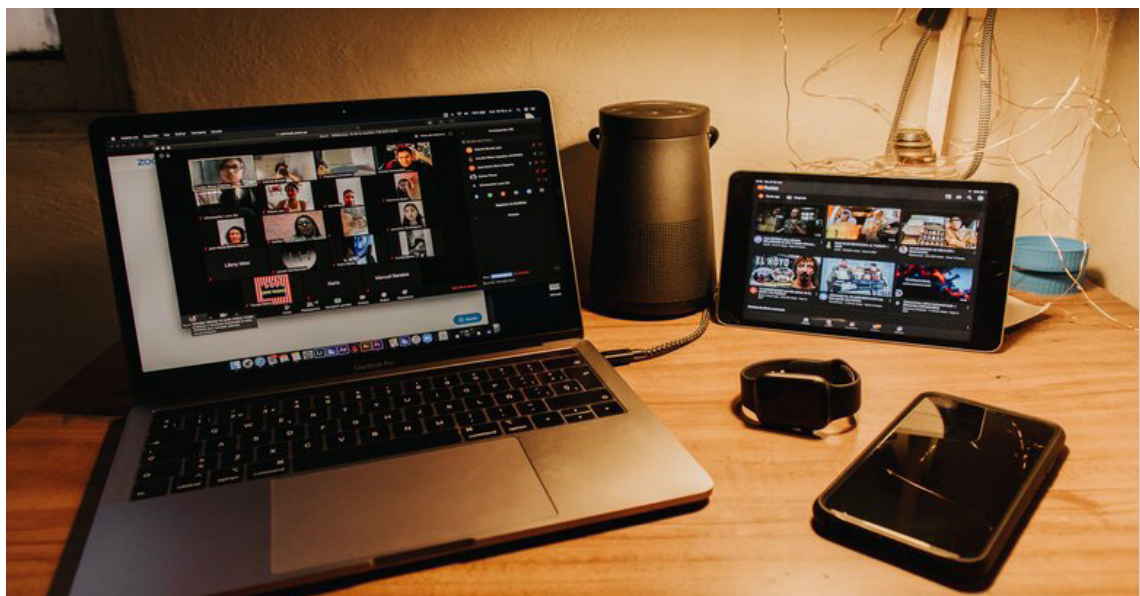


# Adopting Blended Learning Across Built Environment Discipline at State Universities in Sri Lanka During and Beyond COVID-19 Pandemic



Blended learning (BL) is defined as a technology-based teaching system that integrates face-to-face teaching approach with online learning system (Mahaye, 2020, p.2). With the impact of COVID-19 outbreak, the field of education was permanently changed, alterations to the educational process were necessary and BL was one of the most obvious solutions (Mahaye, 2020). A survey conducted between 25th March to 17th April 2020 revealed that two-thirds of higher education institutions were able to move to online teaching (Marinoni, Van't Land, and Jensen, 2020). Blended Learning is not a new concept and has been in use for more than two decades (Alammery, Sheard, and Carbone, 2014), but the term may not have been explicitly realised. In pre-COVID period, Sri Lankan higher education institutes did not give priority to online education. However, during the pandemic, the

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education system of Sri Lanka focused on the on-line learning to continue their academic activities, with the closure of every educational institution in March 2020 after finding the first infected patient locally. It was the first time for many students and staff to experience online learning as opposed to traditional learning during the COVID-19 pandemic. Though the COVID-19 pandemic has subsided and most of the educational institutes have returned to normalcy, the impact of online learning is still influencing the teaching and learning activities of educational institutions. Hence, it is considered as the ideal timing and opportunity for the educational institutes to adopt and sustain blended learning in the teaching and learning activities. However, the effectiveness of using BL depends on the devices used by staff and students, strength and stability of the network, financial background, learning environment and other necessary infrastructure. In this regard, this research aimed at evaluating the effectiveness and sustainability of adopting blended learning across built environment discipline at State Universities in Sri Lanka during and beyond the COVID-19 pandemic.

The learning and teachings activities in terms of the contents, methods of delivery, and assessment largely depend on the disciplines. Accordingly, common research covering all the different disciplines will restrict the ability to compare the effectiveness and sustainability of blended learning. Hence this research focused on the built environment discipline to ensure the comparability of the teaching and learning activities performed by different higher education institutions. A Built environment can be defined as human-made surroundings which are developed to satisfy and provide the setting for human activities (Kaklauskas & Gudauskas, 2016). The built environment education is related to the profession which is primarily concerned with design, construction, planning, procurement, management and technological aspects related to construction and maintenance of built environment structures (Thurairajah, Palliyaguru, & Williams, 2001) and produces professionals such as architects, engineers, planners, project managers, quantity surveyors, facilities managers, designers, property analysts and managers, etc. Further the research was limited to state uni-

versities in Sri Lanka as the recruitment, funding and governance structure of state universities are similar in nature. The University Grants Commission website was consulted to identify the state universities that offer programmes related to built environment disciplines. Among the seventeen state universities in Sri Lanka, eight universities have been considered for this research based on the fact that they produce graduates related to the built environment.

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This study adopted a survey strategy under mixed method approach, where a comprehensive literature review, questionnaires and interviews formed the main data collection techniques. One hundred and eighty eight questionnaires completed by the built environment undergraduates across the eight state universities explored the challenges faced when implementing and adopting BL during COVID-19 pandemic and evaluated the positive and negative impacts of using blended learning beyond COVID-19 pandemic. Nine semi-structured interviews with academic staff covering at least one from each selected state university in Sri Lanka were conducted for data validation and to propose strategies to sustain the blended learning system beyond the COVID-19 pandemic.

The study revealed that 77.1% of the students have become aware of the blended learning only during the pandemic, and the rest of 22.9% had already known about the concept even before pandemic. Lack of infrastructure, lack of technological skills, shortage of engagement with technology, poor language skills of students, poor design of suitable blended model, and fear towards technology were the key challenges identified through the literature and later confirmed by the primary data. In addition, the students came up with additional challenges they faced during online learning. They are difficulties due to the imposed travel restrictions and health guidelines, system failures due to poor network, difficulty in concentrating more than two hours online, difficulty in actively engage with peer discussions and group assignments, uncomfortable learning environment, external disturbances, difficulties in managing workload online, less effective online presentations, and financial difficulties to support learning environment.

Increased interaction, resources with easy access, timely feedback, flexibility, improved IT skills among staff and students, safer environment, cost and time saving, availability of recordings and the opportunity to learn from reputed foreign institutions were identified as positive impacts of adopting blended learning. In contrast, comparatively low interaction, lack of efficiency, difficulties with developing conceptual thinking, and unsafe environment were identified as the negative impacts of BL. There has been a mixture of positive and negative responses for certain aspects such as interaction, skills development, safer environment, etc. which were mainly due to the differences between the individual perceptions.

Despite the challenges, the preference of using blended learning beyond the pandemic was positive among built environment staff and undergraduates. 100% of the staff and 85% of students wish to adopt BL model beyond pandemic. The modes of conduct

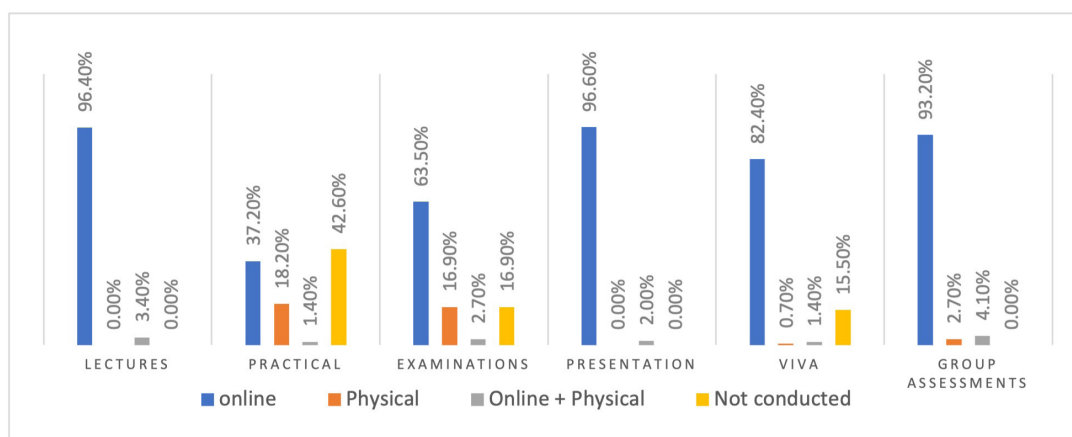


Figure 1: Modes for teaching and learning used during Pandemic

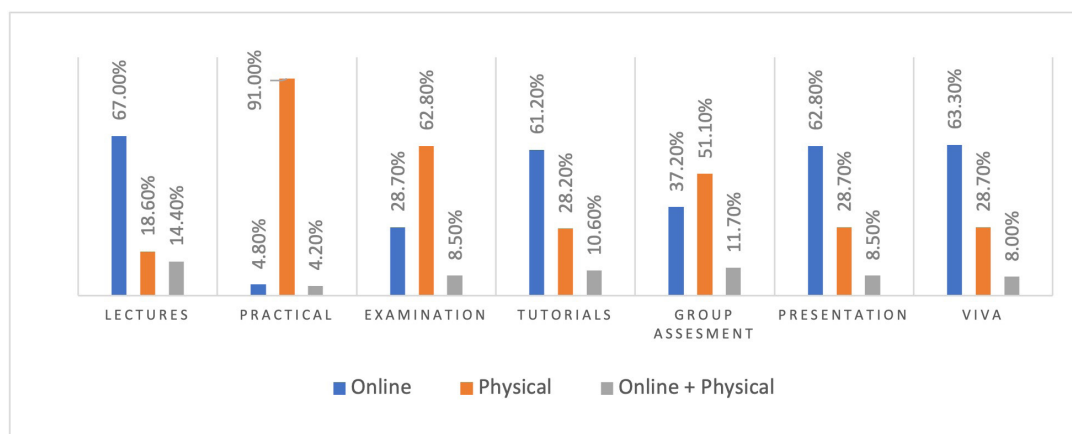


Figure 2: Students' preferred modes for teaching and learning beyond Pandemic

of various academic activities during the pandemic and the students' preferred modes beyond the pandemic are shown in Figure 1 and 2, respectively. This comparison clearly indicates that for certain activities such as practical, examination, group assessment, etc. the physical mode is preferred.

Finally, to ensure the sustainability of blended learning beyond the pandemic, strategies were proposed by the academic staff. The key strategies are to develop infrastructure facilities to accommodate BL including a support centre, implement in policy level changes to design BL within curriculum, increase awareness about the BL concept and techniques, improve the teaching and learning methods, receive feedback from the stakeholders for continuous improvement. By implementing such strategies, the blended learning concept which was forcibly adopted by the Sri Lankan higher education institutes due to COVID-19 can effectively be utilised and sustained within the built environment higher education in Sri Lanka.

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