Perception of students in adapting to online learning during COVID-19

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Perception of students in adapting to online learning during COVID-19

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Abstract

Teaching mode of the first academic semester of year 2020 was abruptly changed from face-to-face to online mode, which was a forced transition due to Covid-19 outbreak. Physical classroom in the traditional system was unexpectedly altered to an online classroom without possessing proper knowledge on technical and pedagogical aspects, which led to undue stress among the teachers and students. Challenges were posed in relation to the conversion and delivery of teaching modules in online mode, with limited infrastructure, under non-availability of conducive teaching/learning environment and with lack of competency on handling information technology during this transformation. Having recognized the teachers' responsibility to provide quality education even amidst this unprecedented scenario, it was investigated to what extent online learning has been effective from students' perspective. Level 2 Civil Engineering undergraduates who follow "Engineering Hydrology" in Semester 3 and "Hydraulic Engineering" in Semester 4 were selected for this study. Semester 3 has been conducted using both physical and online modes whereas semester 4 was delivered completely by online mode. Students' perceptions were collected through a questionnaire survey. The questionnaire survey was formulated based on pros and cons of both physical and online modes and issues related to delivery and assessment and included both open and close-ended questions. Furthermore, suggestions to improve online learning were obtained. It was observed that only 60% of the students (n=20) have been able to use online learning environment effectively, whereas 20% have faced serious technical and delivery issues. The balance 20% were frequently inactive. Only 20% of the students were of the view that online mode promoted self-paced learning, while 80% believed that it provided a flexible learning environment. Nearly 40% stated that online learning enabled more freedom to clarify issues. The study showed that present delivery via online needed amendments for enhancing effectiveness of learning. The results have been utilized in planning the online delivery in the subsequent semester.

Background

The COVID-19 pandemic has made its impact on almost all sectors of human civilization in a drastic manner. People have been compelled to get themselves adapted to a new way of conducting their daily activities or a 'New normal'. In this backdrop, the global higher education (HE) sector faces the greatest challenge ever encountered. According to United Nations Educational, Scientific and Cultural Organization (UNESCO), 186 countries have implemented a nationwide 'lockdown' by the end of April 2020, which has affected nearly 74% of the total enrolled learners (UNESCO, 2020). Sri Lanka is no exception and most local Universities and HE Institutes are yet to open or function at full capacity due to the prevailing

situation. Students are instructed to stay away from the HE Institutes until a healthy and safe physical environment is established. In most Universities teaching mode of the first academic semester of the year 2020 was abruptly changed from face-to-face to online mode as the only solution available. This forceful transition got underway without possessing proper knowledge on technical and pedagogical aspects related to online teaching and learning, which led to undue stress among the teachers and students. Furthermore, conversion and delivery of teaching modules in online mode, limited infrastructure, lack of a conducive teaching/learning environment and inadequate competency in handling information technology had been formidable challenges during this transformation. In the conventional HE system, students used to follow the programme of study through face-to-face sessions while online learning accounted for only a minor portion of the entire exercise. Hence, in light of the COVID-19 pandemic, students had to undergo a sudden change in mindset by accepting online learning as the only mode of learning available. Level 2 Civil Engineering undergraduates of the General Sir John Kotelawala Defence University (KDU) had to undergo this chaotic situation and hence it was decided to investigate to what extent the online learning has been effective from the students' perspective.

As per Bignoux and Sund (2018), the online learning environment varies significantly from the traditional learning environment with respect to learners' motivation, satisfaction and interaction. Certain studies have revealed that the perception of students related to online learning is affected by factors such as age, gender, prior knowledge on information technology and individual learning styles (Shrestha *et al*., 2019; Salloum *et al*., 2019). Bączek *et al.* (2021) investigated the perception of students on online learning in Poland during the COVID-19 pandemic and found that technical issues had been the key challenge for the majority of students. Shetty *et al*. (2020) reported that undergraduates in India had favourable perceptions towards online learning during the COVID-19 pandemic despite experiencing lack of socialization, distraction by social media and technology related issues.

Knowlton (2000) developed a theoretical framework for the online classroom synthesized with student-centered learning. Figure 1 shows the model of the online classroom with the teacher's role in which the course and student interaction is framed by providing resources (web and traditional) and opportunities. However, in order to maintain the dynamics of the online classroom, interaction among students and reaction to students' initiatives need to be established. Raeburn *et al*. (2009) reported that online courses redesigned in agreement with constructive alignment concepts, showed significant increase in student engagement and achievement of learning outcomes.
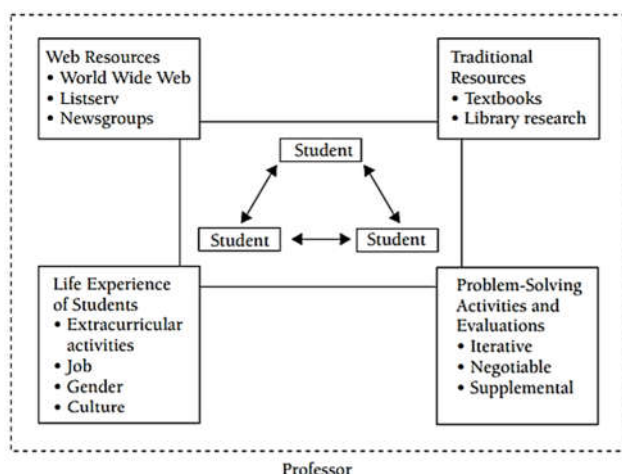
Figure 1. Model of the online classroom (Knowlton, 2000)

Methodology

Level 2 Civil Engineering undergraduates (n=24) who followed "Engineering Hydrology" module in Semester 3 and "Hydraulic Engineering" module in Semester 4 were selected for this study. Semester 3 has been conducted using both physical and online modes during which the lecturer physically appeared online. However, semester 4 was delivered completely by online mode due to the prevailing COVID–19 pandemic. Students' perceptions were collected through an online questionnaire survey developed using Google forms. The questionnaire was formulated based on four sections: general information, comparison of face-to-face learning against online learning, delivery of online sessions and assessments. Questions in section 2 were assessed based on a 5-step Likert scale whereas section 3 questions were presented by both dropdown and multiple responses types. In addition to the above, one open-ended question was included in section 4. The distribution of the questionnaire among the students was administered by an instructor and a link to the Google form was made available on the students' WhatsApp group.

Results/Discussion

Only twenty (20) students submitted their responses (6 Female & 14 Male) during the given time period. The responses of the section 1 revealed that the majority of students (90%) expressed that they possessed medium level IT skills that needed for online learning while the balance 10% possessed lesser IT skills. Furthermore, only 4 students (20%) had experienced online learning previously. The analysis of questions in section 2 is shown in Table 1. The response was converted into a respective score by considering SD = 1 and SA = 5.

Results of section 3 elaborated students' perceptions related to the online learning platform and nature of the online learning environment. Although the majority of students (65%) preferred the Zoom platform, only 15% indicated their preference for the KDU Learning Management System (LMS) integrated with any online platform (Zoom, MS Teams etc.). Results revealed that 80% of the students have been able to use the online learning environment effectively. Multiple responses on the nature of the online environment were inquired and the results are depicted in Figure 2.

Table 1. Analysis of questions in section 2

No.	Statement	Distribution of response					Mean score
		SD	D	N	A	SA	
1	Online learning is more **effective** than face-to-face learning	5 25%	6 30%	7 35%	2 10%	0 0%	2.30
2	Online learning allows more **active participation**	4 20%	10 50%	5 25%	1 5%	0 0%	2.15
3	Online learning helps to gain more **knowledge**	2 10%	5 25%	7 35%	5 25%	1 5%	2.90
4	Online learning provides more freedom **to clarify issues/questions**	2 10%	5 25%	5 25%	7 35%	1 5%	3.00
5	Online learning provides more **interaction**	4 20%	8 40%	6 30%	2 10%	0 0%	2.30
6	Online learning provides a more **flexible learning environment**	1 5%	1 5%	2 10%	9 45%	7 35%	4.00
7	Online learning promotes more **self-paced learning**	2 10%	9 45%	5 25%	1 5%	3 15%	2.70
8	Online learning is prone to more **technical/delivery issues**	4 20%	4 20%	8 40%	2 10%	2 10%	2.70

Note: SD-Strongly Disagree, D-Disagree, N-Neutral, A-Agree, SA-Strongly Agree

Figure 2 also confirmed that the students have accessed using different methods such as live online lecture, recording, uploaded lecture materials etc.
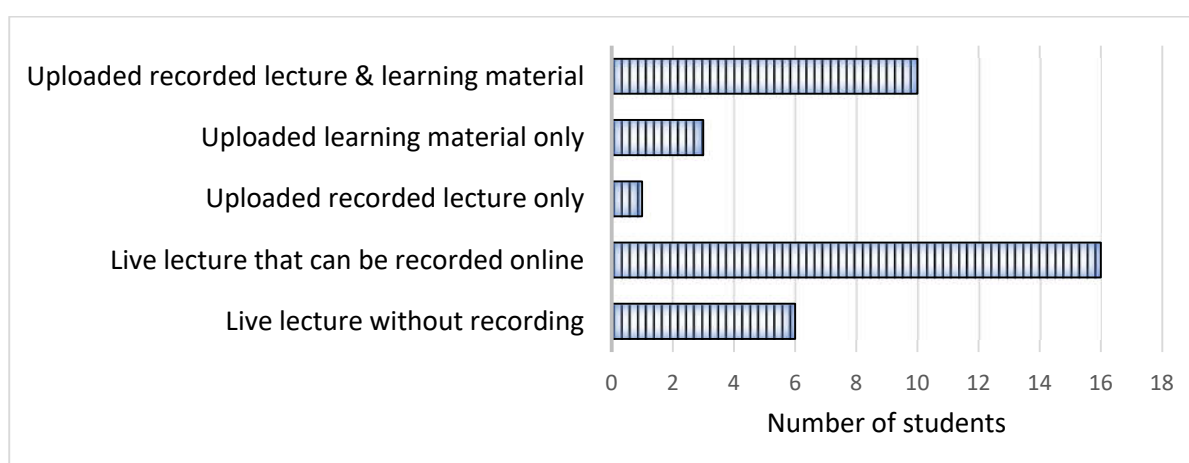

Figure 2. Nature of the online environment

With the forced transition to online learning, initially, there was a limited opportunity for assessment. However, it was noted that except for 2 students, others attended for all online assessments. Quiz (90%) and in-class test (75%) were the preferred types of assessments. Most importantly, nearly 60% of students were in agreement that feedback given to online assessments had been useful. Eight students (see Table 1) indicated that online learning enabled more freedom to clarify issues. Some students further mentioned that the feedback helped to construct their own knowledge and requested to continue with the thread of feedback which may be considered as one of the reflective practices. Responses for the open-ended question corresponded to both positive and negative aspects of online learning and described students' perception on how to improve the same further. Table 2 shows some of the present limitations identified by students and proposals to address them together with suggestions for the improvement of online learning.

Table 2. Limitations and suggestions for improvement relevant to online learning

Limitations (with proposals to address the issues)	Suggestions for improvement
1. Network connection issues (For assignments - extension of deadline; For lectures - recorded lecture) 2. Feel monotonous (switch on video of both the lecturer and students) 3. Duration of a lecture to be reduced (split lectures)	1. Need more interactive sessions for active participation 2. Conduct more tutorial classes 3. Solving numerical problems in-class 4. Quiz after each topic

It is observed that 60% of the students are of the view that online learning does not provide more interaction (see Table 1) and the same was also highlighted in the suggestions. This confirms the necessity of reinforcing interaction among students with framing performed by the teacher, as explained in the online classroom model developed by Knowlton (2000).

Conclusion

The lockdown and travel restrictions of the country due to the Covid-19 pandemic transformed the delivery of higher education from face-to-face to online learning abruptly. The study revealed that only 20% of students had experienced online learning prior to this scenario and 20% of students agreed that they had faced serious technical and delivery issues. While 20% of students appreciated self-paced learning, 80% accepted that online learning created a more flexible learning environment. It is recommended that more interaction need to be maintained considering the higher level of students' dissatisfaction on online learning. The findings show that there have been many negative perceptions towards online learning in spite of reporting few positive aspects related to the learning environment and clarification of subject matter. Redesigning online courses with the application of constructive alignment would enhance the effectiveness of the same.

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