, the learning rudiments must be associated with realities of the architecture profession and construction of buildings (Koch et al, 2002); this purpose is aided by the Jury critique. Jury critique otherwise known as jury is a vital form of assessing and improving studio learning and knowledge (Ilozor, 2006). It is considered to be a central feature of design education (Brad & Hokanson, 2012), acting as a mechanism which provides regular feedback (Brandt et al 2010), and a high stakes assessment tool. There are mainly two forms of critique in architecture; Informal peer critique and formal critique. Critique both between peers and between students and professors can encourage reflection and learning (Pringle, 2009).

Peer learning exists naturally due to the physical co-location of the design studio environment. Informal peer critique is basically critique amongst students/peers of architecture. It naturally exists due to the physical co-location of the design studio environment. Students of architecture generally prefer peer critique to formal critique because there is generally less tension and there is agreement more often between the peers (Gray, 2012).

Formal critique is critique between tutors and students. In the school of architecture, much emphasis is placed on the design studio jury and for this reason student's commitment and dedication is more to their instructor or grades. Students have the opulence and freedom to respond freely to theories, as to what they and the tutors see to be deemed fit; be it social, ethical or aesthetic, and they can avoid some of the integral complexities of practice that must adjudicate a variety of needs, hopes and dreams, as well as contradiction. Students are often torn between reality and theory, and they must make a decision whether the studio projects should respond to the real world or purely to academic, hypothetical theories- a duality which may not have been clarified by the instructors (Pressman, 1997; cited in: Ilozor, 2006).

2.4 Myths associated with the design studio

Design studio culture can be characterized by certain myths it perpetuates; these myths tend to affect the mentality of students and promotes some certain behavioral patterns. The following are myths that predominate within many design studios, if not in every school, viz: (i) Architecture education should require personal and physical sacrifice (ii) The creation of architecture should be a solo, artistic struggle (iii) The best students are those who spend most hours in the studio (iv) Success in architecture school is only attained by investing all of your energy in studio (v) Design studio courses are more crucial than other architecture or liberal art courses(vi) It is not possible to be a successful architect unless you excel in design studio (vii) Students should not have a life outside of architecture school.

2.5 Motivation/Encouragement in the design studio

Motivation can be defined as a driving force that causes individuals to action towards a desired goal, the reason for the action, that which gives purpose and direction to behavior. While encouragement can be said to be the act of giving hope or support to someone. According to (Casakin & Kreitler 2012), motivation can be classified majorly under 4 headings: (i) Intrinsic motivation (ii) Extrinsic motivation (iii) A combination of both intrinsic and extrinsic motivation (iv) Unconscious motivation

Intrinsic motivation is when an individual engages in an activity primarily for its own sake e.g. because the activity is enjoyable, satisfying or interesting. Intrinsic motivation portrays activities whose rewards are underlying in the activity itself, in its very execution. Creative individuals have been described as task focused and are rewarded by the exercise of their creativity and enthusiasm about being involved in their work. Extrinsic motivation is when an individual engages in some activity majorly to get some goal external to the activity itself, such as winning a prize or fulfilling an obligation. While the combination of extrinsic and intrinsic motivation emphasizes not only on the contribution of these two major factors but also their interactions and synergistic effects and unconscious motivation is urged by psycho-dynamic perspective, which considers the creative act as an attempt to solve a personal issue that is mostly unawares, such as satisfying a smothered need, or resolving an unconscious conflict. It is generally accepted that unconscious and intrinsic motivation promote creativity but extrinsic motivation is detrimental to it, although it has some positive effect at times. Adam & Grant (2011) emphasized another classification of motivation; prosocial motivation, the desire to benefit from others. It means using others as a generator for creativity. He also stated that intrinsic motivation does not influence creativity if there is no pre-social motivation involved. This means that an individual must have the will to help others in order to be encouraged to produce useful and innovative ideas. Also, confidence is akin to self-efficacy and tutors have a vital role in the encouragement and motivation of the students (Casakin & Kreitler 2012). Stevens (2015) also states that enhancing student's self-belief can encourage students.

They must believe that they can learn and know how to tackle with failure and learn from those experiences. This will involve incorporating problem-solving activities and providing discussion when failures occur. Confidence can also be developed by allowing students control over learning. She also stated that when students work autonomously and enjoy learning relationships with peers, and feel they are competent enough to reach their goals, they feel encouraged and motivated. Active learning in groups, peer relationships, and social skills are also key components to engagement and motivation. Challenging and enriching experiences helps students to reflect, question, conjecture, evaluate and make connections

between ideas, and when students do these things, they feel motivated to work better (Casakin & Kreitler 2012).

3 Methodology

3.1 Research objectives

This objectives of study (i) investigated the core components of design studio culture as perceived by students of architecture;(ii) evaluated the effects of design studio culture on the performance of architecture students in the design studio course;(iii) examined the effects of the core components of design studio culture on the performance of architecture students and (iv) recommended the strategies that can be integrated into architecture school curriculum (hidden) and programmes in order to improve the performance of architecture students.

3.2 Method

The methodology in this paper employed the use of questionnaires to obtain data. The administered questionnaire was designed and adopted to get the following information of architecture students; (A) Respondents profile, (B) Grades of students in design studio, (C) Academic performance of the students, and (D) Perception of design studio culture. The data gotten was processed using the statistical package for social sciences (SPSS)

3.3 Setting

The study was conducted in three schools of architecture running B.Sc. and M.Sc. architecture in SouthWest of Nigeria; University of Lagos, Bells University of Technology, Ota, Ogun State and Covenant University, Ota, Ogun state.

3.4 Participants

The sample size was chosen using calculation method. 50 % of the populations of the students of each school of architecture were selected through random sampling. The questionnaires were administered to students in 200 level, 300 level, 400 level, M.Sc. 1, and M.Sc. 2. A total of 277 students participated in the

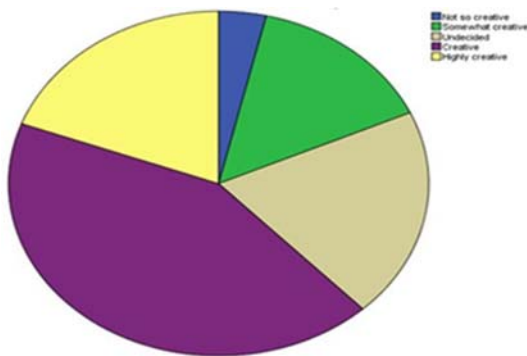
survey. 64.2% of the respondents were male and 35.38% of the respondents were female, all in the range of ages 16-40 years.

4. Results and Discussion

Analysis of data gotten from questionnaire showed that students considered some other components as key elements of the design studio culture, in addition to the five already existing from the review of literature: Tolerance, Sacrifice, Tenacity, Challenge, Constraint and Value.

From the analysis of questionnaire, students believe that only some certain factors are the components that the culture of the design studio encompasses, Myths associated with the design studio, Tolerance, Motivation, Sacrifice, Encouragement, Tenacity, Challenge, Environment of the design studio, Constraint, Value.

The data gotten from the analysis of questionnaires shows that 19.34% of the respondents consider themselves to be highly creative, 42.70% of the respondents consider themselves to be creative, 19.71% of the respondents were undecided on their level of creativity, 14.20% claim to be somewhat creative and the remaining 3.65% considered themselves not creative.



Using regression coefficient to analyze the data (Table 1) it was discovered that only 5 factors of design studio culture are perceived by students of architecture to affect creativity amongst them, and they are Tolerance, Encouragement, Tenacity, Constraint, and Value.

Table 1: Components that describes the design studio culture of architecture students and creativity

	Standardized Co		df	F	Sig.
	Beta	Bootstrap (1000) Estimate of Std. Error			
Myths associated with the design studio	.148	.168	2	.773	.463
Tolerance	-.231	.081	2	8.093	.000
Motivation	-.102	.158	3	.414	.743
Sacrifice	-.115	.123	2	.874	.419
Encouragement	.197	.112	3	3.059	.029
Tenacity	.194	.113	6	2.972	.008
Challenge	.037	.129	2	.081	.922
Environment of the design studio	.131	.129	3	1.027	.382
Constraint	-.241	.116	2	4.295	.015
Value	-.229	.120	3	3.648	.013

The **factor of tolerance** has a negative effect on the creativity of students as students who believe that the design studio environment is governed with a forgiving culture, along with students who integrate different tools to initiate creativity e.g. brainstorming, group work etc. and those who believe design studio environment is governed with a forgiving culture, patient with failure and truthful are more likely to have a lower level of creativity than other students who do not.

The **factor of encouragement** has a positive effect on the creativity of students as having complete freedom for innovation and outsourcing of ideas and also being praised by peers and tutors concerning a design can lead to high level creativity.

The **factor of tenacity** has a positive effect on the creativity so basically students who in the course of the design have done things intuitively than according to rules and knowledge and have also tried to include in the design aspects and functions that they have not been explicitly asked to include in the design leads to a higher level of creativity in the design.

The **factor of constraint** has a negative effect on the creativity of the students. A student is going to be less creative if they do not have the power to make changes in the design studio, if they believe it is impossible to learn about complex social and cultural situations, as required in the design, and if they believe that the tutor's ideas have the greatest weight in the design process.

The **factor of value** has a negative effect on the creative nature of the student. A student is going to be less creative if they perceive the design studio course as more important than other courses, and if the initial design ideas have not been implemented in the final design.

4. Conclusion

The project embarked on, centered on studio culture and its effects creativity of architecture students. From the review of literature, 5 factors were found to be the components which represent the behaviors, habits and patterns of the design studio culture and they are: Social interaction, Environment of the studio, Critique, Myths associated with the design studio and Motivation/ Encouragement factors.

In addition to the factors of studio culture revealed by the review of literature, the research was able to uncover seven more factors of design studio culture which are: Tolerance, Sacrifice, Going the extra mile, Challenge, Constraint and Value.

The results and findings of this study have an implication on schools of architecture as a whole, because design studio culture has been proven to in fact have both positive and negative effects on the creativity of architecture student. It was observed that while some of these factors helped to stimulate creativity such as encouragement, and tenacity, the others lessened their creative abilities.

Awareness of design studio culture should be promoted. The policies of the architecture department should implement specific values to promote and provide the ideas critical towards a successful design studio culture. Because even though studio culture is not a part of the architecture curriculum, it transcends into every school of architecture and affects the creativity of the students, as shown in the study.

Students should be encouraged to harness inherent creativity potentials. The students should be given complete freedom to explore different design ideas and innovations and they should be commended when they make efforts in their designs and be encouraged to do better as this goes a long way in the output of their design endeavors.

Tenacity as a factor enhances student's creativity. Students should be urged to be intuitive in their design approach. As exploring and implementing design aspects omitted in the design briefs create a pedestal for deeper creative exploits which ultimately lead to better design outcomes.

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