

THE IMPACT OF ARCHITECTURAL STUDIO CONDITIONS ON STUDENTS' CREATIVITY

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Abstract

Students' creativity varies from one person to another. One of the contributing factors is the studio conditions. Over the years it has been observed that the creativity of architecture students has been on a decline. This study was carried out to investigate the conditions of the architectural studio and how it affects student's creativity. One hundred and eighty questionnaires were distributed and one hundred and fifty three retrieved among architecture students who make use of the studios to get their responses on the impact of the physical environment around them. This was investigated through careful analysis of both internal and external factors such as daylight, ventilation colour and seat arrangement. It was observed that students' creativity was subjective to individuals as these physical features affected them differently. The outcome of the research would help in ascertaining the relationships between the indoor and outdoor physical conditions of the studio and the students' creativity in order to provide a well suitable learning environment for the architectural students.

Keywords: Architectural Education, Creativity, Design studio, Environment, Performance.

1 INTRODUCTION

"The quality of every human habitat is resolved in architecture, therefore, the goal of architectural education is solely to contribute to the attainment of a humane and responsive environment" [1]. This however becomes difficult when the making of architecture professionals is faulty. Architecture is in dire need of professionals who are sensitive to the human needs even as changes occur and professionals who have the knowledge and skills to proffering solutions to the challenges of the built environment. Vitruvius stated of an architect that *"let him be educated, skillful with the pencil, instructed in geometry, Know much history, have followed the philosophers with attention, understand music, have some knowledge of medicine, know the opinions of the jurists and be acquainted with astronomy and the theory of heaven"*. This is justifying the need for a highly effective learning environment (design studio) for a student architect.

Architectural design studio is a space set aside for architectural students for the acquisition of knowledge, skills, stamina and a character in order to contribute to the attainment of a humane and responsive built up environment as well as improve and perpetuate the society. "The design studio is the center of attraction and nucleus of architecture since all learning's in the programme are geared towards imparting into students skills they require in proffering solutions to problems of the built environment" [2]. It is therefore, the most important space for architecture education.

2 FEATURES OF ARCHITECTURAL DESIGN STUDIO

"Studio environment experience is the core of architectural study or education because it is that platform where the rational mind of the architecture students' is put to test by critical thinking, skill and knowledge which are all implemented into producing a better design", [3].

2.1 Studio space

Studio space is regarded as a workstation allocated to each architectural student in a design studio to enhance productivity, flexibility and a greater sense of collaboration amongst themselves. Mostly, students' come together to receive lectures and then disperse to their different studio space to draw. It is much more convenient that way. The performance, in terms of creativity and productivity, of an architecture student is influenced by the quality of his/ her studio space.

2.2 Physical features

“An ideal studio space consists of rows of drawing tables for the purpose of drafting, stools to sit on while drawing and drawers for students to store their drawings and other personal items”, [3]. The physical features of the architectural design studio can be divided into vertical and horizontal features. The vertical features include walls, wall paper, windows, window blind, window hood, doors, shelves, etc. The horizontal features include floor, floor finish, skirting, rows of table and stools, ceiling, ceiling finish, light bulbs, fans or air- conditioners, etc.

2.3 Studio culture

Studio culture is therefore the way of life of an architecture student in the studio learning environment. It is a platform to know people and have friends you can keep for life. Studio- culture is a culture that allows students' to call the design studio their second home. “Studio- culture influences students' education as they work on the various project or assignments given to them in the studio. Often times, “The behaviour demonstrated in this culture system becomes an offshoot of the actual intended outcome which in the long run influences the mentality of students and promote certain behaviours and enhances their performances “,[4]. Students' listening culture, graphical culture and personality culture are critically developed under this platform. It also implies that each student has a desk and work individually as well as together as a group to ensure that each student is performing efficiently.

2.4 Emotions

In architectural design studio, different emotions exist among the user's which is bound to occurs. As our faces are different, so is our level of understanding differs. They could occur in the combination of happiness and sadness, fulfilment and frustration, smiles and frowns, satisfaction and dissatisfaction, hunger and full, lack and plenty, modesty and naughtiness, moments to play, moments to cry, etc., all depending on the nature of individuals and the spur of the moment [5]. Furthermore, [6], describes the studio atmosphere in the Zaria school “as being hilarious even as music filled the hall and all manner of jokes flung across the atmosphere, from the lowest part to the highest part of the hall. The author also stated that amidst the fun, design work still continued. It had to be done that way to reduce tension and to prepare students' against the worst that could come in the course of studies”

2.5 Critique

The act of Critiquing is also one very important feature in an architectural design studio. It is opened to both fellow students' and lecturers'. However, [6] explained that design excellence was encouraged because the studio environment exposed the students to smart peer criticism and healthy competition. According to that study, the best critics of architectural students were the one's experienced in the studio among their peers. The students are always in the best position to predict through one's failures or breakthroughs. Architectural critique is a strong aspect of the professional preparation; the main aim is to inspire one, on how better to have solved a building problem and not to demoralize the student. An open atmosphere of positive criticism helps to strengthen students' confidence in their design. For this to be done effectively, it is important to have a conducive studio environment.

3 CREATIVITY IN STUDENTS

Creativity is the ability to perceive the world in new ways in order to discover hidden patterns and to make connections between seemingly unrelated phenomena in the view of generating solutions. Creative and new designs do not have to be hard to convey but should be one that provides design solution in an unusual way birthed from critical thinking. The processes work hand in hand. Having ideas but not acting on them only makes one imaginative but not creative. Creativity amongst students is a skill that can be developed and a process that can be managed.

3.1 Factors that facilitate creativity in students

According to a statement by [7] “a person's ability to generate innovative ideas is not merely a function of the mind, but also a function of five key behaviours that optimize your brain for discovery”. These behaviours are;

- 1 Associating: drawing connections between questions, problems, or ideas from unrelated fields.

- 2 Questioning: posing queries that challenge common wisdom
- 3 Observing: scrutinizing the behaviour of customers, suppliers, and competitors to identify new ways of doing things
- 4 Networking: meeting people with different ideas and perspectives
- 5 Experimenting: constructing interactive experiences and provoking unorthodox responses to see what insights emerge.

3.2 Effects of spatial design elements on the creativity of students

Spatial design elements work more efficiently in an enclosed space. "The studio for architecture students' and architects is basic structural unit for learning and working while studying architecture, the nature of the studio is affected by the school design and the objective adopted by the school level but to consider the fundamental aspects of the environment that proves to be vital in this area of study, research that have been carried out on this spatial design influence on the performance of students all tend to focus on the interior design elements", [3]. It is therefore, important that we state how the concerned elements affect the creativity of students' within the studio environment.

3.2.1 Openings

The purpose of openings is to connect the exterior environment to the interior spaces and for ventilation. They serve as tools in the maintenance of the air quality of the spaces in a building. Absence of sufficient openings in buildings can lead to unconsciousness or suffocation to its occupant's. "The whole purpose of ventilation in a space is to get rid of contaminants such as perfumes, deodorants, cleaning agents, building materials and so on that can build up in the interior of the room. A design studio environment must therefore be properly ventilated with lots of openings to help in the effective circulation of air.

3.2.2 Colour

Classroom colours that are more appropriate for use in architectural studios are light yellow-orange, beige, pale or light green, or blue-green. However, the choice of colors used in the spaces should be deliberate and in harmony with the age group of the main users of such space. It also extends to the creativity and performance of the student. The colour of an interior space affects the creativity of students in different ways.

3.2.3 Spatial Adequacy; Furniture type and arrangement

Priority should be given to spatial arrangement in an architectural studio because it needs to be adequate. Previous study, [8] stated that there is positive effects on students' performance and social interaction, if spatial arrangements given to students is design in such that they have enough space to move around and work on their activities. Spatial adequacy in [9] believed that the seating arrangements should be treated as priority when thinking of a work space with maximum performance. However [10] stated that there was no one seating arrangement that was better than the other but that the main factor was in choosing a seating arrangement that is based on the spatial need. Results of both [11] and [10] conform to what the classroom management books claim that when seated facing each other, students get a better chance to interact and adopt more performances in the task set before them.

4 METHODOLOGY

During the course of the research, questionnaires were administered to only students of the department of architecture spreading across the six various levels and walkthrough observations were made. The questionnaires were administered in order to collect relevant data and to come up with a valid conclusion. The population for this study are the students in all the six various levels, Undergraduate and Master Design Studio. The questionnaires were distributed to a model size of 55 percent of the total number of students at each level which resulted to 180 students' in total, out of which 153 were retrieved. The walkthrough were carried out to provide proper images of the studios in picture forms which were taken from the field work. The data were all collected from architectural design studios within the department of architecture Covenant University, Ota, Nigeria.

5 RESULT

- 1 19.48% of the respondents are in 100 level, 11.69% are in 200 level, 22.73% are in 300 level, 26.62% are in 400 level, 11.69% are in MSc 1 and 7.79% are in MSc 2. Therefore, it can be deduced that more of the 400 level students in the department participated in the survey.
- 2 19% of the respondents describes that the condition of the general spaces in the design studio space is very inadequate, 11.69% describes that the condition is inadequate, 37.66% describes that it is fair, 42.21% describes that it is adequate and 3.25% describes that it is very adequate. Therefore, it can be deduced that the condition of the general spaces in the design studio space is adequate.

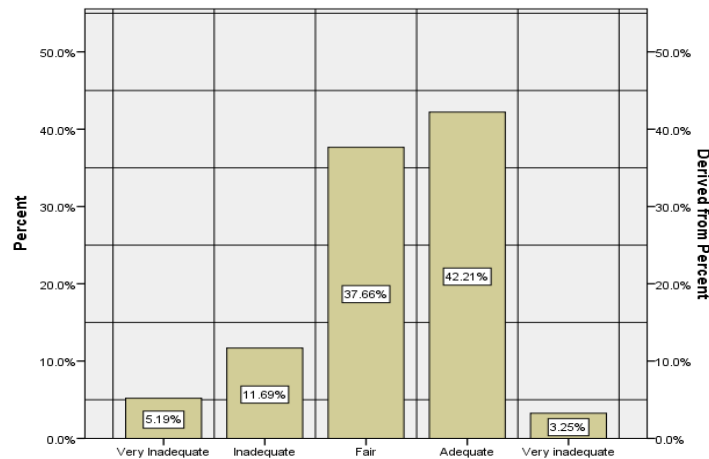


Figure 1: General spaces

- 3 3.90% of the respondent described that the condition of the individual spaces in the design studio is very inadequate, 22.73% said that the condition is inadequate, 38.31% said that the condition is fair whereas 31.82% said that the condition is adequate and 3.25% said that the condition is very adequate. Therefore, it can be concluded that the condition of the individual spaces in the design studio is fair.

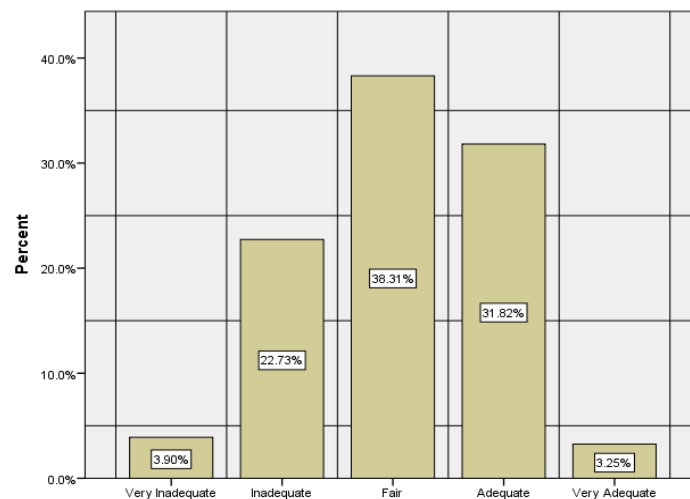


Figure 2: Individual spaces in studio

- 4 27.1% of the respondents admitted that the provision of open spaces for recreation is very inadequate, 45.8% said that it is inadequate, 16.1% said that it is fair, 6.5% said that it is adequate and 0.6% said that it is very adequate. Therefore, it can be concluded that the provision of open spaces for recreation is inadequate.

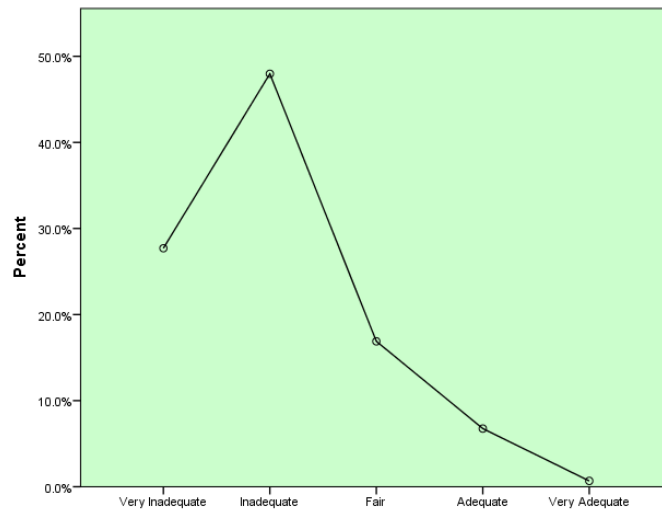


Figure 3: Provision of open spaces for recreation

- 5 The aesthetics finishes on the studio wall, floor and ceiling is fairly inadequate because 20.6% of the respondents' said that it is very inadequate, 32.9% said that it is inadequate, 32.9% said that it is fair, 9.0% said that it is adequate and 1.3% said that it is very inadequate.

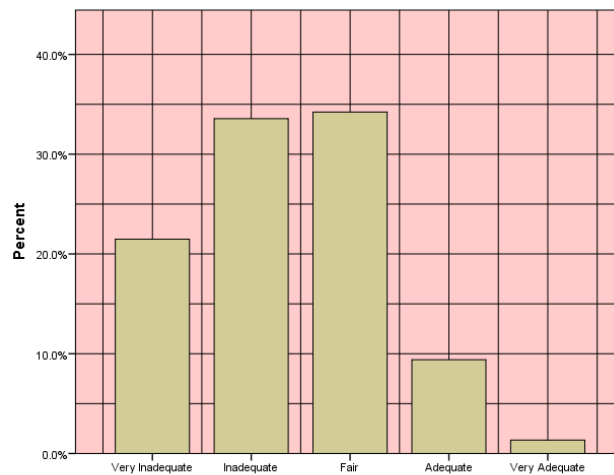


Figure 4: Aesthetic finishes on studio wall, floor and ceiling

- 6 6.67% of the respondents admitted that the furniture arrangement in their design studio is very inadequate, 13.33% said that the arrangement is inadequate, 46.67% said that it is fair, 32% said that it is adequate and 1.33% said that it is very adequate. Therefore, it can be gotten that the arrangement of furniture in the design studio is fair.

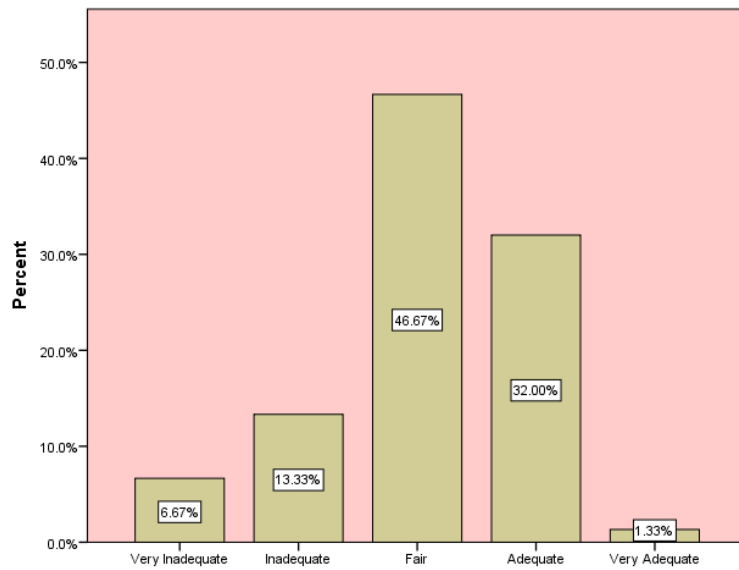


Figure 5: Furniture arrangement in studio

- 7 The integration of natural lighting into the design studio is adequate because 1.31% of the respondent said that the integration of natural lighting into the design studio is very inadequate, 4.58% said that it is inadequate, 26.80% said that it is fair, 52.94% said that it is adequate and 14.38% said that it is very adequate.

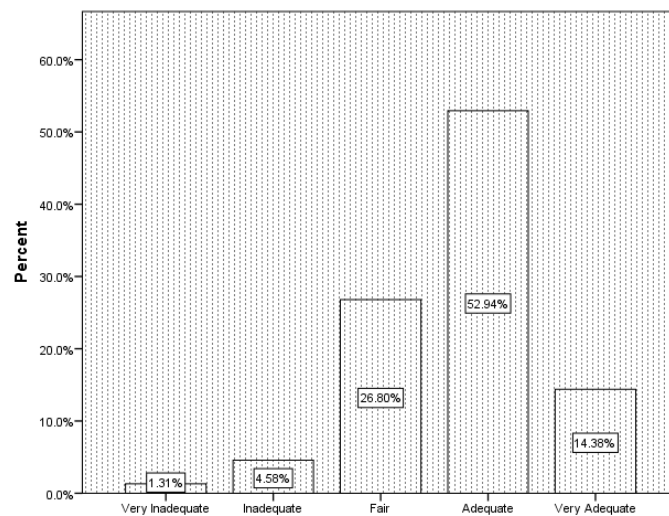


Figure 6: Integration of natural lighting into design studio

- 8 3.2% of the respondent admitted that the circulation of fresh air in personal working space is very inadequate, 6.5% said that it is inadequate, 31% said that it is fair, 47.1% said that it is adequate and 11.6% said that it is very adequate. Therefore, it can be concluded that the circulation of fresh air in personal working space of the design studio is adequate.

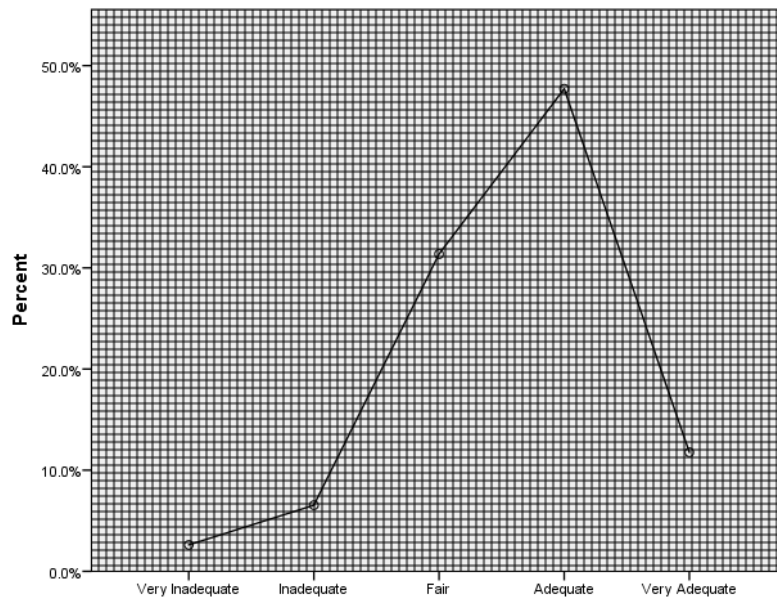


Figure 7: Circulation of fresh air in personal working space

- 9 From the pie chart below, 88.24% of students admitted that the source of light in their design studio affects their creativity positively while the remaining 11.76% said that the source of light in their design studio affects their creativity negatively.

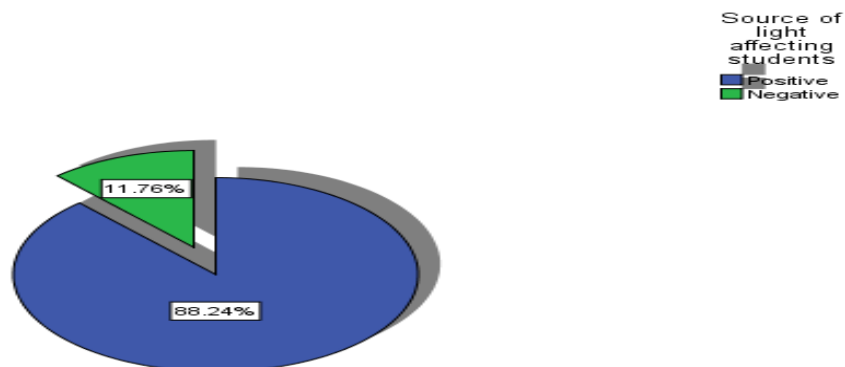


Figure 8: Pie chart showing how the source of light in design studio affects students' creativity

- 10 From the bar chart below, it is deduced that 51.37% of the respondent have their creativity affected by the colour on their design studio wall while the remaining 48.63% do not have their creativity affected by the colour on their studio wall.

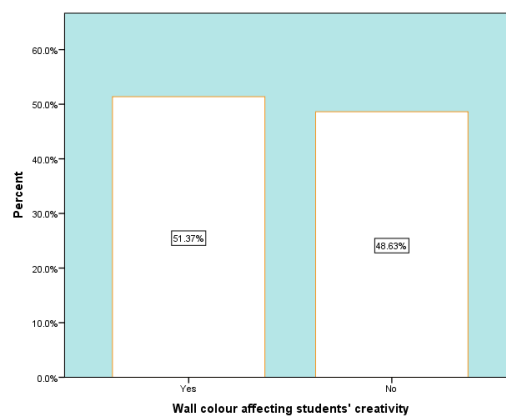


Figure 9: Wall colour affecting students' creativity

- 11 From the pie chart below, it can be gotten that 23.81% of the respondent prefer cream colour on their design studio wall, 23.81% prefer blue colour on their design studio wall, 3.81% prefer green colour on their design studio wall, 7.62% prefer ash colour on their design studio wall, 1.9% prefer a touch of cream and ash and 39.05% prefer a wide range of other colours and design patterns on the walls of their design studio.

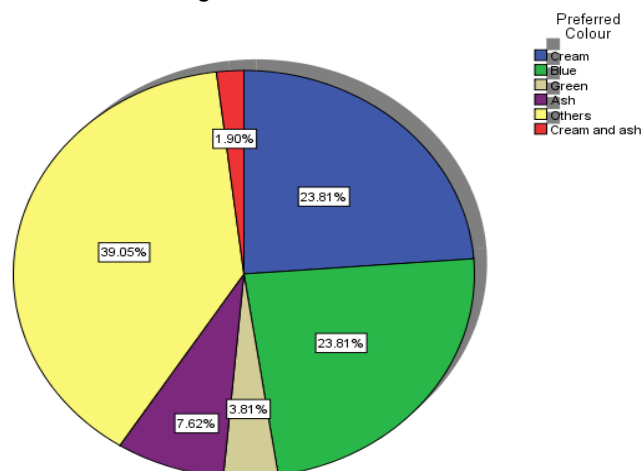


Figure 10: Pie chart showing preferred colours as wall paints for design studio.

- 12 14.02% of the respondent admitted that GOD is their source of inspiration while working in design studio, 13.08% said that the source of their inspiration while working in design studio are physical things (things they can fill their eyes with in the design studio), such as art work, pictures, paintings, quotes, colours, decorations, people etc), 19.63% said that their source of inspiration is nature, 14.02% said that music is the source of their inspiration in design studio and 39.25% said that they get inspired in design studio when they have GOD in them, fill their eyes with physical things around them, fill their eyes with the interaction of nature and feed their Spirit man with music



Figure 11: Pie chart showing the source of inspiration of the respondents in their design studio

6 RECOMMENDATIONS

The following are the general recommendations that could be considered, all of which were deduced in the course of the study. For improvement in students' creativity, there should be interaction between the users of a space and the space itself. The condition of architectural design studio or the design work stations should focus on the following;

- 1 Type of furniture: From the research carried out, it was deduced that the furniture type used in the postgraduate design studio is more comfortable than that used in the undergraduate design studio. Therefore, the researcher will like to recommend more comfortable furniture to be used in the undergraduate design studio.
- 2 Furniture arrangement: From the research carried out, it was deduced that collaboration encourage creativity amongst students'. Furniture arrangement, to a large extent influence collaboration. The furniture arrangement used in the undergraduate design studio is linear

arrangement. Linear arrangement does not encourage much of collaboration amongst students'. The postgraduate design studio has pattern of work spaces that encourage collaboration. Hence, the pattern of furniture arrangement in the postgraduate design studio can be adopted in the undergraduate design studio to encourage collaboration amongst students. From the questionnaires distributed, it was deduced that collaboration encourages creativity amongst students'.

- 3 Easy accessibility: Accessibility is one very important factor that helps disperse knowledge. Without knowledge, creativity is not fully explored. Hence, in architecture department, the design studios should be designed in such a way that accessibility is encouraged. For example, between studio 300 and studio 400, there should not be a permanent barrier between them. The barrier should be such that during lectures, it does not cause any form of barrier as it can be folded up while during design, it can be folded down in order for easy access to each other's work for inspiration to abound. Also, the access from one design studio to lecturer's office should be easy. This can be achieved by centralizing lecturer's office in the design studios for all levels.
- 4 Colour on wall: From the questionnaire distribution, it was deduced that majority of the respondents are influence positively by brighter colours as it takes away dullness from the atmosphere. It was also gotten that in the postgraduate design studio, the bright colours already in use helps students' to maintain their focus and think outside the box. Therefore, the researcher would like to recommend that the use of bright colours on the walls of design studios should be introduced in the undergraduate design studios and maintained in the postgraduate design studios.
- 5 Ceiling and floor finish: From the questionnaires distributed, hands full of respondent have their creativity spurred with the effect of what they see. Hence, the researcher would like to recommend that the ceiling finish used in an architectural design studio should be more of skylight and should not be covered as it not only effectively brings in day lighting, it also helps student connect with nature and think outside the box. The researcher would also like to recommend that the pattern of floor finish should not only be sustainable, but also inspiring and a work of art. It should trigger architecture students to bring out their very best from within.
- 6 The use of paintings, portraits, inspirational quotes and art works: This would contribute a lot in the quickening of creativity in architecture students. As architects, we are trained to be visual, so also would what we see influence our quest for perfection. Music also does a lot of good to students in their thinking ability as deduced from the questionnaires distributed. The researcher would like to recommend that every design studio be consciously beautified with paintings, portraits, sculptors, art works, inspirational quotes and music player to help to preach to our creative inner self.
- 7 Open/ close area for recreation and critical thinking: As our faces are different, so also is our personality different. From the questionnaire distributed, it was observed that student like to let go of tension for help them give their best in projects delegated to them. Therefore, the researcher would like to recommend that in the design of architectural design studio, open/ close area should be considered for help bring out the creativity in architecture students.

7 CONCLUSION

Conclusively, the spatial and interior design elements that give rise to the architectural design studio in the department of Architecture, Covenant University affects the students' creativity in so many angles. However, it strongly relies on the personality of the students', even as to some, the condition of their design studio is inadequate, while to another set of students', it is very adequate. Furthermore, it is important to note that some areas of the design studio need improvements. Areas like the use of colour on the walls, ceiling and floor finish, the furniture type and its arrangement in the undergraduate levels and the long and inconvenient distance between one studio and the other. This study concludes in order to provide a well suitable learning environment for the architectural students there should be a strong relationship between the indoor and outdoor physical conditions of the studio for effective students' creativity.

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