Chapter 17
First-Year Experience (FYE) in Architectural Studio Education During the COVID-19 Pandemic

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ABSTRACT

The first year of tertiary studies is vital for students, as they must adapt and settle into university life. First-year students must explore learning challenges and make positive transitional adjustments. The unprecedented pandemic has changed students' learning experiences from the physical classroom to the online realm. This chapter seeks to identify first-year architecture students' learning experiences in an online environment during the COVID-19 pandemic. A set of survey questionnaires is used to collect data on their learning experiences with architectural studio-based learning. The elements considered for the research are learning experience, learning platforms, and the student's readiness with the virtual architectural studio learning environment during the COVID-19 pandemic. The study's findings suggest that students positively impact learning experience, have high satisfaction levels on learning platforms, and are well prepared for online learning. This study will help schools of architecture in Malaysia to develop appropriate responses in the post-COVID-19 settings.

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INTRODUCTION

The first year of tertiary studies is vital and critical for students, as they must adapt and settle into university life. Many studies have reported that having an excellent First-Year Experience (FYE) may significantly affect first-year students' academic performance, social relationships, and self-esteem. Therefore, a holistic student support framework covering students' wellbeing, curriculum design, social support, and access to resources is vital to address first-year students' learning challenges to help them make positive transitional adjustments. These university students are considered a unique social group with an active lifestyle based on relationships, physical and university activities, fieldwork, and gatherings (Villani, Pastorino, Molinari, Anelli, Ricciardi, Graffigna, & Boccia, 2021). Unfortunately, the last two years have been unprecedented and have brought significant challenges to these students.

The stringent precautionary measures such as physical distancing and strict standard operating procedures have changed their lives drastically and consequently, have affected their overall health, including their social, physical, and mental health. According to Chambel and Curral (2015), as cited in Capone, Caso, Donizzetti, & Procentese (2020), mental wellbeing is essential for university students. It has been associated with substantial outcomes, such as educational aspirations, academic engagement, academic achievement, and student retention. This concurs with the findings of many international research studies that recognize university students as a vulnerable group for mental wellbeing, especially at crucial transitional points along their education journeys (Liu, McCabe, Dawson, Cyrzon, Shankar, Gerges, Kellett-Renzella, Chye, & Cornish, 2021).

This is particularly critical during this unprecedented Covid-19 pandemic, where students' learning experiences have also changed from the physical classroom to the online realm (Al-Kumaim, Alhazmi, Mohammed, Gazem, Shabbir, & Fazea, 2021; Pownall, Harris & Blundell-Birtill, 2021; Combrink & Oosthuizen, 2020; Dhawan, 2020). This has also greatly affected how architectural education is conducted. The core of architectural education is the design studio, where student-centred pedagogy is adopted to address project-based problems (Yusoff, Ja'afar & Mohammad, 2019; Board of Architects Malaysia, 2013). The learning experience in conventional architectural education encompasses various approaches such as 'crit' sessions (short for critique), site visits, and workshops. The crit serves as the primary student learning experience via open assessment of design presentations by a jury (Flynn, Dunn, Price & O'Connor, 2020; El-Latif, Al-Hagla & Hasan, 2020). The crit adopts the constructivist paradigm by guiding students' critical thinking and creative problem-solving skills to enhance their knowledge from their experiences.

However, the Covid-19 pandemic has significantly affected architectural education worldwide, where many architectural education institutions are forced to adopt remote learning to conduct lessons. Palansamy (2020) reported that on the 27th of May 2020, the Higher Education Ministry in Malaysia announced that all university teaching and learning activities must be conducted online until the 31st of December 2020. As educators and scholars are concerned with online studio-based learning as an emergency response to the pandemic (Iranmanesh & Onur, 2021; Bernardo & Duarte, 2020; Hilburg, 2020; Gerfen, 2020; Nair & Raja, 2020; Varma & Jafri, 2020), its impact on first-year architecture students has not been well studied or documented. This study addresses this gap by assessing first-year architecture students' learning experiences and wellbeing during the Covid-19 pandemic.

FIRST YEAR EXPEREINCE (FYE)

First-Year Experience (FYE) generally refers to students' experiences during their first year at university. It concerns how well students receive support, engagement, education, and retainment (Nelson, Creagh, Kift & Clarke, 2014). A successful transition during the FYE period can positively impact the rest of their university experience. Several studies have highlighted that a good FYE is crucial for students' performance and achievement in tertiary education (Awang, Kutty & Ahmad, 2014; Krause, Hartley, James & McInnis, 2005; Upcraft, Gardner & Barefoot, 2005). FYE may involve various degrees of academic, social, and personal adjustments, as part of the transition processes in constructing students' expected roles and responsibilities in the new learning environment (Awang et al., 2014; Furco, 2002). Lee, Ang & Dipolog-Ubanan (2019) discover that alongside favourable academic experience through teaching quality and vital support provision, social-based activities also contribute to help first-year students adapt to university life. Tinto (2009) highlights that student are more likely to succeed academically when they are more socially involved. He also claims that students who successfully integrate into the university community are more likely to graduate (Tinto, 2006; Swail, 2004). Furthermore, according to Demetriou & Schmitz-Sciborski (2011), "the interactions students have on campus with individuals in the academic, personal and support service centres can influence their sense of connection to the university and their ability to navigate the university culture, meet expectations and graduate". They also add that students who engage in informal discussions with lecturers are more likely to have positive learning experiences. Thus, students need to establish a social connection to the university culture early on, as this can positively influence their academic performance and social affairs (Swail, 2004).

However, first-year students may be diverse in demographics and readiness, which require specific academic and social support (Kift & Nelson, 2005). This concern requires the education institution's initiative to formulate a holistic system which addresses first-year students' personal, social, and academic needs (Kift, Nelson & Clarke, 2010). To address the FYE of architecture students, it is essential to acknowledge the difference in the adopted teaching pedagogy with other disciplines. According to Dutton (1987, p.16), the design studio pedagogy in architectural education introduces students to the analytic, synthetic, and evaluative models of thinking through various activities such as drawing and model-making. Nikanjam, Hassanpour & Ani (2016) emphasize that first-year architecture education serves to guide students to attain essential skills in synthesis and analysis, communication, visualization, and representation.

Weighing in on this emphasis, Kirci & Yildirim (2013) assert that starting architectural education is much easier for students who have basic knowledge of architecture culture and prior knowledge of architects/buildings. As architecture students come from diverse backgrounds, most of them may not be exposed to the learning methods in architecture. As a result, the first year of education may be a challenging period for them to cope with the academic transitions. In a study by Nikanjam et al. (2016), which evaluates the determining factors of first-year architecture students' productivity, the findings indicate that most students require knowledge of design strategies and motivation to be creative. This revelation is also in accordance with Kirci & Yildirim's conclusions (2013). They emphasize that these two factors inevitably affect architectural students' first-year education experiences.

STUDIO-BASED LEARNING (SBL)

Studio-based learning (SBL) can be defined as 'an inquiry, apprenticeship model that follows problem-based learning but allows a more pervasive person-centred approach' (Brocato, 2009, p.139). Bay (2020) explains that the essential SBL concept commences when the students undertake a project under the supervision of a studio master. It follows an in-depth discussion regarding the students' design developments in which the students will undergo periodic design critiques of their works with lecturers and peers. This learning pedagogy is project-centred and focuses on the pragmatic, which comprises multiple 'propose-critique-iterate' processes (*Assessing studio-based learning* 2019). Narayanan, Hundhausen, Hendrix, & Crosby (2012) claim that these design critiques aim to enable students to acquire 'critical feedback' from lecturers, peers, and other experts, which will help them expand their ideas and develop their design skills. Finally, the students are required to present their works publicly. Boyer & Mitgang (1996, pp. xv-xvi) describe SBL as reflective learning, which involves group and individual tasks, with an intense discussion that is highly integrated across multiple knowledge elements of the practised profession. According to Teaching at UNSW, Sydney, SBL encourages dispositional qualities such as risk-taking and inquisitiveness and other generic skills like communication, teamwork, problem-solving, project management, peer evaluation, and independent learning. SBL also offers students a glimpse of possible workplace problems and encourages them to solve such problems critically (Kumar, Silva, & Prelath, 2020).

SBL specifically focuses on learning by thinking and doing, including conducting research, drawing, and model making. According to Juvancic, Mullins, and Zupancic (2012), architecture students gain their professional practice experience and knowledge through 'learning by doing in a studio environment'. A studio is a dedicated classroom space, which the students use to conduct research and produce their creative works. Saifudin Mutaqi (2018) defines an architectural design studio as a learning environment, including its pedagogy, history, and interaction, focusing on what makes it unique. Furthermore, Brocato (2009, p.140) explains that 'In studios, the workspace is one relatively large work desk or drafting table adorned with personalizing décor and privacy boundaries'.

It is clear that architectural studios do not employ traditional classroom settings nor conventional arrangements of desks and a whiteboard due to its unique method of teaching and learning. Its setting is the loft-like studio space in which the students will arrange and organize their drafting tables, partitions, chairs, books, drawings, and models (Lackney, 1996). The working atmosphere in the studio encourages students to learn from each other through continuous dialogue, conversation, and critique of each other's work, even though each one is doing different things (Vyas, van der Veer, & Nijholt, 2012; Saifudin Mutaqi, 2018). According to Ceylan, Kancioglu, & Soygenis (2010), the studio and learning process features can be listed as follows:

- Students are actively involved in the studio design process
- The studio environment is democratic
- Studio activities are student-centred and interactive
- The method of learning introduced by the instructor encourages the students to be responsible and autonomous

With creative and innovative ideas, lecturers can ensure that students are comfortable and ready to learn every day. Furthermore, the physical setting of the design studio promotes learning in a social

context, inspires students' creativity, encourages collaboration, communication, and sharing and listening to each other's ideas (Vyas et al., 2012; Narayanan et al., 2012). Consequently, it encourages students to participate actively to make the existing knowledge more meaningful through rigorous design processes.

In this connection, Al Maani (2019) discovers that most first-year architecture students struggle with handling design problem solutions and time management complexities. The lack of knowledge in architectural precedents and technical skills in drawings further affect their confidence to succeed in their studies. The research reveals that first-year architecture students require support and guidance to become independent learners, by sharing responsibility, learning from others, and being actively engaged. This finding concurs with the study of Lueth (2003), where effective learning in the design studio relies heavily on learner-instructor interaction and interaction among learners. In response to the Covid-19 pandemic, online learning has become the norm in architectural education, as social distancing measures which limit social contact have to be followed. The lack of physical interaction may be a barrier to providing adequate support to first-year students, to ensure meaningful engagement and their mental wellbeing.

RESEARCH METHODOLOGY

This research employed a quantitative method to analyze the learning experiences of first-year students in architectural studio teaching during the Covid-19 pandemic. The sudden outbreak of the Covid-19 pandemic has changed the architectural education delivery system and has led educators to migrate from physical to virtual studio sessions. Aristovnik, Keržič, Ravšelj, Tomaževič, & Umek (2020) and Dhawan (2020) agree that the online mode of learning is considered the best option as it is easily accessible, flexible, and affordable. The advancements of digital technology have enabled students to participate and engage in online learning through various online providers (Crowley-Cyr & Hevers, 2021).

As a case study, this study was framed around the different aspects of first-year students' online learning in the design studio module at the School of Architecture, Design and Build, Taylor's University, Malaysia. The design studio module adopted both the synchronous and asynchronous learning environments. 'The synchronous learning environment is structured because students attend live lectures, there are real-time interactions between educators and learners, and there is a possibility of instant feedback' (Aristovnik et al., 2020, pp.7). On the other hand, students could replay recorded lectures and studio tutorial sessions to review information with the asynchronous learning environment. This survey intended to identify students' learning experiences and wellbeing for the online studio module. It was conducted in the second quarter of 2020 through an online web application.

- **Participant and Sampling Size**
    - The first year Bachelor of Science (Hons) in Architecture consists of 6 core modules that provide the fundamental knowledge of architecture, a solid foundation in the design process, and critical thinking. This study focused on one of the core modules, Architectural Design I. It aims to demonstrate design by expressing the perception of 'self.' Students will undertake studio-based exercises and assignments that introduce the fundamental methods, principles, and approaches in design thinking and basic spatial design. Significant emphasis is given to manual drafting/drawing and model making.

Non-random sampling was used to collect data for this study. According to Kelley, Clark, Brown & Sitzia (2003), one of the main techniques in non-random sampling is purposive sampling, which identifies a specific population, and only its members are included in the survey. The survey result extracted from this research was thus deliberately targeted at the first-year architecture students, comprising 95 first-year students from semester 1 of the undergraduate architecture program. The response rate was 72.63% (69 of 95 students) which was considered an appropriate representative sample (Fincham, 2008).

- **Survey Questionnaire**
  - The survey questionnaire was designed with eight survey items which were the questions to be responded to with a 5-point Likert scale (ranging from 1-strongly disagree to 5-strongly agree). It was distributed online to first-year students during the Covid-19 period, March 2020 semester intake. This quantitative data tool was used to collect the students' feedback and assess their perceptions of the online studio learning experience through different agreed-upon levels. There are three (3) sections in the questionnaire:
    § Section 1: Learning Experience
    § Section 2: Learning Platform
    § Section 3: Learning Readiness
- **Data Analysis**
  - The data collected from the survey were analyzed using descriptive statistics such as mean analysis to provide an overview of the students' perceptions of the online studio learning experience. According to Thompson (2009), descriptive statistics are numbers that summarize the data described which occur in the sample. They will subsequently help researchers identify sample characteristics that may influence the findings of the study. Loeb et al. (2017) assert that the researcher may arrive at a meaningful descriptive analysis by interpreting the description. For the data description, the calculated mean scores were classified into high (3.34 –5.00), moderate (1.67 – 3.33), low (0.00–1.66) levels of the students' perceptions of the online studio learning experience. The mean analysis is the most common measure of central tendency as it is more sensitive to outliers and more influenced by the distribution of the values (Loeb et al., 2017).

Results and Findings

The results and findings from this survey will provide information that may help schools of architecture develop appropriate responses for course delivery methods in the post-Covid-19 environments.

Learning Experience

In this survey, the respondents were asked about their satisfaction with the architecture studio module conducted virtually during the Covid-19 pandemic. For the first variable, the respondents were asked about their satisfaction with the module effectiveness undertaken in an online environment. The mean analysis is 3.65. This shows that the module learning objectives can still be achieved in a fully online learning environment. As for the ease and engagement of the studio module conducted online, both variables elicited scores with the mean calculation of 2.58 and 3.74. This shows that the module conducted online, lacked face to face and hands-on interaction in the studio environment and made it hard for the

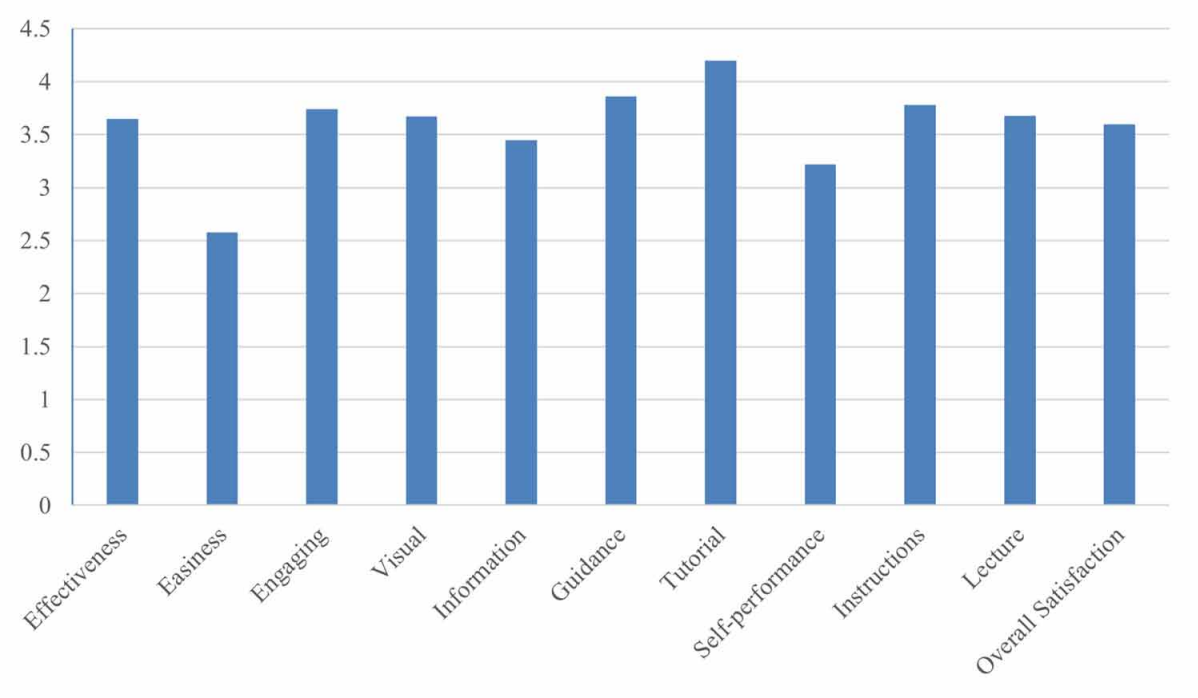
students to achieve the desired learning outcome. However, the shift from the traditional teaching method to the online environment made the module more engaging for the students. In terms of the visuals and information which were delivered in the virtual setting, the module achieved a mean analysis of 3.67 and 3.45. This might be due to the use of online delivery platforms such as Moodle, Zooms, Teams, and others. As for the lectures, tutorials and guidance provided by the lecturers to the respondents, the following mean scores were obtained respectively: 3.68, 4.20, and 3.86. The respondents were also satisfied with the clear instructions given in the online environment and their performance in the module. Both variables had a mean analysis of 3.68 and 3.22 respectively. Hence, the overall satisfaction level of the general studio module in the online environment scored a 3.60 mean analysis which is classified as a high score (i.e., between 3.34 - 5.00). The overall mean critique of the learning experience by the respondents can be seen in Table 1 and Figure 1 below.

Table 1. List of questions and mean analysis of online studio learning experience

Variable	Questions	Mean
3EF	How effective was the module in helping you achieve those learning objectives?	3.65
3ES	In your opinion, how easy was the module?	2.58
3EE	How engaging did you find the module?	3.74
3VS	How visually attractive was the module to you?	3.67
3IU	Was the information in the module easy to understand?	3.45
3GD	Was the guidance offered during tutorial sessions sufficient?	3.68
3TT	Was the tutorial assignment given weekly sufficient?	4.20
3ST	How satisfied are you with your performance in the tutorial assignment?	3.86
3IW	Were the instructions given weekly clear?	3.68
3LW	Were the lectures given weekly clear?	3.22

Source: Authors' (2021)

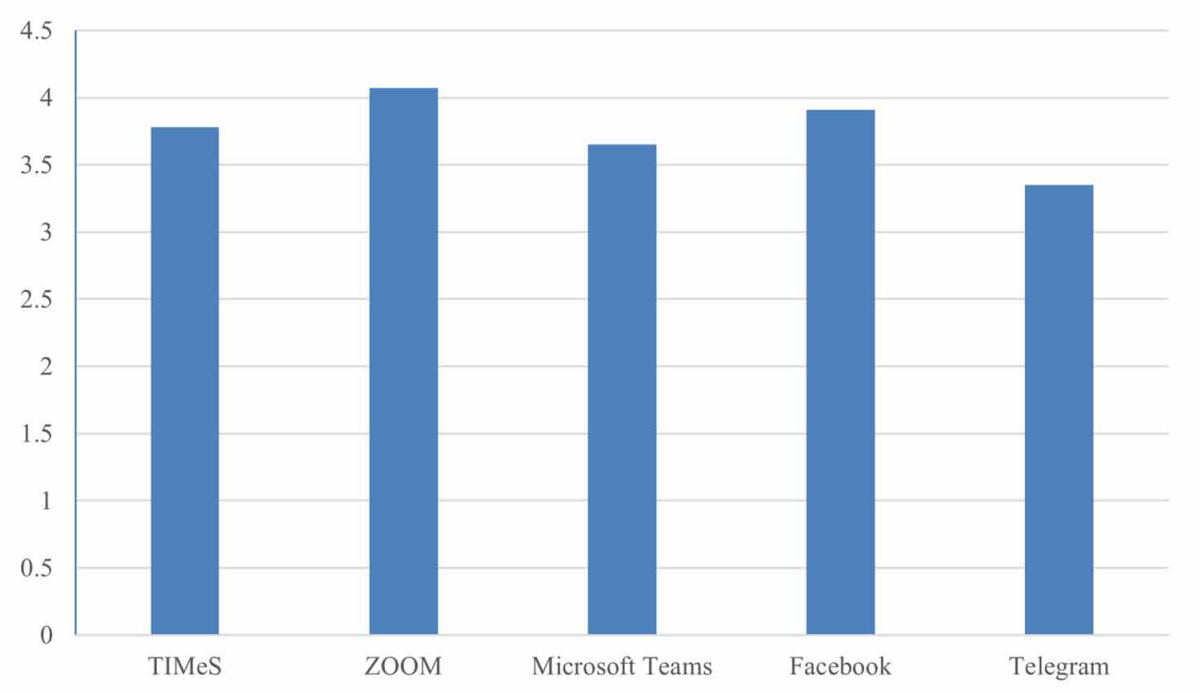
Figure 1. Mean analysis of online studio learning experience
Source: Authors' (2021)



Learning Platform

As for the virtual learning platform used in the online architecture studio module, the respondents were asked about their satisfaction levels using the 5-point Likert Scale. The data were then analyzed using the mean analysis. In this survey, the virtual platform used in the online studio module included Taylor's Integrated Moodle E-Learning System (TIMeS), web conferencing platforms like ZOOM, Microsoft Teams, and social media platforms like Facebook and Telegram. The overall result of the mean analysis for the satisfaction level of the online learning platform is classified as a high score (i.e., between 3.34 - 5.00), which can be seen in Figure 2 below. Hence, this shows that the use of these applications is crucial to ease the shift from the traditional teaching environment towards the online and hybrid learning environment.

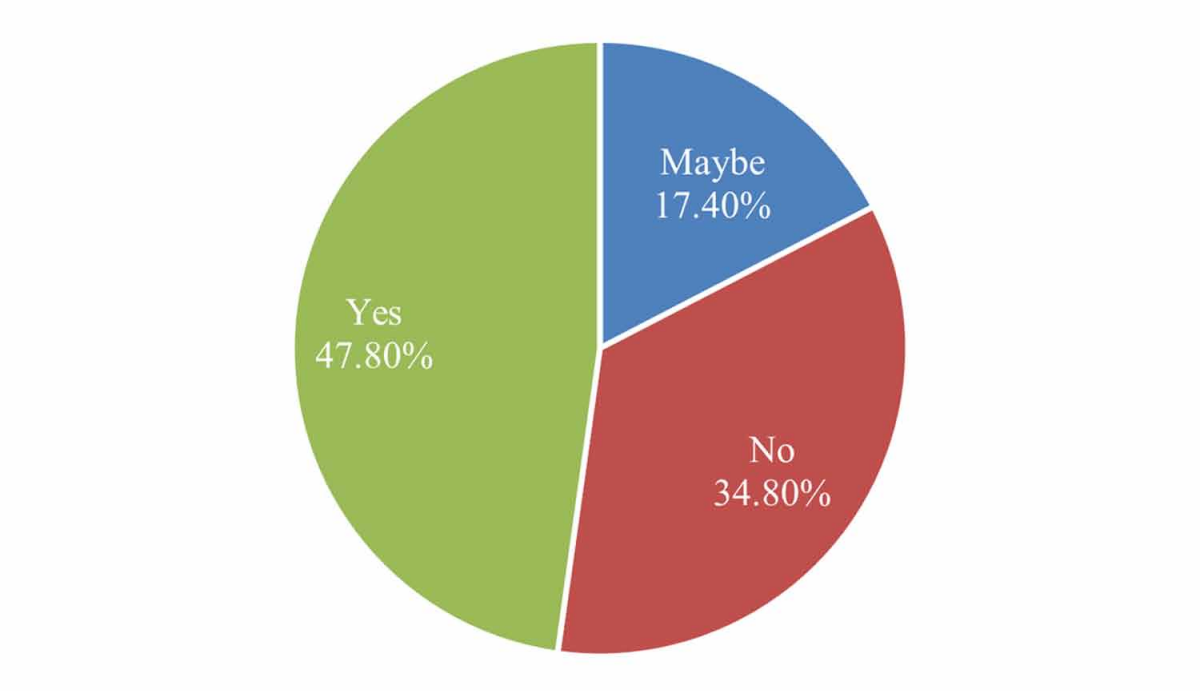
Figure 2. Mean analysis of learning platform
Source: Authors' (2021)



Learning readiness

In this last part of the survey, the respondents were asked about their readiness for the architecture studio module to be fully online after the Covid-19 pandemic. The result shows that the majority (47.8%) of the respondents agreed to continue learning in a fully online studio mode for the module. On the other hand, 34.8% of respondents answered that they did not want to continue with studio online learning after the Covid-19 pandemic, while 17.4% responded with "maybe". The overall results of the percentage analysis are given in Figure 3 below. This shows that with the current technologies and assistance provided in the hybrid and online learning environment, the online studio mode is a viable possibility for current and future teaching of this module.

Figure 3. Percentage analysis of learning readiness
Source: Authors' (2021)



DISCUSSIONS

The overnight shift from the physical to the virtual studio environment has shifted the architecture studio's pedagogical approach to adapt to the limitations imposed by the unprecedented Covid-19 outbreak. According to Ibrahim, Attia, Bataineh, & Ali (2021), online learning in architecture programs, especially for architecture design modules, is challenging due to the nature of the field, which relies on learner-instructor interaction as well as interaction among learners. Consequently, first-year architecture students might struggle to adapt to the academic transitions required by the new approach of virtual SBL. The findings of the study show that students found it challenging to come to grips with the online studio learning environment, due to the abrupt switch to virtual learning and having no prior SBL experience. These are consistent with Dhawan's (2020) assertion that there are many problems associated with online learning and teaching which need to be addressed accordingly. Pistoresi (2020), as cited in Ibrahim et al. (2021), highlights that, students must be given sufficient opportunity to adjust to the new norm. Furthermore, most first-year architecture students have limited online learning experiences. As such, they lack the confidence to use the technology effectively. Unstable connection issues, and other technical glitches have also badly affected their past virtual learning encounters (Crowley-Cyr & Hevers, 2021).

Even though the students had difficulties learning in the architecture studio virtually, the overall result of this study indicates otherwise. The survey shows a very positive impact and high satisfaction levels. This can be seen through a high score and excellent mean analysis given to the overall studio module structure, the student's learning experience, and the learning platform used in the online delivery of the architectural design studio module. In addition, the conventional two-hour lectures were replaced by

pre-recorded online classes which were uploaded weekly onto TIMeS. This is the official communication and information portal to access module materials, project briefs, assignments, and announcements. Through TIMeS, learning materials are freely accessible to the students via multiple digital devices, at any given time.

Most students were satisfied with the lecturers' guidance, instructions, and tutorials. Students can ask questions about the course or on related topics and receive feedback on their design progress during synchronous online studio sessions, where everyone joins a ZOOM or Microsoft Teams meeting at a scheduled time. This shows that the lecturers are well prepared for the virtual learning studio environment as they had previous experience with online teaching and learning during the haze periods in 2018. This is in line with Zalat, Hamed, & Bolbol (2021), who report that lecturers with prior online teaching experience will have better teaching outcomes of the subject. Nair (2021) also notes that lecturers are more than capable to adopt new technologies, tools, and ways of working due to their commitment in reassessing their virtual learning environments.

The overall analysis also shows that most of the students are ready to learn in an entirely virtual environment for the architecture studio modules in the future. According to Coman, Țîru, Meseșan-Schmitz, Stanciu, & Bularca (2020) and Dhawan (2020), flexibility and accessibility are the motivating factors of online learning. The research by Selvaraj, Radhin, KA, Benson, & Mathew (2021) also suggests that a well-planned online learning environment is more akin to an active, constructive, and cooperative experience than the physical space of a traditional classroom. Above all, Dhawan (2020) reiterates that the online learning environment enables students to "learn anytime and anywhere, thereby developing new skills leading to life-long learning".

RECOMMENDATIONS

This research study identified the problems first-year students faced during the Covid-19 pandemic when teaching and learning had to migrate to online platforms to adhere to the imposed SOP guidelines. The pandemic required institutions of higher learning to pivot swiftly to online instruction, even though many institutions, faculties, and students might not have much prior experience with virtual classroom practices. However, while most students could cope with their tertiary education, more support could be offered to ensure they could be more at ease and achieve greater success in their education pathways.

The study conducted by Fruehwirth, Biswas, and Perreira (2021) claimed that the unprecedented pandemic had increased anxiety and depression symptoms among first-year university students. As such, they recommended that additional counselling support be provided virtually for students who encountered such problems during online learning sessions (Fruehwirth et al., 2021). Tutkun (2011), in his research study, recommended that a course about internet use could be introduced as part of the extracurricular activities for students to generate progressive attitudes towards accessing knowledge via the internet. In addition, he believed that students should be educated about retrieving and disseminating appropriate information and knowledge for good purposes.

In addition to the two recommendations above, it is important for the well-being of incoming first-year architecture students to have improved online learning experiences with better access to learning resources and materials. Improved networking stability and available technical support would ease greatly to eradicate glitches. Apart from extending support to the students, it would be feasible for institutions

to upgrade educators with the relevant technological skills to empower them to operate, deliver and respond appropriately in their virtual classrooms.

FUTURE RESEARCH DIRECTIONS

This study has some limitations related to data sampling as its focus is on the first-year students at a particular school in one institution only. The first-year architecture students of other institutions may respond differently based on their experiences with online learning in architecture studios. Therefore, further exploration of other possibilities can be done with a larger sample from various institutions to identify and evaluate the first-year architecture students' online learning experiences in greater depth during the Covid-19 pandemic.

CONCLUSION

In conclusion, from the data analysis, it can be seen that from the learning experience domain, the overall mean study showed a mean satisfactory comment. However, some factors, such as the level of ease and engagement and the students' self-performance, can be improved to provide a more conducive first year learning experience. As for the second domain, which is an online learning platform, it shows an excellent mean analysis outcome. Hence, the students and tutors are encouraged to constantly explore the various possibilities of digital media to create more advancements and inclusiveness in the learning environment. With reference to the third domain, which is learning readiness, the results show that the students are willing to switch to an entirely virtual learning platform. However, support and assistance are needed to ease the transition and ensure students' satisfaction and comfort.

This study suggests an increasing acceptance by first-year architecture students of online learning. It is foreseeable that the future will be a hybrid and blended learning approach in architecture education. The findings call for the implementation of a proactive (rather than a reactive) model of studio teaching that takes into account:

- Interaction and learning engagement
- Learning behavior and emotional intelligence- more internalized, change management mindset
- Curriculum (design, delivery, and assessment)- more structured and intentional, leading to an SBL hybrid model
- Technology and support - reskilling of educators, available software updates, space actualization, hardware, fail-safe hardware, etc.

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KEY TERMS AND DEFINITIONS

Architectural Studio: A dedicated classroom space, which the architecture students occupy to conduct research and produce their creative works such as drawings and models.

Crit: A shortened form for critique. It is a periodic design feedback session for lecturers to engage with students. It is one of the fundamental architectural studio activities which include the "propose-critique-iterate" processes.

First-Year Experience: Students' experiences with their first year at university. This includes both social and academic experiences.

Online Learning: A method of teaching and learning in a virtual environment.

Studio-Based Learning: A project-centred learning pedagogy that focuses on learning by thinking and doing.

Virtual Learning Platform: A webspace for educational activity to take place and it allows students to retrieve the learning materials at their convenience.

Wellbeing: Associated with students' emotional experiences and the stability of their overall mental health.