

Another efficiency of learning systems during the COVID-19 pandemic in architectural graduate study program: A reflection

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Abstract

The COVID-19 pandemic has completely changed the way of learning in all types and levels of education, including architectural education. All parties, lecturers, students and employees carry out activities from home online, including in this context, the Bachelor of Architecture study program, which is always carried out offline, especially the design studio course. Although initially, there were concerns about the decline in the quality of education due to the issue of spatial transformation and virtual learning activities, in the end, it was passed and showed other positive findings. The research problem is that old teaching and learning methods have undergone continuous adjustments in the post-pandemic era, so it requires reflection so that future hybrid teaching systems can be more planned. The research objective is to analyse online lectures' negative and positive impacts to improve offline educational performance through reflection. The library method is combined with analysing experiences during online learning to assess participation. Research steps: 1) literature and observation data collection, 2) analysis, and 3) class participation. Research findings in the form of saving resources and classroom space. The novelty of the research is in the form of a pattern of education delivery as a suggestion for post-pandemic hybrid education activities.

Keywords: Architecture; COVID-19 Pandemic; Efficiency; Reflection

1. Introduction

On March 15, 2020, President Joko Widodo called on Indonesian residents to take social distancing measures [1], namely an action to carry out mass quarantine in an area or local locking intended to break the chain of the spread of the COVID-19 virus [2]. Implementing this policy has closed all places of work, including study locations such as schools and universities in most regions of Indonesia. As a result, both work and teaching and learning activities are carried out from home and are better known as Work From Home (WFH) or School From Home (SFH).

This school closing policy's impact was tremendous for tertiary institutions with various study programs in Indonesia. The implementation of education and pedagogical approaches to face-to-face lectures in the Bachelor of Architecture Study Program was no exception, which usually took place in the implementation of design studio courses in large halls, auditoriums, seminar rooms, laboratories and studios at that time were closed. Disciplines of science and art that emphasise field experience, face-to-face as well as teaching and learning in laboratories and studios to explore a range of skills have to be carried out without the presence of an instructor. Instructions and simulations usually carried out in class are changed to virtual with the hope that students would learn independently to develop their studies virtually [3], converted into online tutorials and reporting in a digital format. The learning system in the studio, direct learning, is a model that can shape students to learn and master basic skills and get information step by step [4], translated remotely using available materials and individual abilities in interpreting and executing design tasks.

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This dramatic change certainly faces obstacles and challenges. The sudden closure of architecture schools due to the pandemic has caused teaching and learning activities previously carried out face-to-face to screen-to-face, conventional to experimental. All teaching lecturers and students, including administrators, are ready or not ready to change teaching methods and how to convey knowledge. The use of online system teaching media was very forced to be productive even though the operators were not yet fluent in controlling it because it was generally in education in Indonesia at that time: a search for an appropriate learning model for an emergency [4, 5]. Although the architectural design studio system takes the most time in the teaching and learning system and is the core of education in all architecture schools in Indonesia [6], significant changes must occur so that student learning targets (learning outcomes) can still be adequately achieved. To study the effect of this change, revisiting the impact of studio learning on participant ratios provides a relational picture of learning outcomes during the pandemic. The description of the pattern of the learning system can be broken down mathematically by observing the number of participants. The factors that cause choices over space, time and contributing parties are analysed to show opportunities for effectiveness and efficiency in the classroom [5]. Thus, the research objective is to present the efficiency of online classes based on participation in the undergraduate architecture study program.

2. Literature review

Distance learning is not a new thing in the world of education in Indonesian universities. The Open University pioneered the open and distance education system (*Pendidikan Terbuka dan Jarak Jauh/PTJJ*). The term distance means that learning is not carried out face-to-face but uses media, both printed media (modules) and non-printed (audio/video, computer/internet, radio broadcasts, and television) [7]. However, the PTJJ system in Indonesia is mainly done in micro numbers and is still very limited. This system in Indonesia was also initially considered to have many weaknesses. It was considered ineffective, including (1) the lack of feedback that students could get about the learning processes and outcomes they had taken, (2) students not knowing the learning outcomes they have taken, mistakes that have been made, and improvements that need to be made in the learning process. This results in a lack of strengthening aspects of student learning success, ultimately resulting in low student learning motivation [8]. To reduce this interaction obstacle, PTJJ tries to bridge it by utilising interactive media, which allows two-way communication; even though each type of media has advantages and disadvantages, the choice of media must be adjusted to the characteristics and learning objectives. Despite the popularity of this system, which was not expected before the pandemic, this is mainly due to the lower intellectual level and digital awareness in Indonesia. The distance education system has become more commonly used in Indonesia during the pandemic and offers many opportunities for openness after global trends recommend new potentials for open education.

The constraints of digital classrooms are not a foreign issue, especially in cases where education is implemented in developing countries. Some researchers believe the ineffectiveness of this system is due to several shortcomings apart from the low awareness of self-learning. Leask, for example, has stated that online classes are unlike conventional lectures in classrooms. Expecting student concentration in online lectures is more difficult except for serious (good) students [9, p. 136]. Chan further emphasised a specific recommendation: the importance of the university's role in maintaining the continuity of social, cultural and academic relations on campus to maintain educational conditions and expectations [10, p. 89]. This means that a relational relationship in teaching and learning activities is an essential factor that must be maintained in normal and abnormal times with an awareness of concentration and carrying out learning and teaching tasks. In other words, in a pandemic context, the necessary relationships must grow before total change occurs. This relationship needs to be built in stages with a particular system so that it becomes commonplace and reasonable to do it.

Unfortunately, when the pandemic hit Indonesia, most Indonesians were not fully accustomed to connectedness and relied on digital communication. The relationship between students, teachers and the educational environment practically fades and disappears just before it is forced to form because of urgency. This relational disconnect may not be the worst for those who have experienced campus life before the pandemic. But for new students, especially those who have never experienced campus life, an adjustment is necessary, especially for those with low initiative or maturity. Experts have recommended more effective ways to encourage student-centred independence to accelerate learning and support less conducive situations [11, p. i]. Trowler further advocated for the educational environment to be open to new patterns to see the world innovatively. The specific goal is to improve understanding, increase efficiency, prevent errors, and expedite improvement efforts for progress [12, p. 1]. Even though going offline would further support the implementation of student-centred learning, the principles of independence still need to be understood and implemented to support the learning process in the future. It is believed that future studio materials and management will develop further online by creating virtual worlds.

3. Material and method

This research identifies the impact of implementing face-to-face lectures and design studio learning activities in the undergraduate architecture study program throughout the 2020-2022 academic period. Participation data were analysed with time limits for the even semester of 2020-2021 and the odd semester of 2021-2022 at XYZ University in Indonesia. This timeline is set to analyse the learning system that has changed due to the COVID-19 pandemic and look for the impact on the possible efficiency of the teaching and learning activities. Data was collected using literature studies and direct observation of lecturers, teaching assistants and students and their relation to class presence and usage.

4. Results and discussion

As happened in education worldwide, the COVID-19 pandemic has drastically changed the learning system in undergraduate architecture study programs, especially architectural design studio activities. At that time, almost all learning activities had to be carried out in isolation, and the total transformation triggered many reports of frustrated, stressed, and even depressed participants. Most complain about the difficulty of changing learning and teaching patterns because mastering online technology is essential. Some are quick to adjust; some have difficulty, and some are even incapacitated, so they are eliminated or inactive. In general, the way lecturers teach and educate, the way students learn, the way employees work, the way managers coordinate, and other parties must all be forced to be willing to change and depend on new applications and ways of communication. The unequal internet infrastructure and availability of tools, plus the different levels of discipline, caused significant delays and worries. Most participants questioned the education system later; some were sceptical that they would return to normal because they believed conventional methods are still better to apply, and the rest were more comfortable with online methods because they could be done more freely. Generally, there is a contrast in the assessment of offline and laryngeal teaching and learning methods between the more senior and junior generations. For most of the more senior generation, education with the previous method is considered a success and sufficient to be passed down, although they do not deny that the online method is a novelty.

On the other hand, the younger generation believes the future lies in the virtual world and values conventional methods as part of history, although they believe the triumph of conventional methods is an important learning trend in education. Apart from the contrasting opinions, the COVID-19 pandemic has shown resilience because the learning process can continue well in a hybrid manner regardless of the advantages and disadvantages of a mixed system. In the post-pandemic period, the combination of the two is encouraged to continue to be developed not only because this period is still a transitional period for the world of education in Indonesia,

A participation mapping based on the syllabus and learning outcomes was conducted to re-examine the assumptions and beliefs. The results of observations in the field inform that all courses offered, both core courses, are in the form of mandatory studios, namely architectural design studios, as well as elective studios, which are held by giving lecture material by lecturers, then followed by intensive guidance in small groups by teaching assistants by online, so that effectiveness and efficiency lie in the human resources participating in online classes. Most courses are divided into several parallel classes; this shows a relationship between maximum class capacity and the effectiveness of delivering the material, which depends on the ratio of lecturers and students.

The analysis-synthesis above is supported by statements regarding saving time for lecturers travelling from home to campus and back. Many substitute activities that can be carried out and reduce fatigue, more time with family, additional time doing academic tasks instead of wasting time on the road, and so on are not mapped out. As a joint recommendation with online lecturers and teaching assistants, tens or hundreds of students also study at home. When converted to hours and rupiah (money) only, it would be seen that the efficiency obtained is quite large. Campus density would also decrease a lot every day to be more comfortable.

A green campus can be expected, and the campus would become more comfortable and healthier. Online lectures also reduce classroom usage. Electricity for lighting, air conditioning, and other operational costs would be reduced. Unused classrooms would save operational costs or be used for other commercial or commercialised activities. Therefore, apart from the existing contradictions, there is effectiveness regarding human resources and space, while efficiency is in energy. Coordination and scheduling are essential things that must be considered because apart from teaching and learning activities, there are also other activities from all parties; for example, lecturers often have to attend meetings, research, community service, or other activities.

5. Conclusion

The study program must be ready with a new education method, not returning to the old way. Changes must be made and supported by making the system better. The pandemic may bring many educational setbacks, but it also brings many opportunities for change and promises to increase efficiency in education delivery, especially in the use of space and management of resources. As a guide, there are some valuable suggestions for improving online classroom performance:

- Motivating all parties to be aware and honest in carrying out studies, for example, attendance and not cheating.
 - Distance learning must be developed in line with technological developments and the times.
 - We need a way of data collection and archiving that can show trend analysis and infographics that inform progress or setbacks.
 - It is normalising the old-new, offline-online hybrid system.
 - Make rules and regulations for online learning that are integrated with offline.
 - Build a post-pandemic system and cultivate new academic socio-cultural relations.
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Compliance with ethical standards

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Disclosure of conflict of interest

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Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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