# Creativity among Undergraduate Architecture Students of University of Uyo, Uyo, Nigeria, 2009 - 2012

*By*

**[1]Ebong Samuel O.**

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**[2]Atamewan Eugenes**

[1]Department of Architecture,
University of Uyo, Uyo.
E-mail: sebong@rocketmail.com

[2]Department of Architecture,
Cross River State University of Technology, Calabar.
E-mail: geneatas@yahoo.com.

*Abstract*: Architectural design is a process that relies on creativity to arrive at acceptable solutions in the bid to alter, shape and create or re-create the built environment for satisfactory human use. To achieve this, design skills have to be developed either through apprenticeship or formal education. The main objective of this study is to examine how architectural design creativity is assessed by educators in the University of Uyo, Nigeria. Poor design output by majority of students has become a cause for concern. The study population consists of all the twelve lecturers involved in design studio mentoring. Qualitative research methodology was used involving interviews and examination of official documents relating to architectural design. The findings of the study reveal that three major criteria are used for the assessment as follows; Investigativeness/ understanding of the project, application of lessons from existing projects, and the ability to proffer novel solutions. Based on these, a standard assessment format was developed with marks or points assigned to each unit for ease of appraisal. The study also reveals that five of the studio mentors use checklist method and brain storming sessions to boast creativity. The assessment of creativity is subjective and is based on the assessors' interpretation of the design. The paper concludes by advocating that creativity concepts of decision making, problem solving, originality, imaginativeness, ingenuity, adaptation and resourcefulness should be applied to design studio mentoring and assessment.

*Key Words*: Design, Creativity and Assessment.

## Introduction

Architecture is considered as both art and science which utilises the techniques of designing to alter, shape and create or recreate the built environment for human use. The main purpose of architecture is to define and modify the physical environment so that human activities can be carried out

conveniently, comfortably, and safely with full acknowledgement and regard to human dignity. Abdulkarim (2005) identifies three attributes of architecture as follows;

(a). Shelter: This is the building envelope that provides accommodation and physical protection against weather, climate and threat.

(b). Arrangement of space in the most efficient way for various activities to take place in the building envelope.

(c). Expression which involves the satisfaction of aesthetics, diverse tastes, socio-cultural and economic aspirations.

According to the author, the function of architecture is to "create a proper environment for human habitation according to their lifestyles and nature as a group and as individuals" (p.67). Agbo, Ogbonna and Okwoli (2004) opine that architectural design creates order in the flow of space and satisfies aesthetic requirements in human settlements. According to the authors, design is a problem solving activity which produces different answers, each of which may be adjudged right or wrong depending on the assessor. Because of the nature of architecture, architects must, therefore, be capable of thinking, feeling, evaluating and arriving at critical design decisions (Broadbent, 1975).

Design, therefore, is a process that exhibits different levels of creativity in order to arrive at an acceptable solution. In order to be considered creative a designer should have the ability to generate ideas that are both innovative and functional. Broadbent (1975) insists that creativeness in design must fulfill three essential conditions;

(a). An idea that is novel or statistically infrequent.

(b). Adaptiveness; that is, solve a problem, fit a situation or accomplish a goal.

(c). Sustainability of the original insight, evaluation and elaboration of it and developing it to the full.

In order to achieve the above, design skills should be developed either through apprentiship or formal education. The formal training of architects is carried out in Nigerian Universities and Polytechnics. The universities run a two- tier programme leading to Bachelor of Science and Master of Science or Bachelor of Technology and Master of Technology from Universities of Technology. The Polytechnics award the National Diploma and Higher National Diploma. This paper examines how creativity is assessed or measured among the undergraduate architecture students of University of Uyo, Nigeria.

## 2.0 Architectural Design Creativity

Abdulkarim (2005) posits that a scientifically acknowledged theory or concept exists where the solution arrived for one phenomenon may be applied to other phenomena. The author, however, argues that architecture, unless it is dogmatically followed, accepts more than one solution even when they may contradict each other. This contradiction is assumed to lie in the fact that architectural products are arrived at through the process of science while its meaning and interpretation is in the realm of arts, sociology and psychology. Thus architectural creativity must balance both the science and art aspects of architecture.

All architects share in common certain things that they must do. This has to do with the traditional work stages of commissioning, programming, design development, construction and post construction. Architects must receive the brief and instructions from the client as to the particulars of the project; they must carry out site investigation, appraisal and analysis; they must decide how the structure will be in order for it to function efficiently, safely and comfortably with a good aesthetic appeal; and they must make assessment of the resources available and the best way to utilise

it to achieve project goals and objectives. All these imply that the architect must be capable of thinking, analyzing and evaluating to arrive at critical and acceptable design decisions.

Heery (1975:8) sees architectural design as "creative minds solving the given problems of function and environment." Oakley (1970) in Agbo, Ogbonna and Okwoli (2004) defines architectural design as a process of the invention of physical things which show new physical order, organisation and form in relation to function. Brandon and Powel (1984) argue that architectural design is an adaptive mechanism that enables man cope with his environment and the difficulties of change. Asimow (1962) defines it as a decision making process in the face of uncertainty.

These definitions portray the different attributes of creativity. These attributes are problem solving, invention, process, adaptation, simulation, and decision making. Thus architectural design creativity can be defined as a decision making process aimed at solving architectural and environmental problem using inventiveness, adaptation, innovativeness and simulation in order to arrive at new or improved products. These concepts by extension and interpretation will

embody other concepts such as originality, imaginativeness, ingenuity and resourcefulness.

## 3.0 Assessment of Architectural Design Creativity

There are several design concepts that should be applied in different combinations in order to solve an architectural design problem. These include, but not limited to, the following; functionality, simplicity, complexity, flexibility, graphic presentation, cost effectiveness and form (harmony, balance, emphasis etc). In assessing creativity the methods, extent and applicability of these concepts should be taken into consideration. In order to establish consistency in assessment, Gero (2010) opines that the assessment of architectural design creativity must be done against a set of criteria. Linstrom (2007) identifies two sets of criteria, namely; the design process and the finished product. The design process consists of four factors, namely; investigative work, inventiveness of new solution, emulation models from case studies and self assessment. The final product has the following three factors, namely; visibility of intention, visual quality and craftsmanship.

Gero (2010) observes that all cases of assessment of architectural design creativity must involve assessors and that "creativity is an interpretation of a design by an assessor…different assessors would assess the creativity of a design differently" (p.16). The author also identifies novelty, utility and surprise as the most common measures related to the final product. These are qualitative measures. To test the validity and reliability of the assessment, a mean score of all the assessors' points or marks are calculated for each student. The studio co-ordinator then ranks the final student's grade as an A, B, C, D, E or F to show the student's creative category interpreted as excellent, good, fair, poor, and very poor or failure. It is expected that the design studio co-ordinator in conjunction with other studio mentors should develop and agree on a set of criteria to assess design creativity from site and special analysis, preliminary sketches, scaled 2D and 3D drawings to models.

## 4.0  Objectives of the Study

The following are the objectives of the study;

(a). To identify the criteria used in assessing creativity among undergraduate architectural students of university of Uyo, Nigeria.

(b). To examine how creativity is assessed by educators of undergraduate architecture students of university of Uyo, Nigeria.

## 5.0  Study Population

The study population consists of all the design studio co-ordinators and mentors from 200 level to 400 level. The population size of 12 lecturers did not require sampling. All were used in the study.

## 6.0 Research Methodology

Qualitative research methodology was adopted in the study. This involved in-depth interviews with the Head of Department, the design studio co-ordinators and mentors and the examination of documents relating to architectural design.

## 7.0  Discussion of Findings of the Study

The study revealed that the design studio starts at 200 level. Each level has a studio co-ordinator and three mentors. Six hours per week are allocated for formal design studio activities. Students are, however, encouraged to put in more hours in their design studio work. The study also revealed that at the beginning of each semester students are grouped and given design topics, design briefs, instructions and expectations on the design studio during the semester, time lines and methods of assessment. Two assessments are carried out during the semester by the jury system. These are the preliminary and final jury assessments.

The interviews with the Head of Department and the studio coordinators reveal three main criteria for assessment as follows;

(a).     Investigativeness/ understanding of the project. This is reflected in the literature study/ review, data collection and analysis of site and space.

(b). Studies, critical analysis and application of lessons from existing projects through case studies.

(c). Ability to proffer novel solutions: the step-by-step process from programming through analysis to final design.

Sketch pads that are reviewed weekly to monitor progress and design thinking/ process has been introduced at the 200 Level. Based on the above criteria, a standard format was developed and used for the assessment at all levels with points or marks allocated to each unit of assessment as follows; Data Analysis – 15 marks, Concept, form and functional analysis – 10 marks, Design, environmental control and aesthetics – 20 marks, Construction, structure and details – 15 marks, Graphics – 10 marks, Perspective – 10 marks, Model – 10 marks, Oral presentation and appearance – 10 marks, making a total of 100 marks or points.

The interviews also reveal that the method adopted to give validity and credibility to the assessment process is to have a minimum of

three jurors carry out the assessment and an average mark taken for each student from the scores of the jurors. This becomes the student's final score. The grade of the student is assumed to the student's level of creativity on that design studio project. Documents available show the grading method as follows;

  0 – 39 Marks  - F -  Failure
  40 - 44 Marks  - E -  Very weak
  45 - 49 Marks  - D -   Weak
  50 - 59 Marks  - C -    Fair
  60 - 69 marks  - B -   Good
  70 -100 Marks  - A -  Excellent.

The study also revealed that some studio mentors employ brainstorming and interactive sessions to boast students' creativity. During these sessions each student's work is discussed, analysed, criticised and alternative approaches examined. The application of the checklist method is also encouraged to aid creativity.

The results of the examination of 400-level (final year) students for 2008/2009, 2009/2010 and 2011/2012 assessed by external examiners are shown below. There were no final year students during 2010/2011 academic year.

| GRADE | 2008/2009 | 2009/2010 | 2011/2012 |
|-------|-----------|-----------|-----------|
| A | 1 | 2 | 3 |
| B | 6 | 3 | 7 |
| C | 24 | 9 | 8 |
| D | 17 | 9 | 1 |
| E | 18 | 7 | 0 |
| F | 5 | 6 | 0 |
| TOTAL | 71 | 36 | 19 |

There are two external assessors (examiners) for the final examination each chosen from the academic and practice. The external assessors report for 2009/2010 points out that the students' performances are generally lower than the previous years and needs improvement. This according to the report indicates a low level contact between the students and their lecturers and students' failure to work in the studio. The report also indicates that results of research studies are not carried into the design. Furthermore, site analysis needs to be integrated in the design and graphic standards need to be improved upon.

The results above show a marked improvement in students' performance in the 2011/2012 academic year. The 400-level studio coordinator attributes the improvement to an increase in the number of contacts between students and design studio mentors due to class size and the adoption of

interactive and brain storming methods during design studio periods.

One of the major concerns raised by this study is the issue of subjectivity of assessment. Many of the lecturers have different design backgrounds depending on the university they attended. This tends to bring conflict in design teaching, mentoring and assessment methods. The criteria for assessment are subject to diverse interpretations and applications. Further study is required on how to achieve objectivity in design creativity assessment.

## 8.0 Conclusion

According to Gero (2010) design has the potential to improve economic and human condition and make lives better. To achieve this, it is imperative that creativity must play a vital role in architectural design studentship and practice. The creativity concepts of decision making, problem solving, originality, imaginativeness, ingenuity, adaptation and resourcefulness should be applied to design studio mentoring and assessment. Such an approach will not only improve students' design output but also boast students' confidence in subsequent design projects.

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