AN EVALUATION OF ONLINE ARCHITECTURAL DESIGN STUDIOS: STRENGHTS AND WEAKNESSES OF ARCHITECTURAL EDUCATION IN BANGLADESH DURING COVID 19

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ABSTRACT

Bangladesh, like many more countries around the world came to a halt with the start of COVID-19 pandemic. In order to manage the collapsed education system, different institutions started trying various alternative virtual mediums to reach out scattered students country wide. These included the use of television telecast, radio and communicative platforms like Zoom, Google meet, Google classroom, Facebook and many more. Unlike most subjects, Architectural teaching requires to adapt to a studio-based teaching approach with 'one to one interaction' and plenty of 'on paper drawing exercises' involving the students and their instructor. The literature review conducted within the scope of this research could not find many studies trying to identify the challenges faced by various architecture schools across the world, although there are studies on education in general during pandemic.

The Department of Architecture at BRAC University is one of the leading architecture schools in Bangladesh. The department has developed a new online teaching learning platform named BuX to continue with its online academic program during Covid 19 pandemic. This paper reports the preliminary findings of a larger research conducted at the department. It aims to evaluate the newly adopted virtual teaching platform for its acceptability among the stakeholder; i.e., the students. The objective of the study was also to assess the adoption rate of virtual classes and to determine the various benefits, challenges, and reasons for non - adoption by the stakeholders. The research takes a mixed method approach supported by extensive literature review and online survey using Google form. Approximately 25% students of the department participated in the survey.

This study can be extended further in collaboration with other architecture schools both in Bangladesh and abroad. This may help the university policymakers and the academics to evaluate the pedagogical strategies for architectural education implemented during the pandemic. Furthermore, it will also help to identify the scopes for developing an appropriate online teaching and learning method for the 'new normal' situations.

Keywords: Architectural Education, Architectural Pedagogy, Bangladesh, BRAC University, Virtual Class.

INTRODUCTION

The sudden emergence of the coronavirus (COVID-19) in Wuhan city, China, and its spread across the whole world happened a very fast pace. As an immediate consequence, the educational system at all levels, came to a halt. When World Health Organization declared the COVID-19 outbreak as a pandemic on March 11, 2020, Bangladesh was also in complete closure along with many other countries of the world to battle this global threat. All academic institutions were shut down in Bangladesh from March 2020 to prevent the spreading of the virus. This unforeseen closure of the academic institutions affected the student population to a great extent, which also involved people who are related to the education sector. In order to cope up with the situation, many educational institutions started to provide online education to minimize the learning gap in countries going through lock down. Various online education platforms emerged in Bangladesh, like many other countries, finding an alternative way to impart knowledge within the Pandemic era. Platforms like Facebook, Zoom, Google classroom, Google meet etc started to gain popularity as a medium through which academiciansstarted to communicate with the students (Rahman, 2020) (Figure 1).

Online learning/teaching is a big challenge for a small country with a large population, like Bangladesh. In most cases both the learners as well as the teachers are facing great challenges to deliver classes using the online platforms. Teachers as well as the students had various stages of introduction to digital fluency and many of them never had the virtual teaching and learning experience. Lack of devices and resource, no prior training or platform, syllabus adjustability, network issues were some of the few challenges to be addressed. Online learning or distance learning might be new for many academic institutions, but there were studies about distance learning which revealed many benefits and limitations (Al Husban, 2020; Seage and Turegun, 2020). Recently, research conducted in India on the positive and negative aspects of virtual education (Arora and Srinivasan, 2020), showed the conditions of students experiencing online education.

Architecture education, which requires mostly hands on learning, is a difficult field of education to conduct virtually. The fundamental course in architectural education is the Design Studio which requires field visits and peer learning as well. As a result, the most important issue was to redesign the syllabus to adapt with the changing virtual learning scenario. The adaptation process the architectural education to the new virtual studio system led to improvisation of various coping strategies for numerous constraints and difficulties. This became even more difficult because of the deteriorating pandemic conditions which affected many families directly or in most cases passively.

The goal of this research is to study the ideas and evaluate the prospects and problems faced by the students of the architecture department of BRAC University during their design studio courses; which is being conducted by distance learning methods through the newly introduced BuX platform. The survey includes a set of questions aimed for the architecture students, to investigate:
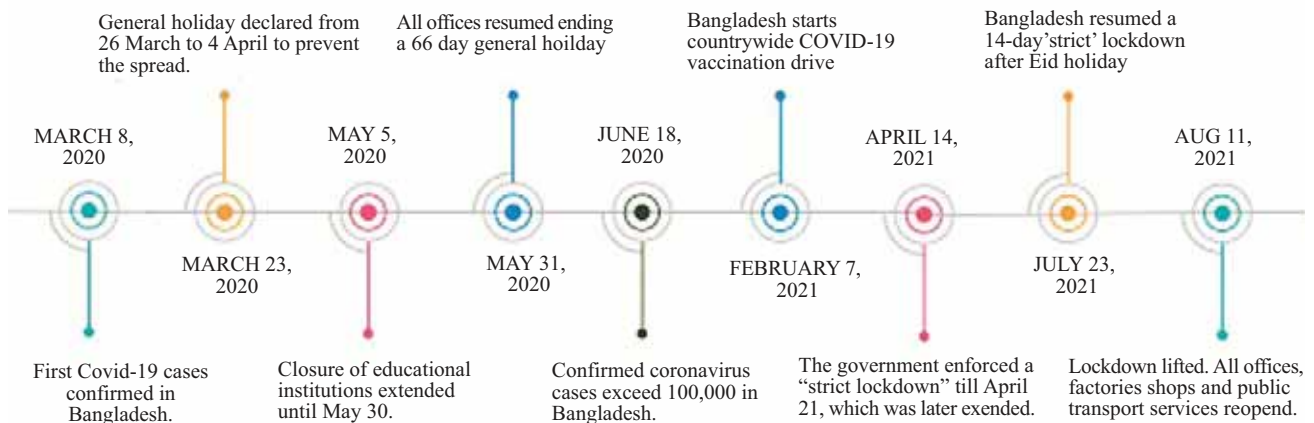
Figure-1: Covid 19 in Bangladesh.
Source: Author

- Students' views and opinions about architectural education in physical studio and virtual studio environments

- Assessment of the technological tools and educational methods used.

- The converted online habits and routines of the students and also how they are coping with the sudden changes.

- The satisfaction level of the students in the online environment, focusing on the teaching, technology and the interactivity.

Additionally, this research can serve as a foundation for the planning of the future architectural education processes, with beneficial guideline for the future academic researches, especially for the virtual environment.

ADAPTATION OF ARCHITECTURAL DESIGN STUDIOS TO ONLINE SYSTEM

Architecture is one of the unique courses where the learning is focused on real time experience-oriented studio environment. Architecture studios are interactive spaces which is primarily conceived as the lecture space; additionally, it is the multi-dimensional space where students spend their time developing design works, nourish their creativity, communicate with each other, discuss and share with their peers. Naturally, the studio environment helps to develop the sense of belonging within the students to the architectural profession (Dutton, 1987; Ceylan, et.al, 2020). On the other hand, Ledewitz (1985) described that in the architectural design studio, students get training about the various aspects of architectural education; they learn a new graphical language, nurture new skills like three-dimensional visualization and representation of their own ideas. Learning through interaction is a basic requirement for the architecture education (Maghool, et. al., 2018).

Undoubtedly, the design studio is the central element of architectural education, developed through a continuous process of exercise throughout centuries. Because of these objectives, adaptation of architecture studio environment was one of the major issues in architectural schools during the pandemic. During this unexpected and challenging condition, architecture students faced specific issues, for example non-availability of technical infrastructure, uninterrupted internet, proper computer which can run software like AutoCAD or Sketchup, materials for making models and many more. Revised curriculum encouraged alternatives for physical models, focused more on digital interpretation and presentation (Alnusairat, et.al.,2020). Moreover, general health problems, psychological conditions, unavailability of electronic devices, adaptation to the new normal condition became severely challenging for all the students. During this unique educational situation, investigation was circulated through an online survey among the students to perceive the threats and opportunities of the newly emerged digital space for the architecture students.
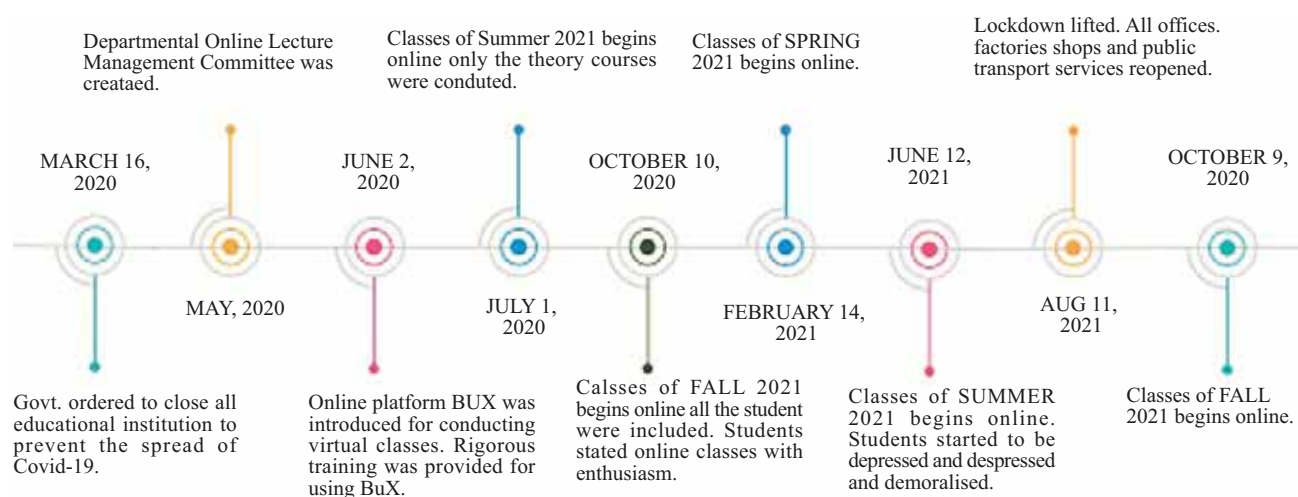
Figure-2: BRAC University Adaptation in Covid 19.
Source: Author

METHODOLOGY

Architecture Design studio, as explained by Shoshi and (Oxman, (2000) is an educational place where students spend their maximum hours to master diversified design methods. Over the last few years, scholars are experimenting with virtual teaching of design courses. Salama and Wilkinson (2017) strongly believed that online design studio pedagogy cannot replace the traditional studio in the future. When the pandemic started, the physical architecture studio got replaced by the various digital platforms. For this research, BRAC University was selected, which ranked in the top two private universities of Bangladesh according to the QS ranking in 2020 (Brac University, 2021). In the Architecture Department, there are ten design studio programs, supported by various courses on history, theory, building physics and technologies, environment and society etc. throughout the education curriculum. Beginning with Basic Design and Design studio courses, the fresh-year students are introduced to the concept of design. Gradually they develop critical thinking and generate solutions using two- and three-dimensional volumes. Eventually, students from first year to final year are expected to learn different design strategies and produce unique design solutions to diversified architectural problems using the knowledge and skills they learned during the training (Ceylan, et.al, 2020). During the pandemic, after visiting evidence based research in the field, a number of significant changes and revisions were introduced in the syllabus and mode of teaching. This suggested change was primarily focused on adopting the online pedagogy.

Sampling and Participants

The survey was done at the middle of the Summer 2021 semester between 1st to 15th August, 2021. It focused on collecting feedbacks from the students of Architecture from BRAC University. Most of these students took online design studios during the COVID lockdown period. The survey aimed to examine their experiences about online design studios that were conducted during the pandemic time. The survey population is represented by first, second, third, fourth and fifth-year students of the B. Arch program having age span from 18-22 years. The survey was conducted using questionnaires on Google Form so that it becomes easily accessible to every student. This user-friendly tool helped the students to easily access the questionnaire and respond to it. A total of 100 students participated, which is 25% of the total student number of the department; containing 71 female students and 29 males; this male and female proportion is the prevailing demographic feature of most architecture schools in Bangladesh. The survey was open for any student of the department of architecture and students were encouraged to take part in the survey voluntarily.

Design of the Survey

The questionnaire was designed depending on an extensive investigation of the existing literature available on online learning. They included reports on the challenges, opportunities and constraints of online teaching in architecture schools of various countries. Following the studies by (Alnusairat, et.al., 2020) suitable elements were pointed out, focusing on issues effecting teaching in the online design studio environment. A set of 30 questions were developed from the literature and divided into four different dimensions:

- Learning engagement of the students

- Advantages of online learning

- Online learning quality

- Students' reflection

Students' satisfaction was measured using 5-point Likert scale questions, with answers ranging from "strongly disagree" to "strongly agree". A reflection section was included to the survey to collect insights from students into their virtual learning experiences.

RESULT AND DISCUSSION

To cope up with the Covid Pandemic Lockdown, nearly all the institutions adapted the online teaching platform. This transformation from the conventional to the virtual, through a continuous process of trial and error, has been a major turn for the teachers, who had to explore and embrace online teaching methods almost overnight (Varma and Jafri, 2020). Most of the educators adopted different online teaching platforms for presenting the class contents. Google Meet, Zoom, Microsoft Team, Skype all gained popularity in a very short time. According to the survey conducted, 97% of the BRAC University students embraced Google meet as the principal mode of communication. They also use Facebook messenger or WhatsApp to stay connected with classmates outside class time. 77% of the respondents were satisfied with the applications used for the tutorial classes, whereas 23% were not satisfied.

The data obtained from the online survey was evaluated based on simple descriptive statistics. An overall observation of the survey, regardless of the studio level of the students
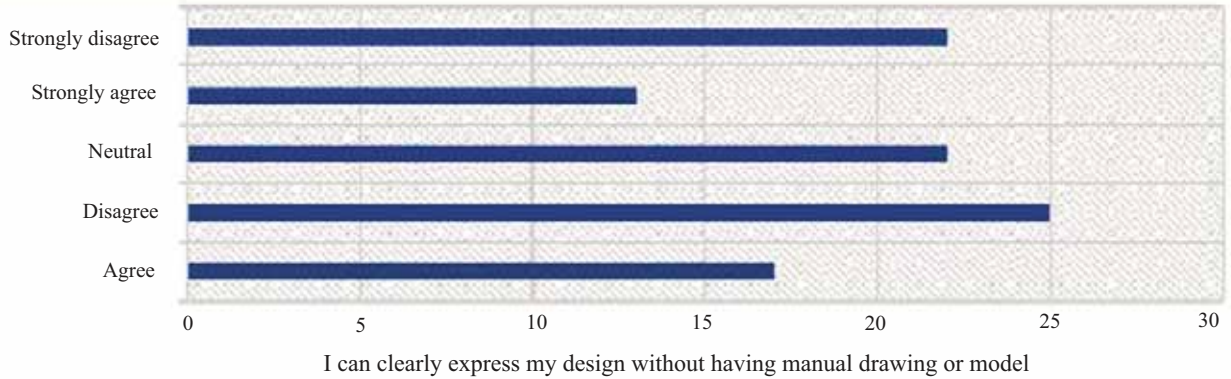
Figure-3: Student's Expression of Design.

It is easier to contact my tutor now out of teaching time

It think communication with my tutor is more comfortable now than usual

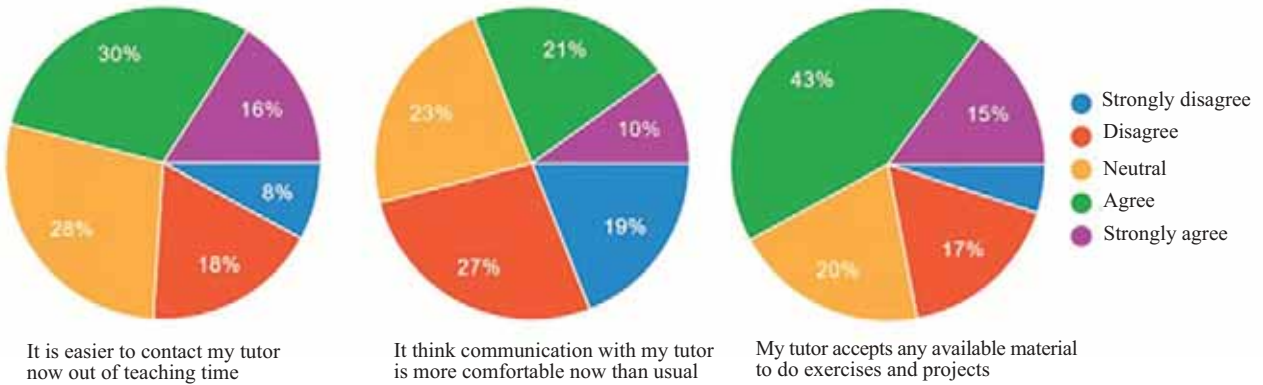My tutor accepts any available material to do exercises and projects

Figure-4: Communication with the Teacher.

suggested that the most significant shift during virtual studio for the students was using alternative techniques like Google meet, Zoom, etc which were not much familiar before. Another benefit of the online studio was to watch the recordings of the online critiques and juries along with the regular class recordings. Since they are online, most students could attend and learn from the jury. A significant realization was about the ability to be efficient under sudden changing situations (Figure 3).

Results depending on the studio level information indicated that the first year students (age group 18-19) are more positive about the virtual studio than the senior ones, as fourth and fifth year students (age group 21-22) are more analytical about it. Regarding the communication with the tutors, 46% students felt that it's easier now to reach out to the tutors, when 46% disagreed that the communication is more comfortable than before (Figure 4). Nonetheless, 58% students agreed that they were given liberty for choosing the material. In the architecture education system, one-to-

one tutoring feedback is an essential part. In the studio, students not only learn and develop different skills when they are working together in the paired space, but they also learn by attending to one another's critiques. Additionally, students who are taught collaboratively rather than individually, may nurture the expertise they require for creative work (Crisosto et al., 2010). This procedure is important to enhance the student's self-confidence during their design training (Choi and Kim, 2016).

From the data derived from this study, it indicated low range of contentment with the virtual learning experience. Only 33% of the students agreed that they get more feedback on their work than usual, while 35% received feedback on assignments in a timely manner, quicker than usual. Students strongly disliked working on a group assignment online, 51% preferred meeting their colleagues face to face than online when 53% felt online collaboration was not successful (Figure 6).
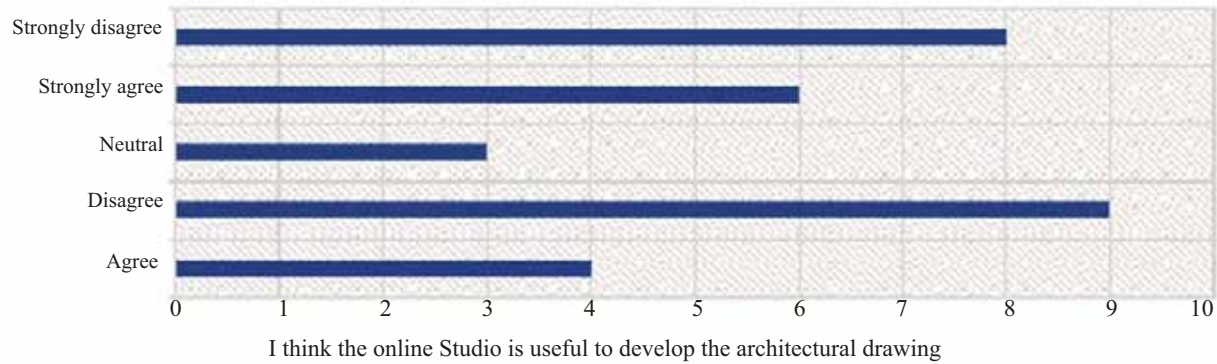
Figure-5: Perception on the Usefulness of Online Studio on Developing Architectural Drawings.
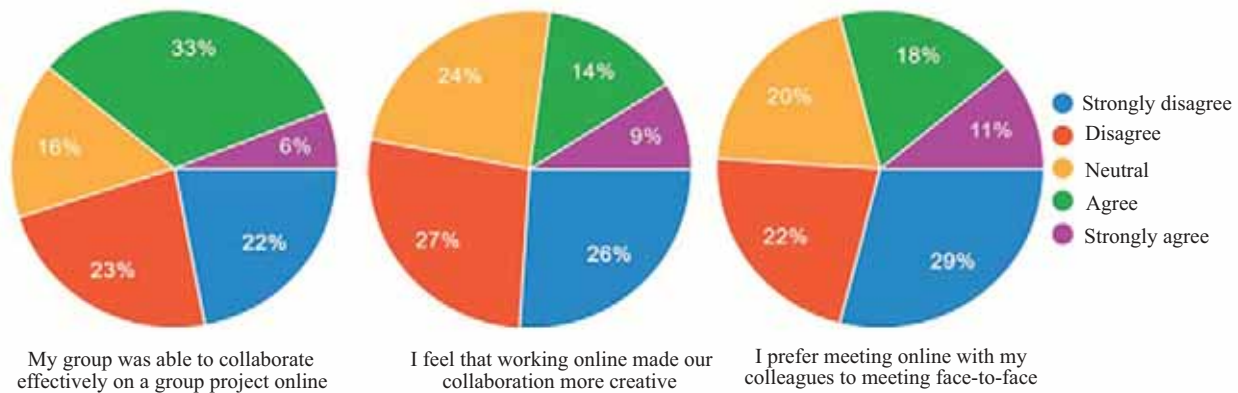

Figure-6: Peer Learning and Collaboration.

This study revealed many advantages of the online learning as well. Interestingly, 66% students responded that their communication online is timely and efficient. While 35% agreed that their self-assessment quality has increased, 48% believed that they have more time to study now. These results suggest that the students of each year are having trouble to manage their time for studying and preparing for design classes and online submissions; which aligns with the results of Newman et al. (2018).

Only 30% students believed that they could easily present their design ideas when working through only a computer, especially without manual hand sketches or physical models. Just 37% accepted they were able to maintain design work virtually like the usual quality while 28% remained neutral. Despite overall negative responses, the students indicated their development in computer skills more than expectation. Most (82%) had rapidly developed their skills in Photoshop, Revit and CAD software.

The sudden shift to online platform has some other beneficial outcomes as well. The dependency on the online resources increased to a great level (81%). While only 34% agreed that online studio could be helpful to develop the design concept, 65% said internet could be a good resource for their assignments. Approximately 81% of the surveyors spent more time watching educational videos on YouTube or reading various blogs on architecture than before due to accessibility of resources (Figure 8).

Assessing the survey questions, results focusing on studio level are similar to general observations. However, some deviations were noticed. For example, for the traditional model-making skills, the freshmen students were more optimistic than the senior students; also, the efficiency of the resources; which is similar with the study by Ceylan, et.al (2020). At the conclusion of the survey, students answered questions which reflected their opinion about the future online classes. While 40% students indicated that
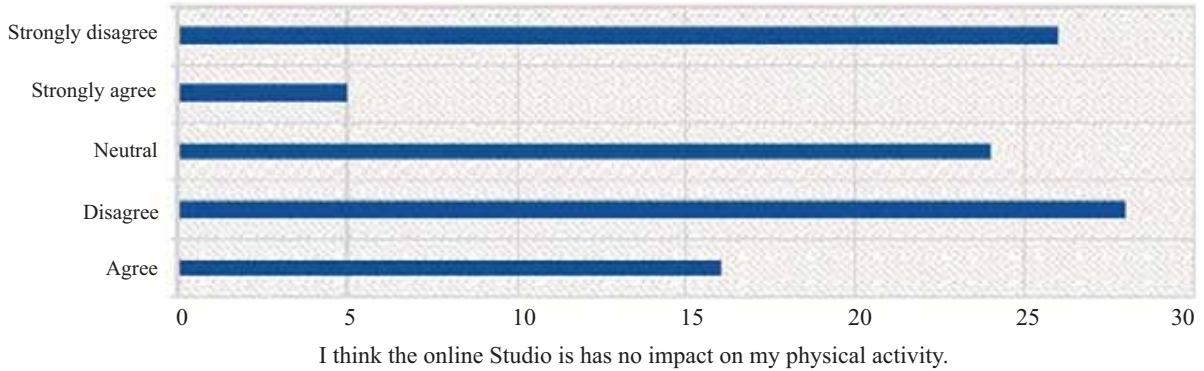
Figure-7: Online Studio and Perception of Healthy Lifestyle.

I think the online Studio is useful to develop the design concept

I can find learning resources easily over the internet to do my assignment

I spend more time watching YouTube learning or reading architectural blogs than usual

Strongly disagree
Disagree
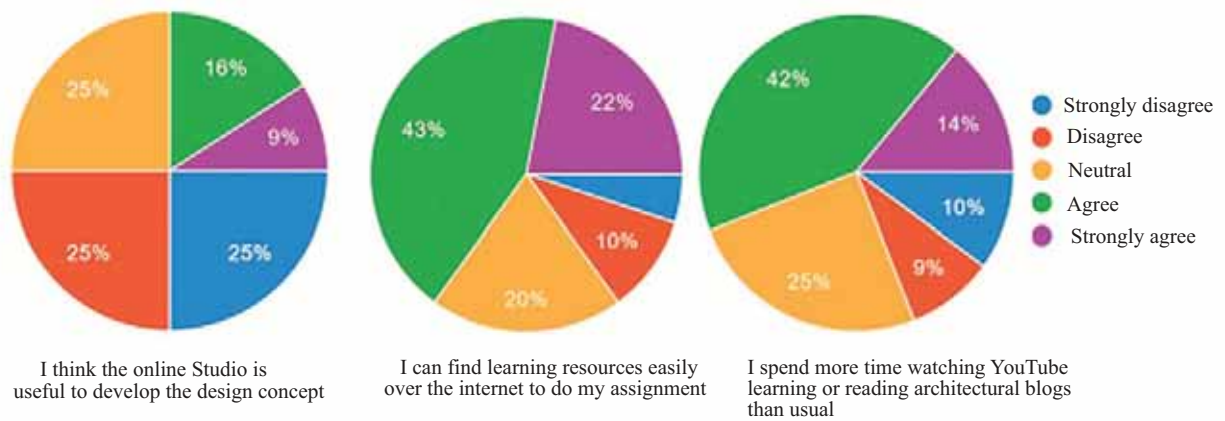Neutral
Agree
Strongly agree

*Figure-8:* Perception on Effective Learning Through Online Design Studio.

they would think about taking online studio in future, 39% disagreed. According to Mulligan et al. (2018), future experience could be less challenging for the architecture students provided enhancement in the collaborative thought about the precise architectural problems. Further scanning of the survey revealed that the junior students were 15% higher than the senior students who would consider participating in the online class in future.

CONCLUSION

Architectural design studio is a physical classroom which develops the recognition of a student as an architect reflecting their personality, where they can express their ideas and get motivated by other students with their thoughts, feelings and the way they perceive the life (Coyne et al., 1994). Therefore, the design studio can be expressed as an influential space for discussion, presentation, conversation, participation

and education (Ceylan, et.al, 2020). The traditional physical studio, which is the fundamental education environment of architectural design studies, is suddenly converted into a virtual environment because of the Pandemic. The sudden adoption of online education is a matter of great concern for all the educators worldwide (Gopinathan and Ramachandran, 2020). The prospects include critical observation of virtual pedagogy regarding the virtual division, lack of inclusiveness, inequity, unaffordability and value; yet on the other hand, online education is the only solution during this global pandemic (Kebritchi et al., 2017; Jena, 2020).

The findings of this study highlighted that a large percentage of the participants felt unsettled about aspects of their online learning experience and wanted more guidance and support. The survey shows an interesting perspective regarding the cognitive consequences of the online design studio, especially

I would consider taking another online design studio in future.
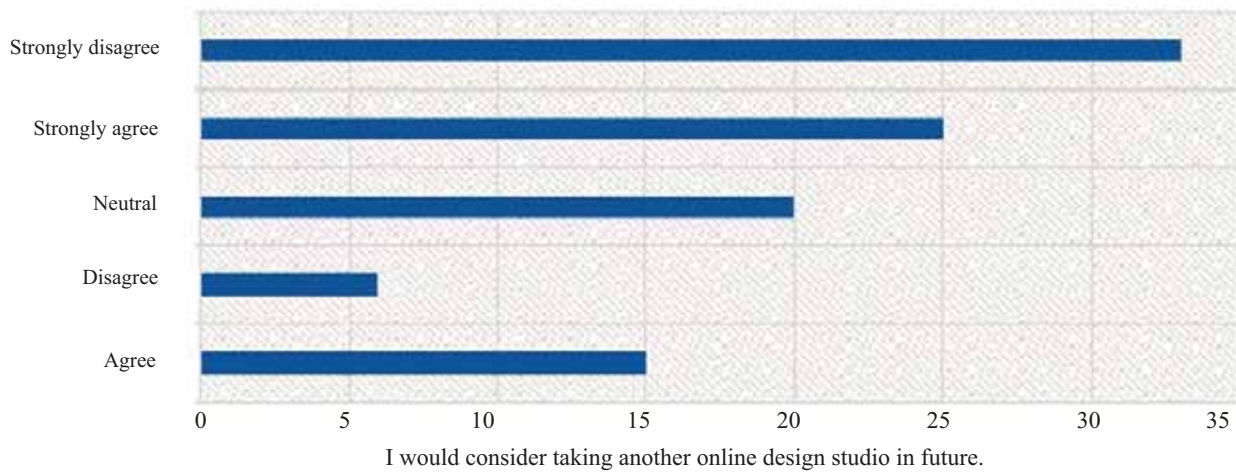
Figure-9: Perception on Registering for Online Design Studio in Future.

at this traumatic pandemic time. If the architecture students are provided with necessary equipment for their studies and they are given the opportunity for self-reflection, they can achieve efficient results even in the crucial pandemic environment.

Another significant result of this survey is the indication of the weakness of the conventional physical studio, where students joined the discussion or classes while dealing with their design works at the same time. They often missed some valuable information or comments along with the interruption of concentration (Ceylan, et.al, 2020). On the other hand, online studios provide recordings of the session, allowing them to concentrate on a specific works without the fear of missing any information. This digital method of education is anticipated to create various learning opportunities and make the students ready as active learners instead of passive listeners (Salama and Crosbie, 2020).

This can be a principal characteristic of online education which is required to be applied into the design studio even if they return back to the traditional physical environment. However, further studies are essential to collect more information about different pedagogical initiatives being initiated globally, especially the procedures and the experiences in the architectural design-based courses during the pandemic period.

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