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Undergraduates' Perception on E-learning Readiness during COVID-19: A case of a Selected University in Sri Lanka

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Abstract

E-learning involves the use of technological advances, tools and digital devices for teaching and learning. In a university context this method of education involves training, delivering and sharing knowledge and ideas. In an extreme situation where teacher and student cannot physically meet, such as the presence of COVID 19 pandemic, the online education is paramount to continue the education. It is crucial to understand the e-learning readiness of users'/learners' before implementing the e-learning mode. This study involves identifying the readiness of the Sri Lankan undergraduates towards e-learning. Accordingly, this paper mainly explores on three aspects such as perceived self-efficacy, perceived usefulness and technological aspect in relation to e-learning readiness of undergraduates in Sri Lanka and the advantages and disadvantages of e-learning system as per students' perspective. The survey was carried out through an online questionnaire and was distributed among all the undergraduates in a selected department of one of the universities in Sri Lanka. Altogether 81% of the students responded to the survey out of 224 undergraduates

of the department. The analysis explored with descriptive statistics. Overall results of the study indicate that the readiness of students for e-learning activities is positive and above the average in terms of perceived self-efficacy, perceived usefulness and technological aspects. It is recommended to implement a hybrid method according to the nature of the different degree programmes.

Keywords: *E-learning, E-learning readiness, Perceived usefulness, Perceived self-efficacy, Technological aspects, Advantages and Disadvantages of e-learning*

Introduction

E-learning is the recent evolution of distance learning practice where teacher and learner are separated by time, distance and both (Raab et al., 2002). E-learning is the use of education technologies, electronic media and information and communication technologies such as emails, internet, computers in the educational process (Al-araibi, Mahrin, & Yusoff, 2019). This form of teaching and learning become increasingly interesting because students and teachers are able to access books, journals and studies of other researchers in the internet, class conduct virtually instead of being physically present in classrooms (Al-araibi, Mahrin, & Yusoff, 2019), students can study at their own pace in their preferable environment and student can reduce the cost of commuting from residence to collages as well as for their temporary accommodations (Akaslan & Law, 2011).

Especially, with the current pandemic situation of COVID-19 in Sri Lanka, there is a huge risk of conducting lectures physically at university premises as usual. Hence, alternative methods to conduct the lectures is crucial. In this scenario, e-learning for delivering education and training enables the university students to participate in their studies continuously without any delay ensuring

the above-mentioned benefits. However, the integration of e-learning mode into the academic institutions of developing countries have their own challenges (Akaslan & Law, 2011). Liaw (2008) mentions that a higher rate of students who start e-learning courses do not complete them due to some unexpected problems, this express that something is not working properly. Further, it has been examined and understood that successful implementation of e-learning depends on the readiness for the initiation of the system because the primary reason for the failure of e-learning in higher education institutions is that they are not ready to implement e-learning (Al-araibi, Mahrin, & Yusoff, 2019). In countries with larger areas coming under the category of rural, may not covered an adequate extent of IT technology. This could be due to huge deviations in the geographical settings such as barriers with some areas containing mountains as well as with thick forests etc. On the other hand, possibly, students might not have access to all sorts of equipment/s that fully facilitate the use of IT technology to continue the e-learning systems without interruptions. Thus, it is important to understand the e-learning readiness of users'/learners' before implementing the e-learning mode. Accordingly, aim of this paper is to investigate the e-learning readiness of undergraduates of a selected National University of Sri Lanka. E-learning readiness supports higher education institutions to measure the level of readiness, understand the gaps, and redesign their approaches and strategies in order to implement successful e-learning system (Al-araibi, Mahrin, Yusoff, et al., 2019). Accordingly, this paper examines three aspects such as perceived self-efficacy, perceived usefulness and technological aspect in relation to e-learning readiness of undergraduates in Sri Lanka as well as advantages and disadvantages of e-learning system as per students' perspective.

The following sections elaborates the literature related to e-learning readiness and advantages and disadvantages of adopting e-learning in university system. Next, the research method is discussed including data collection, and analytical approach. Finally, the study discusses the results and conclude the study.

Literature Review and Conceptualization

E-learning Readiness

E-learning readiness can be defined as 'the ability of an organization or individual to take advantage of e-learning' (Akaslan & Law, 2011). Borotis and Poulymenakou (2008) defined e-learning readiness as "the mental or physical preparedness of an organization for some e-learning experience or action". Accordingly, it is said that when it comes to readiness in the educational sector, teachers as well as learners must be 'e-ready' to implement the e-learning system successfully (Ouma et al., 2013). However, the current study is only focused on the users'/undergraduates' point of view.

According to the existing literature, to determine the overall readiness of adopting e-learning into organization system, researchers have investigated different aspects such as technology, people, innovation, self-development, school management, content availability, motivation, online skills and relationships, ability to hold internet discussions, ability to use online audio/video, and importance to learner's success (Al-araibi, Mahrin, Yusoff, et al., 2019; Ouma et al., 2013; Watkins et al., 2004). Out of these different aspects, people and technology play significant role in determining the success of initiation of e-learning environment and successful implementation of e-learning systems (Al-araibi, Mahrin, Yusoff, et al., 2019; Ouma et al., 2013; Watkins et al., 2004).

People aspect of e-learning readiness is discussed through self-efficacy and perceived usefulness. In general terms, self-efficacy means 'an individual's beliefs about his or her capabilities in successfully perform a particular behaviour' (Wu et al., 2010). The results of the study by Liaw (2008) shows that perceived self-efficacy is a critical factor that influences learners' satisfaction with the Blackboard e-learning system. Further, it is understood that learners with higher self-efficacy are more confident in achieving e-learning activities and increasing their satisfaction (Sun et al., 2007). Bandura (1986) as cited in Wu et al. (2010) mentioned that self-efficacy is task-specific and measures should be tailored according to the target context. For this study, perceived self-efficacy is defined as confidence in one's belief about the ability to perform certain learning task using e-learning systems as presented by (Wu et al., 2010).

Perceived usefulness is defined as 'the belief that the use of particular technology will improve one's performance' (Pituch & Lee, 2006). According to the technology acceptance model (TAM), perceived usefulness refers as 'the degrees of work improvement after the adoption of a system' (Sun et al., 2007). Further, when learners see more perceived usefulness of e-learning system, the more positive attitude and readiness can be observed towards e-learning system, consequently with improving satisfaction (Sun et al., 2007). For this study, perceived usefulness is defined as learners' perception of the degree of improvement of learning due to the adaptation of e-learning system.

The technology aspect is one of the most important aspects to understand the e-learning readiness since e-learning relies on access to computer and internet (Al-araibi, Mahrin, Yusoff, et al., 2019). Effectiveness and efficiency of e-learning depend on the technological aspect (Al-araibi, Mahrin, Yusoff, et al., 2019; Wu et

al., 2010). For example, internet access is one of the most important aspects of technology, low internet speeds and problems while e-learning can results dissatisfaction and students drop out from the e-learning courses (Keramati et al., 2011). Further, in developing countries, one of the reasons for the failure of e-learning coming from a technological perspective (Al-araibi, Mahrin, & Yusoff, 2019). Al-araibi et al. (2019) have identified eight technological factors for e-learning readiness, including software, hardware, connectivity, security, technical skills, system flexibility and support, data center and cloud computing. Further, there are different technologies to facilitate, support and enhance the teaching and learning such as computers, mobile phones, internet, video conferences, emails, audio/videos and discussion forums (Al-araibi, Mahrin, Yusoff, et al., 2019). Accordingly, this study considers internet access, internet quality and hardware availability to understand the technological aspect of e-learning readiness of undergraduates.

Advantages and Disadvantages of Adopting E-learning in University System

E-learning environment creates a flexible and more convenient study environment for learners especially for undergraduates than a typical study environment in a classroom. Several researchers and authors have identified advantages of the adaptation of e-learning into education systems (Klein & Ware, 2003; Algahtani, 2011; Hameed et al, 2008; Marc, 2002; Wentling et al. 2000; Nichols, 2003 as cited in Arkorful and Abaidoo, 2015).

In the study of Arkorful and Abaidoo (2015), have summarized the advantages of e-learning which have been identified in the study by Holmes and Gardner (2006). It is mentioned that e-learning enhanced the efficiency of student while allowing to access much of information knowledge. Interaction and collaborative learning

motivate students whom from anywhere around the world. E-learning centers on students or learners which is the most crucial characteristics and advantage according to Holmes and Gardner (2006) as cited in Arkorful and Abaidoo (2015). Its effectiveness in terms of cost and time enables the student to engage more in learning.

Along with many advantages e-learning system also has some disadvantages when it is adopted to the education. Several studies have identified disadvantages of e-learning (Collins et al. 1997; Klein & Ware, 2003; Hameed et al, 2008; Almosa, 2002; Akkoyuklu & Soylu, 2006; Lewis, 2000; Scott et al. 1999; Marc, 2002; Dowling et al, 2003 as cited in as cited in Arkorful & Abaidoo, 2015). As per the examples given in the study of Arkorful and Abaidoo (2015) and Dowling et al. (2003), they argue that making learning materials available online improves learning only for specific forms of collective assessment. In addition, the lack of physical interaction between students and instructors and between students is a one major disadvantage (Young, 1997; Burdman, 1998). Dowling et al. (2003) argue that making learning materials available online improves learning only for specific forms of collective assessment. In similar context, Mayes (2002) questioned whether e-learning is simply a support device for existing methods of learning. The most frequent condemnation of e-learning is the complete absence of vital personal interactions, not only between learners and instructors, but also among colleague learners (Young, 1997; Burdman, 1998). However according to Almosa (2002), the advantage of e-learning helps to reduce the disadvantages while encouraging to engage with it.

Research Methods

Data Collection

This study was conducted during the total lockdown period of the country due to COVID-19 pandemic from March to June/July, 2020. At that time, university authority and other stockholders were in a hesitation on the possibility of implementing undergraduate learning through online as the system had very limited experience on delivery of knowledge via online. Hence, this study primarily aims to study the readiness of undergraduates for e-learning mode through three aspects such as perceived self-efficacy, perceived usefulness and technological aspects. Secondly, it was aimed to analyze advantages and disadvantages of e-learning mode from students' point of views.

This study used cross-sectional survey of undergraduates of all four academic years in a particular department in a selected National University of Sri Lanka. It was done through online survey approach (Google form) using all registered students of the department i.e. 182 undergraduates. Data collection was primarily done through online techniques as the prevailing situation in the country during the COVID-19 outbreak period when meeting in person was restricted. Structured questionnaire was used as the data collection instrument in the study.

In the process of questionnaire development, it was consulted the senior academic members of the relevant study programme to confirm whether the variables and measures were appropriate, and the wording of the questionnaire was clear. Next, for further refinement of the questionnaire, pilot survey was conducted with 10 undergraduates and done minor changes were made to the original questionnaire. The details of the survey process is unfolded subsequently.

Measurement scales of perceived self-efficacy, and perceived usefulness, were developed primarily by adapting previously validated instruments to fit the current study context. Perceived self-efficacy in the study was defined as confidence of undergraduate's belief about the ability to perform certain learning task using the e-learning system (Wu et al., 2010) and measures were taken from Liaw (2008), Compeau and Higgins (1995) and Tan and Teo (2000) whereas measurements of Liaw (2008), Davis (1989) and Gefen and Straub (2000) were taken in measuring perceived usefulness which is defined as undergraduates' perception of the degree of improvement of learning due to the adaptation of e-learning system. Above mentioned measures were assessed using a 5-point Likert scale ranging from 1 to 5 (strongly disagree to strongly agree) (see Table 1).

However, for the technology aspect, it was unable to locate a previously validated scales that matched to the constructs of interest of this study. Therefore, items were developed by the authors based on features considered to be important for e-learning as cited in literature. Accordingly, internet access, internet quality and hardware availability was identified factors to understand the technological aspect of e-learning readiness of undergraduates (Al-araibi, Mahrin, Yusoff, et al., 2019). Technological aspects were measured by availability of access to internet, device(s) used to access internet, method(s) of access to internet, internet service provider(s), connection type, mode of payment, signal strength, internet quality in this study.

Table 1 – Variables and Measures

Variable	Instrument	Classification	Source of Literature
Perceived self-efficacy	I'm fully aware of how to participate in e-learning through LMS and other similar platforms.	**Likert Scale Questions** Strongly Disagree Disagree Neutral Agree Strongly Agree	Liaw (2008) Compeau and Higgins (1995) Tan and Teo (2000)
	I'm fully aware of how to participate in e-learning through remote video conferencing services (eg. Zoom, Skype).		
	I possess sufficient information technology skills to engage in educational activities online.		
	I have a supportive background at home for e-learning.		
	I intend to use e-learning to assist my learning		
	I intend to use e-learning content to assist my learning		
	I intend to use e-learning as an autonomous learning tool		
	I am willing to actively communicate with my classmates and lecturers electronically.		
	I like to engage in e-learning through voice media only.		
	I like to engage in e-learning through multi-media (both voice and video).		
	I like using e-learning based on the similarity of my values and society values underlying its use		
Perceived usefulness	I believe e-learning can assist learning efficiency	**Likert Scale Questions** Strongly Disagree Disagree Neutral Agree Strongly Agree	Liaw (2008) Davis (1989) Gefen and Straub (2000)
	I believe e-learning can assist learning performance		
	I believe e-learning can assist learning motivation		
	In order for me to prepare for future job, it is necessary to take e-learning courses		
	Internet quality	Very weak/Low Weak/Low Moderate Strong/High Very Strong/ High	
Technological aspect	Availability of access to internet	Yes | No	
	Device(s) used to access internet	SMART Phone| Laptop | Mobile Tab | Desktop Computer	
	Method(s) of access to internet	Mobile data | WiFi Router | ADSL | Dongle	
	Internet service provider(s)	Dialog | Mobitel | SLT | Airtel | Hutch | Etisalat	
	Connection type	Pre-paid | Both | Post-paid	
	Mode of payment	Top Up / Reload | By Visiting Registered Payment Settling Outlets | Mobile Banking | By Visiting Offices of Internet Service Providers | Internet Banking	
	Signal strength	Very weak/Low Weak/Low Moderate Strong/High Very Strong/ High	

Reliability

Reliability was tested for two Likert scale instruments of perceived self-efficacy and perceived usefulness. Accordingly, internal consistency was measured using Cronbach Alpha and it indicated values as perceived usefulness .893 and perceived self-efficacy .897. The value of the coefficient for both scales are above the minimum level of 0.7. Thus, the reliability of the scales in the study can be assured (Kline, 2005).

Data Analysis and Results

As per the objective of this paper, three aspects of perceived self-efficacy, perceived usefulness and technological aspect in relation to e-learning readiness is analyzed. The analysis is conducted as a descriptive analysis. Accordingly, the demographic profile is discussed to present the overall idea of the case study and followed by perceived self-efficacy, perceived usefulness and technological aspect.

Demographic Profile

Table 2 – Demographic Profile of the Sample

Gender wise Respondents	**Percentage**
Male	38.5%
Female	61.5%
Province wise Respondents	
Western	23.60%
Central	13.20%
Sabaragamuwa	12.10%
Southern	12.10%
North Central	9.30%
Uva	8.80%
Eastern	8.20%
Northern	6.60%
North Western	6.00%
E-learning mode(s) utilized so far in studies	
LMS	90.66%
Video-based learning	47.25%
Virtual classrooms	40.66%
Mobile learning	20.33%
Web seminar	8.79%
Zoom	1.1%
None of the above	2.2%

As per the Table 2, Out of all the respondents, most of the respondents were female students of the selected programme and this is due to the inherent nature of the university qualifiers from the Advanced Level examination of Sri Lanka. Respondents represent all nine provinces of the country. Higher percentage of students were from Western (24%), Central (13%), Sabaragamuwa (12%) and Southern (12%) provinces.

The e-learning mode that is often utilized by respondents is the Learning Management System (LMS) of the faculty. Other than that, some students use video-based learning, virtual classrooms and mobile learning for their studies. A very few students have used Zoom application for their studies whereas a few students have not used any of the above e-learning modes.

Perceived Self-efficacy

Table 3 – Results of Perceived Self-efficacy

Indicators	M	SD
I'm fully aware of how to participate in e-learning through LMS and other similar platforms.	3.45	0.873
I'm fully aware of how to participate in e-learning through remote video conferencing services (eg. Zoom, Skype).	3.15	0.955
I possess sufficient information technology skills to engage in educational activities online.	3.35	0.868
I have a supportive background at home for e-learning.	3.33	1.073
I intend to use e-learning to assist my learning	3.52	0.761
I intend to use e-learning content to assist my learning	3.55	0.759
I intend to use e-learning as an autonomous learning tool	3.42	0.750
I am willing to actively communicate with my classmates and lecturers electronically.	3.51	0.862
I like to engage in e-learning through voice media only.	3.09	0.966
I like to engage in e-learning through multi-media (both voice and video).	3.59	0.937
I like using e-learning based on the similarity of my values and society values underlying its use	3.52	0.732

Note: M=Mean, SD=Standard Deviation

The readiness of the students for e-learning is identified if the overall self-efficacy of the students is greater than the average

level. As per the descriptive information in table 2, the overall perceived self-efficacy of the students is above the average (mean value is above 3). The mean values of each instrument show a greater value than the average which demonstrates that the confidence level of the students regarding their ability to perform learning tasks through e-learning is above the average. They almost have the basic understanding to participate in e-learning through different platforms such as Zoom and Skype. Their intentions, backgrounds and willingness to engage in e-learning are quite positive.

Perceived Usefulness

Table 4 – Results of Perceived Usefulness

Indicators	M	SD
I believe e-learning can assist learning efficiency	3.49	0.810
I believe e-learning can assist learning performance	3.39	0.822
I believe e-learning can assist learning motivation	3.43	0.827
In order for me to prepare for future job, it is necessary to take e-learning courses	3.68	0.869

Note: M=Mean, SD=Standard Deviation

The mean values of each indicator which have been used to measure the perceived usefulness of e-learning is above the average level (mean value is above 3) (table 4). This indicates that the students' perception of the degree of improvement of learning due to the adaptation of e-learning system is positive. They believe that e-learning can assist their learning efficiency, performance and motivation. Similarly, they expect e-learning as a tool of preparation for future job opportunities. Therefore, it demonstrates that the readiness of students to engage in e-learning is above the average since they believe that e-learning improves the learning throughout the degree programme.

Technological Aspect

To measure the readiness of the students in terms of technological aspects, the study has used indicators such as availability of access to internet, device(s) used to access internet, methods of access to internet, internet service provider(s), connection type, mode of payment, internet quality and signal strength

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Figure 1 - Availability of Access to Internet

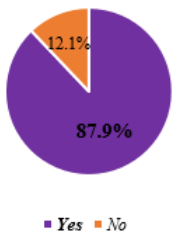


Figure 2 - Device(s) Used to Access Internet

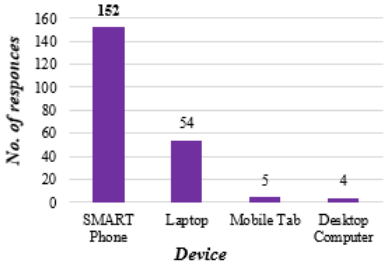


Figure 3 - Method(s) of Access to Internet

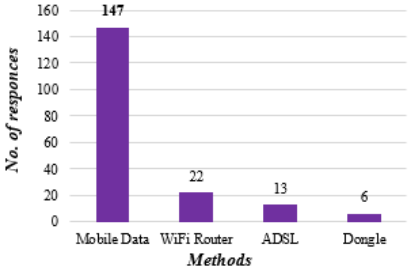
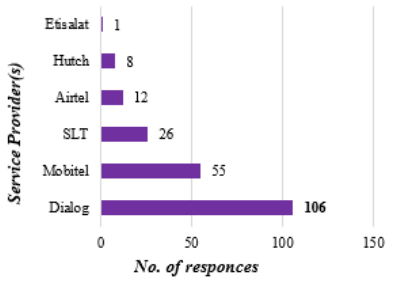


Figure 4 - Internet Service Provider(s)



As per figure 1, out of total respondents, most of the students (87.9%) have access to internet and most of them use their smart phones to access to internet whereas, some students use their laptops (figure 2). However, a very few students use mobile tabs and desktop computers. Some students use more than one of the above devices to access to internet, for instance both smart phone and laptop. To access to internet majority of the respondents (80.77% out of total respondents) use mobile data (figure 3) and

most of the students have Dialog connections (58% out of total respondents) (figure 4).

Figure 5 - Connection Type

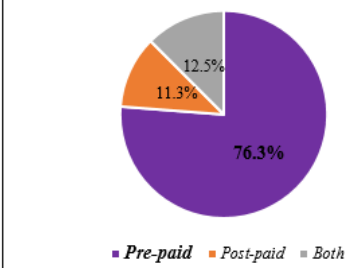


Table 9 - Mode of Payment

Mode of Payment	Percentage
Top Up / Reload	**71.3%**
By Visiting Registered Payment Settling Outlets	10.6%
Mobile banking	8.1%
By Visiting Offices of Internet Service Providers	6.9%
Internet Banking	3.1%

Figure 6 - Internet Quality

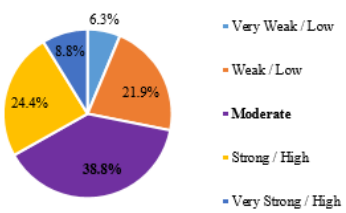
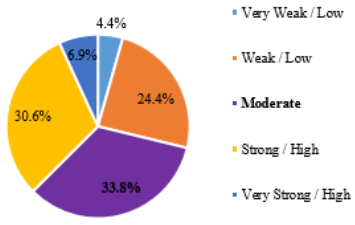


Figure 7 - Signal Strength



Most of the respondents use pre-paid data packages to access internet (figure 5) and use 'top up or reload' as the payment mode to get data to access to internet (table 5). As per the most of responses, the internet quality (figure 6) is at a moderate level (38.8%) or higher. However, a considerable percentage of students have a low/weak (21.9%) or a very low/weak (6.3%) internet quality. Furthermore, in terms of signal strength (figure 7) majority of the students have a moderate level of signal strength (33.8%) in their living areas. Apart from that, the second highest percentage of students have a strong/high signal strength (30.6%). However, a considerable percentage of students have

very weak/low (4.4%) or weak/low (6.9%) signal strength levels in their living areas.

Advantages and Disadvantages of e-learning system as per students' perspective.

Figure 8 - Advantages of the University introducing e-learning environment for course delivery

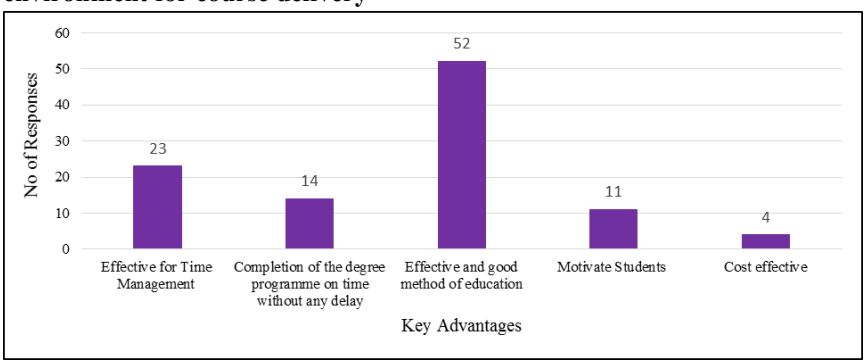
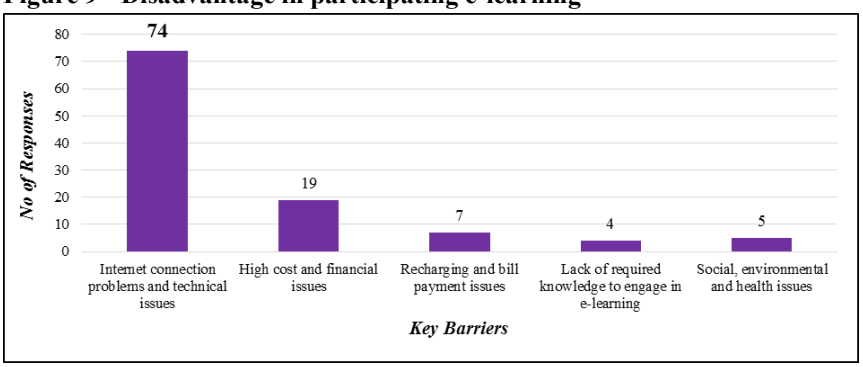


Figure 9 - Disadvantage in participating e-learning



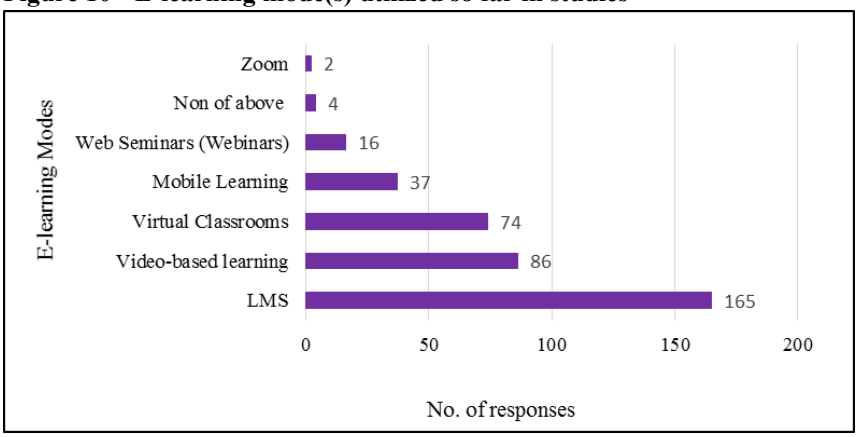
The advantages were collected through an open-ended question. Respondents' views regarding the advantages of introducing e-learning environment for course delivery were categorized into five main advantages as illustrated in the figure 8. It is evident that most of students agree that e-learning will be an effective and

good method of education and they consider it as the main advantage of e-learning.

Issues and barriers that the respondents face when participating in e-learning were also recorded through an open-ended question and they were divided into five categories. The major barrier faced by most of students is the internet connection problems (e.g.: low internet connection) and technical issues (e.g.: issues with devices, service providing packages).

Study Background Analysis

Figure 10 - E-learning mode(s) utilized so far in studies



The e-learning mode often utilized by respondents is the LMS of the faculty. Other than that some students use video-based learning, virtual classrooms and mobile learning for their studies. A very few students use Zoom application for their studies whereas a few students have not used any of the above e-learning modes.

Figure 11 - Overall likeness towards e-learning environment

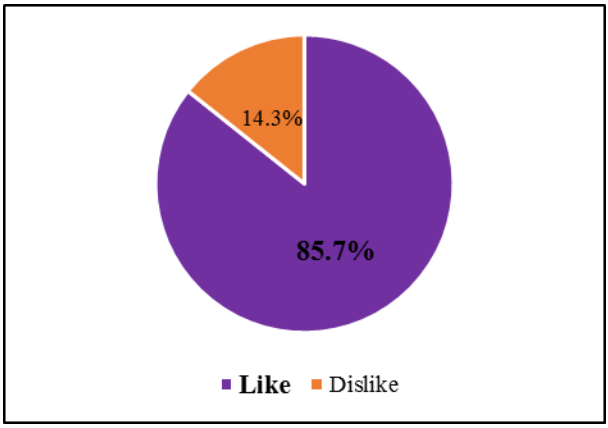


Figure 11 presents the majority of respondents have mentioned that they like to study in an E-learning environment. However, it can be argued that this may be an emotional opinion from students as they are at home without opportunities for learning due to total lockdown of the country. In fact, they have no experience with e-learning mode earlier. Hence, their willingness should be checked once the e-learning will be started. It is, however, their positive view on e-learning is encouraging factor to commence e-learning.

Figure 12 - Preferred Time to Engage in e-learning

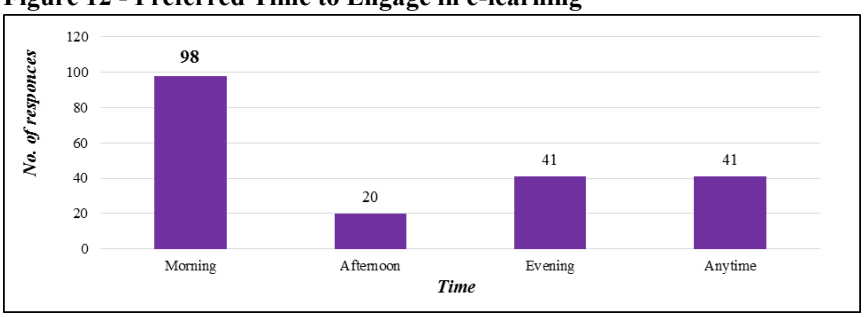
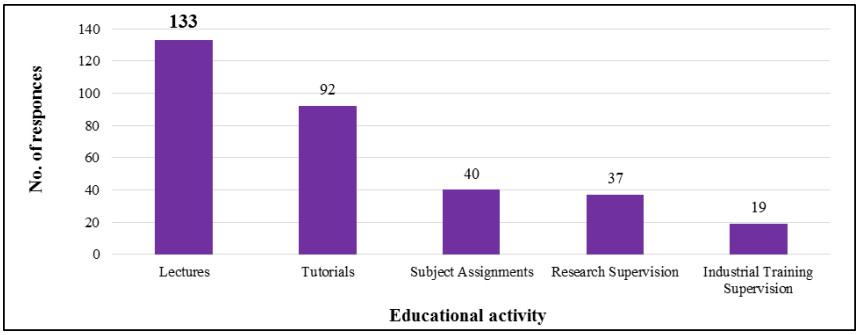


Figure 13 - Preferences of Educational Activities to Conduct through e-learning



According to different preferences as illustrated in the figure 12, most of students (50.6%) like to engage in e-learning activities in the morning. Also, out of different educational activities such as lectures, tutorials, subject assignments, research supervision and industrial training supervision, most of students prefer lectures and tutorials to be conducted through e-learning (figure 13). This indicates that students prefer to have physical meetings also and, accordingly, it is able to plan blended mode of delivery of lectures in future.

Suggestions and Views of Undergraduates for Successful E-learning Environment

- It would be easy and useful for us if internet connections and data are provided free of charge. This suggestion is valid since family economic background of many students is not good in state universities.
- Some students prefer, if assignments are conducted via e-learning than conducting lectures in e-learning. This means students prefer to have physical classes for lectures.
- The degree programmes which use software like AutoCAD, GIS requires physical resources like laptops or

desktops with system requirements for installing these software. This may be a challenge for some students.

- Holding online exams may not be effective. Students have no idea on conduting examination on e-learning mode. This is because, students are familiar physical mode of conducting examinations so far.
- E-learning is the most suitable way for sharing lecture materials, Ex. LMS.
- Study programmes with lots of practical subjects such as filed excises, e-learning can be a challenge.

Discussion and Conclusion

This study enables to identify the readiness of undergraduates of Sri Lankan university system towards e-learning. The survey was carried out among the undergraduates of all four academic years in a selected department of a selected National University of Sri Lanka. A satisfied number i.e. 81% of students participated in the survey by sharing their views and capabilities towards the implementation of e-learning environment. The readiness of the students was measured through three aspects such as perceived self-efficacy, perceived usefulness and technological aspect.

Perceived self-efficacy and perceived usefulness were assessed by using a 5-point Likert scale ranging from 1 to 5 (strongly disagree to strongly agree). The technological aspects were measured using items developed by the authors based on features considered to be important for e-learning as cited in literature. As per the analysis the mean values of each instrument that are used to measure perceived self-efficacy of the students are in above average (mean value is above 3). Their knowledge regarding e-learning activities are above the average level. Further, they are willing to use e-learning to assist their learning activities. This indicates that the overall confidence level of the students regarding their abilities to

engage in e-learning in above the average. Also, the mean values of each instrument which were used to measure the perceived usefulness of e-learning is above the average level (mean value is above 3). This indicates that the students' perception of the degree of improvement of learning due to the adaptation of e-learning system is positive. They believe e-learning can assist their learning efficiency, performance and motivation. Further, they visualize e-learning as a tool for themselves to prepare for future job opportunities. When it comes to technological aspects most of the students have the access to internet via different devices and most frequently through a mobile phone. However, to actively engage in e-learning through a smart phone will not be convenient all the time since it limits the students' engagement for different study-based activities. Even though the internet quality and internet strength are at moderate or higher level as per most of the respondents, a considerable number of students have a low or weak internet quality and strength due to locational disadvantages. This demonstrates that even though the students have the access to internet via deferent modes, their active participation for e-learning can be interrupted due to low or weak internet quality and strength.

The overall results of the study indicate that the readiness of students for e-learning activities is above the average in terms of their self-efficacy, perceived usefulness and technological aspects. However, their self-efficacy and their believes for the usefulness of e-learning can be interrupted from several technological failures or inconveniences such as low internet quality, low internet strength, unsuitable devices to access internet etc.

Even though most of the students have positive views towards e-learning, there are some barriers and issues which will negatively affect on their studies through e-learning. Most of the students usually face with internet connection problems and technical issues

such as loss of signal, lack of suitable digital devices, unsubtle service providing packages etc. Furthermore, some face with financial issues to afford high cost to purchase data and in an emergency, they do not have the facilities for bill payments and recharge. Other than that, very few students believe that they do not have adequate knowledge and information to engage in electronic activities and a supportive environmental background. Often power cuts, unsupportive background and health issues act as barriers to engage in e-learning activities for few students.

To avoid these barriers and issues most of the students suggest that it will be much effective if they get provided with free internet service or free website for e-learning programs. In addition, they suggest that if the university can provide a suitable platform to engage in practical subjects through e-learning that will be very much effective and active participation will ensure.

Recommendations

From this survey it was able to grab several ideas and suggestions towards undergraduates' readiness for e-learning. The findings can be further validated by using different models while considering the effectiveness and the reliability of these suggestions to improve the student participation on e-learning activities. Overall, it is visible that undergraduates are ready for the e-learning environment and, as per the analysis, it can be suggested that hybrid model of e-learning is more practical. The design of e-learning and weightiness of e-learning in the degree programme need to be considered based on the subject content and ability of usage of e-learning in that specific subject and the nature of degree program. E.g.: some practical subjects may not be possible via e-learning.

Future studies should be conducted to investigate the effectiveness of conducting practical subjects through e-learning and effective platforms to reduce the barriers and issues that students face when participating on such practical subjects online. Further, it could be conducted to identify possible incentives and drivers that a university system can provide for students to continuously and actively participate on e-learning activities. Moreover, e-learning systems usage outcomes, can also be very much important to discuss by future researches. Further it is important to investigate the teachers' perspectives on e-learning environment in university system as well.

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