**Online Teaching and Learning in Higher Education; Student’s**

**Perspective**

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**Abstract**

The Covid-19 pandemic brought a significant shift in higher education, leading to the rapid adoption of exclusively online learning methods in Sri Lanka’s state universities. Prior to the pandemic, E-learning was not extensively utilized in these institutions, with most bachelor’s degree programs relying on traditional face-to-face lecturing and physical interactions. However, with the emergence of quarantine measures and lockdowns to curb the virus’s spread, universities had to prioritize E-learning to continue academic activities. This research aims to explore students’ perspectives on the online learning experience in Sri Lankan state universities during the pandemic. The study seeks to understand students’ perceptions of the management of knowledge delivery, the effectiveness of learning and assimilating information, and the use of E-learning platforms in the context of exclusively online education. By examining students’ viewpoints, this research endeavors to provide valuable insights that can guide educational institutions in enhancing their online learning strategies and meeting the evolving needs of students.

**Introduction**

The outbreak of the Covid-19 pandemic compelled educational institutions worldwide to swiftly adopt alternative modes of teaching and learning. In Sri Lanka’s state universities, E- learning was not extensively utilized before the pandemic, and most bachelor’s degree programs relied on traditional in-class face-to-face lectures, physical assignments, and presentations. However, the necessity to contain the virus through quarantines and lockdowns prompted a swift transformation to fully online teaching and learning methods.

The sudden transition to fully online learning posed unique challenges for students and lecturers alike. Online platforms such as Zoom and Microsoft Teams became the new mediums for conducting lectures, while university E-learning platforms facilitated assignment submissions. The shift necessitated transforming hard-copy assignments into soft copies and PDF formats, and physical presentations were replaced with online video conferencing.

This study holds significant importance as it aims to provide insights into students’ perceptions of E-learning in the context of exclusively online learning during the Covid-19 pandemic in Sri Lankan state universities. The main objectives of the research are, first to identify students’ perceptions of the way universities managed to provide knowledge in the context of exclusively online learning. This objective aims to understand how students perceived the effectiveness

and adaptability of the online teaching methods implemented during the pandemic. Second, to

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assess students’ perceptions of their ability to learn and assimilate information in the context of exclusively online learning. This objective seeks to explore students’ experiences with online learning and their views on the efficacy of this mode of instruction in supporting their learning outcomes. Finally, to examine students’ perceptions of the use of E-learning platforms in the process of exclusively online learning. This objective aims to gain insights into students’ opinions on the functionality, usability, and overall experience of E-learning platforms utilized during the pandemic.

**Significance of the Study**

This research holds substantial significance for understanding students’ perceptions of E- learning in the context of exclusively online learning during the pandemic in Sri Lankan state universities. The study’s findings will contribute valuable insights that can guide educational institutions in improving their online learning strategies.

First, by studying the students’ perception towards the eLearning, this study will contribute to improve the efficiency of eLearning platforms. In particular, this study can help educational institutions to identify areas for improvement and corrective actions to enhance students’ positive perception towards online learning. Understanding students’ experiences and preferences can aid in tailoring E-learning strategies that align with their needs and expectations.

Second, Addressing Technical Challenges this study seeks to uncover technical problems encountered during the exclusively online learning process. Identifying these challenges can help universities develop solutions and provide necessary support to students, ensuring a smoother online learning experience. Next, this study will contribute to the existing knowledge by optimizing teaching and learning strategies. Insights into students’ preferences for interaction and teaching styles during online learning can inform universities in adapting their teaching methods. Understanding effective teaching approaches in the online environment can lead to more engaging and impactful virtual classrooms. Further, we hope this study will contribute to overcoming obstacles in eLearning in higher education. The study aims to identify encountered obstacles, such as information processing issues and usage of different tools. By understanding these obstacles, educational institutions can develop strategies to overcome them and promote effective learning in an online setting. Finally, the results of this study will help policy makers in higher education, in particular, online teaching and learning. The research provides valuable data to guide the development of policies and strategies aimed at enhancing online teaching and learning. By addressing the issues highlighted in this study, universities can create an environment that fosters successful online education delivery.

**Literature Review**

E-Learning in higher education

Universities nowadays must adapt to the needs, wants, and expectations of students while the higher education system undergoes a constant state of change. As a result, information

technology and online platforms for learning are considered as crucial components in how universities operate, and these institutions are spending more and more in these systems and tools (Popovici & Mironov, 2015). However, integrating cutting-edge E-learning platforms to assist and strengthen both teaching and learning is one of the major difficulties facing universities in the digital era (International Association for Development of the Information Society., 2014).

There are several definitions of the concept of e-learning because it is so multifaceted. E- learning, expressed simply, is the creation and design of learning experiences using information and computer technologies and systems (Horton, 2006). Elmarie Engelbrecht describes e- learning as a concept that makes use of electronic media, such as the internet, CDs, mobile phones, and even television, to deliver remote learning and teaching (Engelbrecht, 2005). E- learning, in its simplest form, is the process of imparting knowledge and education through the use of various electronic devices (Koohang & Harman, 2005), perhaps the idea can be better appreciated when put into a context where technology is used to satisfy people's desire to learn and grow (Cohen & Nycz, 2006).

Early examples of distance learning date back to 1840, when Isaac Pitman taught and collaborated with students using mail and a shorthand method (Bezhovski & Poorani, 2016), and it is taught that in the educational sphere, the word "e-learning" first appeared in the mid-

1990s (Lee et al., 2009). When considering the aforementioned factors, this form of online learning can be seen as a logical extension of the idea of remote learning (Sangrà et al., n.d.). E-learning can be defined as a specific type of teaching and learning that incorporates electronic resources and mediums with the purpose of fostering development and improving the quality of education and training, according to a more detailed and comprehensive definition (Schuler,

2011). E-learning is also seen as a formal education method or as a network where information is distributed to a large audience using electronic resources. Computers and the internet are the primary components that guarantee the proper operation of such systems (Suresh Babu & Sridevi, 2018).

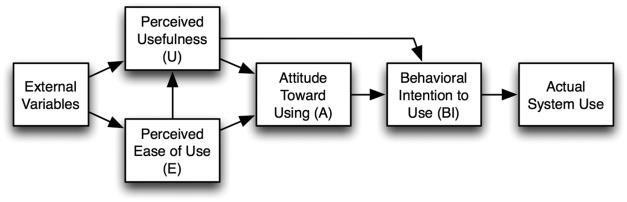
E-learning offers some elements that support and nourish the learning-teaching process while providing a variety of options for exchanging knowledge and submitting papers in various formats. Because it is a web-based system, no additional software needs to be installed, and once the content has been uploaded, users can access it whenever they want (Raheem et al.,

2020). In this sense, the variety of technological tools at our disposal today enabled the creation

of numerous E-learning subtypes. Horton identified some of these types, which include individual courses that people take without classmates, virtual classes that are built similarly to a traditional, face-to-face course, learning games where the process of understanding and assimilation of information is done through activities that are simulations, blended learning, which combines traditional and online classes, mobile learning, or knowledge management, which is where knowledge is organized and managed (Helge Fischer et al., 2014). E-learning is therefore a complicated process that comprises a variety of components, including technology tools and design, e-learning platforms, content, and users/participants (Cohen & Nycz, 2006). According to Oye et al., e-learning varies from traditional or other ways of learning since it focuses not only on education but also on learning that is tailored to each individual (Oye, 2012). In other words, whereas traditional education is more teacher-centered, a shift towards a student-centered education can be witnessed with the advent of E-learning (Joubert et al., 2004).

It is possible to recognize differences between traditional and online learning in terms of the main information sources used, evaluation methods, or educational standards. The quality of education in traditional education is solely determined by the knowledge and skills of the teachers, who are also the students' primary source of information. In contrast, in online learning, the evaluation may be carried out with the aid of tools and systems, students may obtain information from a variety of documents uploaded on the platform, and the level of training that teachers have in using technology will have an impact on the quality of education (Buzzetto-Hollywood, 2007). Cheung and Cable outlined eight guiding principles for successful online teaching, including fostering interaction between students and professors, collaborative learning, timely feedback, active learning, task time management, high expectations, and task time. In order to encourage and motivate students, engage them in a variety of learning opportunities, and use technology effectively, the instructor should make their expectations clear (Cable & Cheung, 2017).

Considering this, the creation and expansion of educational opportunities was facilitated by the evolution and usage of systems and technology (zare et al., 2016), many scholars were interested in the usage of E-learning in higher education and how students viewed the value of this kind of learning.



Above picture shows The Technology Acceptance Model (TAM), which has been useful in understanding how students intend to utilize E-learning, is important to study on the adoption of E-learning (Almarabeh, 2014). The idea was developed by Fred Davis, who thought that the degree to which humans embraced technological integration may be a crucial element in the success of information systems. The model informs and explains the relationships underlying a system's features, human behavior while utilizing it, and potential user attitudes, which are determined by perceived usefulness and usability (Venkatesh et al., 2003).

According to a study focusing on students' perceptions of the implementation and integration of e-learning platforms with the TAM model as a theoretical foundation, all students believed the e-learning module they had taken was helpful and simple to use, claiming that they understood the information and navigated and accessed documents without any trouble (Vitoria et al., 2018). Similar research was conducted at the University of Jordan using the TAM model (Almarabeh, 2014), confirmed that perceived utility and simplicity of use had a direct impact on students' attitudes about using online learning. Additionally, TAM was utilized to look into how teachers felt about e-learning, according to a study (Mahdizadeh et al., 2008), in addition to their prior knowledge, teachers' perceptions of online learning had an impact on how they behaved and used it.

In general, the literature on the use of E-learning in higher education shows that it is effective, useful, and has a favorable impact on students' performance. A study on the effects of online learning on students and teachers found (Burac et al., 2019), The majority of respondents, represented by teachers, agree that e-learning has the ability to improve the educational process and that it enhances collaboration and communication with students, enables flexibility, and aids in students' comprehension of lectures. Dookhan's investigation of students' attitudes toward e-learning found that they had a favorable attitude, which improved when they believed that e-learning systems were simple to use (Odit-Dookhan, 2018). According to a separate study (Lochner et al., 2016), E-learning improved students' learning outcomes and boosted

their engagement with lectures when used as a supplement to traditional classroom instruction. A study comparing traditional and online learning found that even though many of the respondents claimed to have learned more in face-to-face classes than online, they had a positive opinion of their overall online experience, despite having encountered some challenges using e-learning platforms (Alsaaty et al., 2016).

However, similar research found that students believed that online courses did not have the same value as courses delivered in the classroom, despite the fact that most studies highlight positive attitudes regarding e-learning (Galy et al., 2011), and that students prefer mixed learning, which combines online and in-person instruction, to solely online learning (Tagoe,

2012).

E-Learning platforms in higher education

With the use of many online platforms, e-learning is conducted in higher education. Online learning has been characterized in the past by a variety of terms, including computer mediated learning (Anaraki, 2004), Web-based training, E-learning systems, and Learning Management Systems (Costa et al., 2012). Regardless of their names, all of these systems utilize the Internet and include a few features that enable registration and evaluation of students' and teachers' actions (Costa et al., 2012), and that also make it easier for professors to communicate with their students, their peers, and each other during lectures. Among the most crucial features of online learning platforms are chat, which allows users to send messages and receive responses in real-time, web conferences, which enable video, audio, and written communication, and forums, which enable student-teacher communication and collaboration in an asynchronous way (Cacheiro-Gonzalez, 2019).

A learning management system is viewed as a piece of software that runs and includes a number of services designed to help teachers manage their lectures and courses (Mohammed et al.,

2017), and they were developed to keep an eye on and assess students, assign grades, keep track of course attendance, and perform other administrative tasks that educational institutions may require (Ninoriya et al., 2011). These systems can be separated into two groups: proprietary or commercial, which includes platforms like Blackboard, and open-source platforms like Moodle (Dagger et al., 2007).

Moodle is regarded as a web-based flexible learning environment that encourages user collaboration. It was created to provide students, professors, and administrators with a system that may assist them construct an upgraded and personalized learning environment (Benta et

al., 2014). Through these platforms, teachers can publish information and resources for students that they would not have access to in face-to-face lessons, and students can quickly share information, describe their challenges, and get feedback (Martín-Blas & Serrano- Fernández, 2009). Thus, Moodle offers a variety of services like forums, chats, and private messaging, and higher education institutions can utilize it either completely for online learning or as a supplement to traditional education (Oproiu, 2015).

Moodle platforms are very simple to use and access, and it is known that they have a favorable effect on students' learning performance. Students who utilized Moodle over the academic year had better results and higher scores than students who weren't asked to use it. (Martín-Blas & Serrano-Fernández, 2009).

Effectiveness, Benefits and Downsides of E-Learning

The educational process can be improved by e-learning thanks to its intricate features and functions. However, teachers and students must understand how to successfully incorporate technology into the teaching and learning process in order to favorably influence collaboration and performance. Tham and Werner state that three factors determine how effective e-learning is: Students who might feel alone due to the absence of physical colleagues, in which case teachers should be able to connect with them and build relationships, teachers who know how to use the tools to enhance learning, how to interact with students, create a comfortable learning environment, and how to creatively bring students closer and capture their attention, and technology (Tham & Werner, 2005).

Comparative studies of online and face-to-face learning have produced findings that support the usefulness of the latter in the field of education. Online learning has been proven to be effective, especially for shy, easily intimidated, and slow learners who typically lack the courage to speak up and express themselves in class. Studies have shown that when E-learning was used, students were able to assimilate information as well as, or even better than students studying in the traditional way (Navarro & Shoemaker, 2000; Stern, 2004).

E-learning, which differs from face-to-face instruction, has grown in popularity mostly due to the ease with which students can access information and instruction as well as resources (Bakia et al., 2012). As a result, e-learning is crucial to the process since it can enhance quality by allowing for the customization and adaptation of courses to the needs of students (Suresh Babu

& Sridevi, 2018). Due to its adaptability, e-learning removes time and location boundaries, provides access to a wide range of material, encourages cooperation, allows students to learn

at their own pace, and inspires them to engage with their peers and discuss and exchange ideas (Arkorful, 2014). Other studies highlight the advantages of online learning, including its speed and the time and money it saves by requiring no travel (Cantoni et al., 2004), additionally, the uploaded content is reliable and simple to update (Sadeghi, 2019). Al-Dosari (2011) also discovered that participants believed accessibility to be the most important benefit of online learning out of features like emphasis on the students, flexibility, and cooperation while researching how students and teachers perceive E-learning.

E-learning undoubtedly has numerous advantages, but there are also some drawbacks to consider. Since online learning relies on technology, such as the internet and computers, which some students may not have access to, disruptions or other system failures may occur during courses, it is easy for online students to become distracted, lose focus, or miss deadlines (Sadeghi, 2019). Students' capacity to plan their studies and the amount of time they devote to learning can occasionally lead to a reduction in motivation, and the absence of peers and physical interaction might cause students to feel alone (Phillips et al., 2022). E-learning has drawbacks that might be noticed in terms of physical health as well. Online students and teachers may get sight or back issues due to spending so much time sat and in front of a screen, and their outside exercise may be restricted (Nazarlou, 2013).

Online Learning during the Coronavirus Pandemic

The influence of the pandemic on education, universities, professors, and students became a topic of significant interest for researchers as a result of the exceptional circumstances caused by the coronavirus pandemic. When Deli looked at how students felt about online learning during the Coronavirus, he found that they had a favorable opinion of it and thought it would be beneficial during the crisis the epidemic had caused (Deli & Allo, 2020). According to a study involving 424 universities from around the world, institutions were impacted by the pandemic in terms of research, conferences, international mobility, and the delivery of education. The majority of universities stated that they were forced to adopt online learning and faced numerous challenges, the most significant of which were access to technology and faculty members' capacity to deliver online courses (Suresh et al., 2018).

Before the Coronavirus epidemic, some colleges had adopted E-learning as an extra approach, but most of them weren't prepared for a full online experience. Therefore, the E-learning process needs to be optimized in order to continue providing education in a good manner. The relationship between students and professors should also be considered during this

optimization process, and communication between the two parties should employ plain language (Goian, 2010).

Additionally, a study on students' experiences in online courses revealed that they believed instructors should be able to modify their lectures for the online setting rather than simply transferring the material that was typically taught in a traditional manner online. They also believed instructors should assign an adequate number of projects and assignments (Sun et al.,

2020).

Additionally, in a study it was identified seven crucial elements that form the cornerstone of online education and play a crucial part in maximizing learning in unique situations like the ones described above. The pandemic of the coronavirus. These include managing and growing internet infrastructure to prevent disruptions, especially during video conferences; using user- friendly tools to help students assimilate and understand information; offering dependable, interactive, and diverse electronic resources; using social networks to build online communities for students to reduce feelings of isolation; and using various effective techniques like debates or learning based on discovery. delivering informational services to instructors and students on current government and academic policies, and promoting cooperation between these organizations (Huang et al., 2020).

**Research Methodology**

The current research study is based on the deductive research approach as it focuses on theory testing than theory building. In this study data gathered from university students, thus, unit of analysis is individual. Data were gathered at one point in time; thus, the nature of this study is cross sectional.

**Data Collection Method**

Data was collected online & offline through Google forms as well as distributing printed questionnaires among target population during the month of November 2022. Data was collected in a single attempt, and they were entered into SPSS for further analysis. The research received the approval of research supervisor, senior lecturer Dr. Mrs. Ishanka Karunarathne of Department of Human Resource Management, University of Kelaniya, Sri Lanka. The participants of the study were given information at the beginning of the questionnaire about the purpose of the study and the informed consent. By clicking and checking on a specific check box, they approved their participation to the study. The email addresses or any of the personal

contact details of the participants like mobile numbers, WhatsApp numbers or Facebook accounts names were not collected in order to respect anonymity and confidentiality. The average time of 15 min was required to answer the questionnaire and it is affixed at the end of this paper.

**Sample & Sampling Plan**

A simple random sampling method was used & sample refers to a subset that is chosen by the entire population, while population refers to the full group by which sample has been drowned (Sekaran & Bougie, 2016). The population is made up of all the individuals, teams, occasions, or objects that the researcher is willing to study (Saunders et al., 2009). According to Statistical Pocket Book (2022) there are 17 Sri Lankan state universities including the Open University as well, and there are total of 147,892 of undergraduate students in those 17 universities. According to the Morgan table when the population is above 75,000 and up to 1 million, sample size of 384 should be selected (Krejcie & Morgan, 1970)

*Source of University Statistics -* [*http://www.statistics.gov.lk/Publication/PocketBook*](http://www.statistics.gov.lk/Publication/PocketBook)

**Measurements of Construct**

A non-standardized questionnaire was used for the data collection. For the first research question, the following items were included: frequency of technical problems in online learning (4 items related to the connection to the platform such as sound clarity, delayed message viewing, loss of signal during the audio/video conference), (Likert scale 5 = very frequently, 1

= Very rarely), frequency of using a set of tools related to the E-learning platform (5-point Likert scale, where 1 = Very rarely, 5 = very frequently), compliance with the schedule (yes/no), balanced teaching style (more theory, less theory, balanced theory and practical tasks), assigning tasks to students compared to face-to-face learning (they have more free time, they have the same amount of tree time, they have less free time), obstacles encountered in the E-learning process (open question).

For the second research question the following items were used: opinion towards the use of the online environment for learning (5-point Likert scale, where 1 = to a very small extent, 5 = to a very great extent), preference for interaction with teachers during courses/seminars (microphone, chat), assimilation of information and online learning compared to face to face learning: perceived difficulty regarding the presentation of the seminar projects online (more difficult, the same difficulty, less difficult), processing information (more difficult, the same difficulty, less difficult), the type of course that facilitates information processing (audio, video,

chat/forum), opinion towards online learning (5-point Likert scale, where 1 = not at all satisfied,

5 = very satisfied), preference for future learning in higher education (online, face to face, a combination between online and offline-hybrid).

For the third question of the research the following items were used: previous use of the E- learning platform (yes/no), frequency of use of tools specific to the E-learning platform (5- point Likert scale, where 1 = did not use, 5 = very frequently), perception about the usefulness of the tools in the process of learning (5-point Likert scale, where 1 = not at all useful, 5 = very useful), preference for the future use of various platforms.

The final part of the questionnaire contained a series of socio-demographic variables (gender, background, degree level: Bachelor/Master, field of study). This information was used only for the purpose of descriptive analysis.

**Data Analysis Techniques**

All the data analysis was done by SPSS. Demographic data were inserted into tables as for the summary. In addition, visual graphs were used for representing the demographic data. Descriptive statistics were made upon each research question. In addition, further data analysis was done in “post-hoc” analysis to get a clear idea of student’s perception on E-Learning.

**Data Analysis**

**Response Rate**

A self-administered used to collect primary data for the study was circulated as a Google form and as printed papers in English language among a sample of 450 estate university students randomly selected from Sri Lankan state universities. Out of 450, 408 responses were received, from which 22 were discarded due to the incomplete response. So that, only 386 responses were entered into SPSS and considered for further analysis.

**Demographic Analysis**

The demographic analysis of the sample was done basically according to 5 categories including respondent gender, residential environment, current study year in the university, age, the university enrolled & platform preference for online learning.

Table 1: Demographic Analysis of Sample

|  |  |  |  |
| --- | --- | --- | --- |
| **Gender** | Male | 250 | 65% |

|  |  |  |  |
| --- | --- | --- | --- |
|  | Female | 136 | 35% |
| **Residential Environment** | Rural | 125 | 32% |
| Urban | 261 | 68% |
| **Current Study Year** | 1 Year | 0 | 0% |

|  |  |  |  |
| --- | --- | --- | --- |
|  | 2 Year | 67 | 17% |
| 3 Year | 40 | 11% |
| 4 Year | 249 | 72% |
| 5 Year | 0 | 0% |
| **Age** | 18 – 22 years | 68 | 18% |
| 23 – 25 years | 162 | 42% |
| Over 25 years | 156 | 40% |
| **University** | University of Colombo | 68 | 17% |
| University of Peradeniya | 41 | 11% |
| University of Sri  Jayewardenepura | 20 | 5% |
| University of Kelaniya | 112 | 29% |
| University of Moratuwa | 20 | 5% |
| University of Jaffna | 99 | 26% |
| The Open University of Sri Lanka | 26 | 7% |

*Source: Author, 2022*

**Descriptive Statistics**

**Difficulty in Using E-Learning Platform**

The mean value of difficulty connecting to the platform, losing signal during video conference, delayed visualization of messages & sound not clear are 2.94, 3.42, 3.58 & 3.17 respectively are indicating a high level of difficulty in using the E-Learning platform among the respondents in the sample. Also, as the SD lies between +2 and -2, the mean value could be statistically

accepted. In addition, Skewness & Kurtosis lies between +3 and -3 indicating normality of distribution.

**Extent of Using E-Learning Platform Tools**

The mean value of the extent of using: audio conference, video conference, documents posted on the platform (Word, Pdf, PowerPoint)], forum discussions, chat discussions, URL addresses to other web resources, glossary of terms, tasks in word/pdf format (that only the teacher could see), tasks posted in databases (that were seen by the entire class) & documents were the whole class could work on in the same time are 2.64, 3.96, 3.58, 3.83, 3.17, 3.28, 2.70, 3.00, 3.02 &

3.58 respectively indicating a high extent of using the E-Learning tools among the respondents in the sample except for the audio conference and glossary of terms which are 2.64 and 2.70 and they were the only two items with mean value below 3. Also, as the SD lies between +2 and -2, the mean value could be statistically accepted. In addition, Skewness & Kurtosis lies between +3 and -3 indicating normality of distribution.

**Considering the Respecting of Course Schedule & Brakes**

Out of 386 respondents, 338 of them have mentioned that course schedule breaks have been respected during the phase of online learning and it adds up to 87.6%.

**Course Content Inclusion of Theory & Practical**

The majority of respondents have mentioned the same amount of theory & practical have been carried out during the online learning phase and it adds up to 42%.

**Available Time for Individual Study and Project Preparation During Period of E- Learning**

The majority of respondents have mentioned that they had more time available for individual study & project preparation during the period of E-Learning and 68.1% of respondents have mentioned that.

**Suitability Extent of E-Learning for the University Level**

Mean value of extent of suitability of E-Learning for university level indicating a moderate level of suitability among the respondents in the sample. Also, as the SD lies between +2 and

-2, then mean value could be statistically accepted. In addition, Skewness & Kurtosis value between +3 and -3 indicates normality of distribution.

**Preference Method of Providing Answers to Teacher’s Questions**

The majority of respondents have mentioned their preference on providing answers to teacher’s

questions by offering a written answer on forum/chat and it adds up to 66.8% of total responses.

**Convenience of Online Presentations Compared to Physical Presentation**

The majority of respondents have mentioned that 37% of respondents found that doing online presentations is easier compared to physical presentations.

**Method which has Better Ability to Learn and Assimilate Information in the Context of**

**Exclusively Online Learning**

77.2% of respondents have mentioned that the ability to learn and assimilate information is better when the course is held with both video and audio.

**Convenience of Learning & Assimilating Information in the Context of Exclusively**

**Online Learning**

The majority of respondents mentioned that it is easier to learn and assimilate information in the context of exclusively online learning and it adds up to 86% of the total respondents.

**Overall E-Learning Satisfaction**

The mean value of overall E-Learning satisfaction is 3.70 indicating a high level of overall E- Learning satisfaction among the respondents in the sample. Also, as the SD lies between +2 and -2, the mean value could be statistically accepted. In addition, Skewness & Kurtosis lies between +3 and -3 indicates normality of distribution.

**Choosing the Mode for Courses to be held**

If the respondents had the ability to choose method for the courses to be held, majority of 50.5% of respondents will choose exclusively online learning instead of face-to-face or a combination between both.

**Previous Experience of E-Learning**

The majority of respondents have previous experience with E-Learning, and it adds up to

68.1%. In this sample, only 123 respondents out of 386 do not have previously experienced exclusive online learning.

**Extent of Usefulness of E-Learning Platform Tools**

The mean value of the extent of usefulness of: audio conference, video conference, documents posted on the platform (Word, Pdf, PowerPoint)], forum discussions, chat discussions, URL addresses to other web resources, glossary of terms, tasks in word/pdf format (that only the teacher could see), tasks posted in databases (that were seen by the entire class) & documents

were the whole class could work on in the same time are 3.61, 3.85, 4.13, 3.66, 3.48, 3.76, 3.28,

2.81, 2.67 & 2.96 respectively indicating a high extent of usefulness of the E-Learning tools among the respondents in the sample except for the tasks in word/pdf format (that only the teacher could see), tasks posted in databases (that were seen by the entire class) & documents were the whole class could work on in the same time which had a mean value of less than 3. Also, as the SD lies between +2 and -2, the mean value could be statistically accepted. In addition, Skewness & Kurtosis lies between +3 and -3 indicating normality of distribution. Also, very high level of Usefulness found of Documents posted on the platform (Word, Pdf, PowerPoint) with the mean value of 4.13.

**Platform Usage for E-Learning**

94% respondents have used Zoom platform for online learning, and which adds up to 94% of total respondents.

**Future E-Learning Platform Preference**

The mean value of future E-Learning platform preference is 3.54 indicating a high level of preference among the respondents in the sample. Also, as the SD lies between +2 and -2, the mean value could be statistically accepted. In addition, the Skewness & Kurtosis lies between

+3 and -3 indicating normality of distribution.

**Post-hoc Analysis**

**Post-hoc Analysis 1** - **Testing for Significant Relationship Between Gender and Suitability**

**Extent of E-Learning for the University Level**

Normality of distribution is fulfilled because Skewness and Kurtosis are between +3 and -3. An independent sample t-test was conducted to compare the suitability extent of E-learning in university level for male and female. There was significant difference (*t* (384) =5.442, *p*=0.000) in the score with mean score for male (*M*=3.31, *SD*=0.964) was higher than female (*M*=2.76, *SD*=0.923). The magnitude of the differences in the means (mean difference=0.551, 95% *CI*:

0.352 to 0.750) was significant.

**Post-hoc Analysis 2** - **Testing for Significant Relationship Between Gender and Overall**

**E-Learning Satisfaction**

Normality of distribution is fulfilled because Skewness and Kurtosis are between +3 and -3. An independent sample t-test was conducted to compare the overall E-Learning satisfaction level for male and female. There was significant difference (*t* (163.459) =3.932, *p*=0.000) in

the score with mean score for male (*M*=3.87, *SD*=0.594) was higher than female (*M*=3.39,

*SD*=1.362). The magnitude of the differences in the means (mean difference=0.482, 95% *CI*:

0.240 to 0.725) was significant.

**Post-hoc Analysis 3** - **Testing for Significant Relationship Between Gender and Future**

**Preference for E-Learning Platform**

Normality of distribution is fulfilled because Skewness and Kurtosis are between +3 and -3. An independent sample t-test was conducted to compare the future E-Learning preference for male and female. There was significant difference (*t* (223.255) =4.154, *p*=0.000) in the score with mean score for male (*M*=3.74, *SD*=1.023) was higher than female (*M*=3.19, *SD*=1.331). The magnitude of the differences in the means (mean difference=0.545, 95% *CI*: 0.286 to

0.803) was significant.

**Post-hoc Analysis 4** - **Testing for Significant Relationship Between Residential**

**Environment and Suitability Extent of E-Learning for the University Level**

Normality of distribution is fulfilled because Skewness and Kurtosis are between +3 and -3. An independent sample t-test was conducted to compare the suitability extent of E-learning in university level for Residential Environment. There was significant difference (*t* (384) =7.881, *p*=0.000) in the score with mean score for Rural (*M*=2.58, *SD*=0.917) was less than Urban (*M*=3.37, *SD*=0.913). The magnitude of the differences in the means (mean difference=-0.784,

95% *CI*: -0.979 to -0.588) was significant.

**Post-hoc Analysis 5** - **Testing for Significant Relationship Between Residential**

**Environment and Overall E-Learning Satisfaction**

Normality of distribution is fulfilled because Skewness and Kurtosis are between +3 and -3. An independent sample t-test was conducted to compare the overall E-Learning satisfaction level for Residential Environment. There was significant difference (*t* (384) =3.164, *p*=0.002) in the score with mean score for Rural (*M*=3.48, *SD*=0.912) was less than Urban (*M*=3.81, *SD*=0.974). The magnitude of the differences in the means (mean difference=-0.328, 95% *CI*:

-0.532 to -0.124) was significant.

**Post-hoc Analysis 6** - **Testing for Significant Relationship Between Residential**

**Environment and Future Preference for E-Learning Platform**

Normality of distribution is fulfilled because Skewness and Kurtosis are between +3 and -3. An independent sample t-test was conducted to compare the future E-Learning preference for

Residential Environment. There was a significant difference (*t* (225.938) =8.966, *p*=0.000) in the score with mean score for Rural (*M*=2.82, *SD*=1.122) was less than Urban (*M*=3.89, *SD*=1.026). The magnitude of the differences in the means (mean difference=0.545, 95% *CI*: -

1.299 to -0.831) was significant.

**Post-hoc Analysis 7** - **Testing for Significant Relationship Between Previous E-Learning**

**Experience and Suitability Extent of E-Learning for the University Level**

Normality of distribution is fulfilled because Skewness and Kurtosis are between +3 and -3. An independent sample t-test was conducted to compare the suitability extent of E-learning in university level for Previous E-Learning experience. There was significant difference (*t* (216.225) =5.426, *p*=0.000) in the score with mean score for Previous Used (*M*=2.93, *SD*=0.911) was less than Previous Not Used (*M*=3.51, *SD*=1.019). The magnitude of the differences in the means (mean difference=-0.584, 95% *CI*: -0.797 to -0.372) was significant.

**Post-hoc Analysis 8** - **Testing for Significant Relationship Between Previous E-Learning**

**Experience and Overall E-Learning Satisfaction**

Normality of distribution is fulfilled because Skewness and Kurtosis are between +3 and -3. An independent sample t-test was conducted to compare the overall E-Learning satisfaction level for Previous E-Learning Experience. There was significant difference (*t* (328.323)

=3.193, *p*=0.002) in the score with mean score for Previously Used (*M*=3.61, *SD*=1.046) was less than Previously Not Used (*M*=3.90, *SD*=0.729). The magnitude of the differences in the means (mean difference=-0.294, 95% *CI*: -0.475 to -0.113) was significant.

**Post-hoc Analysis 9** - **Testing for Significant Relationship Between Previous E-Learning**

**Experience and Future Preference for E-Learning Platform**

Normality of distribution is fulfilled because Skewness and Kurtosis are between +3 and -3. An independent sample t-test was conducted to compare the future E-Learning preference for Previous E-Learning Experience. There was significant difference (*t* (300.620) =3.958, *p*=0.000) in the score with mean score for Previously Used (*M*=3.40, *SD*=1.231) was less than Previously Not Used (*M*=3.85, *SD*=0.955). The magnitude of the differences in the means (mean difference=-0.454, 95% *CI*: -0.680 to -0.228) was significant.

**Post-Hoc Analysis 10** – **To Investigate If The Future E-Learning Preference Differs**

**Across Different Age Groups (18-22 years, 23-25 years & over 25 years)**

Participants were divided into three groups (Group 01: 18-22 years, Group 02: 23-25 years, Group 03: Over 25 years). The ANOVA results suggested that the future E-learning preference of the groups differ significantly (*F2*, 383=42.377, *P*<0.000).

Since the Levene’s test is significant, the equal variance was not assumed. To check for individual differences between groups post-hoc comparisons were assessed using **Dunnett’s T3**. The test indicated that the mean score for 18-22 years (*M*=4.47, *SD*=0.503) was significantly different from 23-25 years (*M*=3.07, *SD*=1.078). 18-22 years differed significantly from Over 25 years (*M*=3.63, *SD*=1.209). Also, 23-25 years was significantly different from Over 25 years. The mean difference was significant at the 0.05 level.

**Post-Hoc Analysis 11** – **To Investigate If The Future E-Learning Preference Differs**

**Across Current Year of Study (1-year, 2-year, 3-year, 4-year, 5-year)**

Participants were divided into three groups (Group 01: 2 Year students, Group 02: 3 Year students, Group 03: 4 Year students). The ANOVA results suggested that the future E-learning preference of the groups differ significantly (*F2*, 383=24.286, *P*<0.000).

Since the Levene’s test is significant, the equal variance was not assumed. To check for individual differences between groups post-hoc comparisons were assessed using **Dunnett’s T3**. The test indicated that the mean score for 2 Year students (*M*=2.72, *SD*=1.289) was significantly different from 3 Year students (*M*=4.00, *SD*=0.000). 2 Year students differed significantly from 4 Year students (*M*=3.68, *SD*=1.133). Also, 3 Year students were significantly different from 4 Year students. The mean difference was significant at the 0.05 level.

**Post-Hoc Analysis 12** – **To Investigate If The Future E-Learning Preference Differs Across Universities (University of Colombo, University of Peradeniya, University of Sri Jayewardenepura, University of Kelaniya, University of Moratuwa, University of Jaffna, The Open University of Sri Lanka)**

Participants were divided into seven groups (Group 01: University of Colombo, Group 02: University of Peradeniya, Group 03: University of Sri Jayewardenepura, Group 04: University of Kelaniya, Group 05: University of Moratuwa, Group 06: University of Jaffna & Group 07: The Open University of Sri Lanka). The ANOVA results suggested that the future E-learning preference of the groups differ significantly (*F6*, 379=31.985, *P*<0.000).

Since the Levene’s test is significant, an equal variance was not assumed. To check for individual differences between groups post-hoc comparisons were assessed using **Dunnett’s**

**T3**. The test indicated that the mean score for University of Colombo (*M*=4.79, *SD*=0.612) was significantly different from University of Peradeniya (*M*=3.74, *SD*=0.480). University of Colombo differed significantly University of Sri Jayewardenepura (*M*=3.05, *SD*=1.468). The mean difference was significant at the 0.05 level. University of Colombo differed significantly from University of Kelaniya (*M*=3.21, *SD*=1.239). University of Colombo differed significantly from University of Moratuwa (*M*=4.35, *SD*=0.489). University of Colombo differed significantly from University of Jaffna (*M*=2.97, *SD*=1.005). University of Colombo differed significantly from The Open University of Sri Lanka (*M*=4.00, *SD*=0.000). The University of Moratuwa differed significantly from University of Peradeniya. University of Moratuwa differed significantly from University of Sri Jayewardenepura. University of Moratuwa differed significantly from University of Kelaniya. The University of Moratuwa significantly differed from University of Jaffna. The Open University of Sri Lanka differed significantly from University of Peradeniya. The Open University of Sri Lanka differed significantly from University of Kelaniya. The Open University of Sri Lanka differed significantly from University of Jaffna. The mean differences were significant at the 0.05 level.

However, no significant difference was detected between University of Peradeniya and University of Sri Jayewardenepura. No significant difference was detected between University of Peradeniya and University of Kelaniya. No significant difference was detected between University of Peradeniya and University of Jaffna. No significant difference was detected between University of Sri Jayewardenepura and University of Jaffna. No significant difference was detected between University of Kelaniya and University of Sri Jayewardenepura. No significant difference was detected between University of Kelaniya and University of Jaffna. No significant difference was detected between University of Moratuwa and The Open University of Sri Lanka. No significant difference was detected between The Open University of Sri Lanka and University of Sri Jayewardenepura.

**Post-Hoc Analysis 13** – **To Investigate If The Future E-Learning Preference Differs**

**Across Availability of Individual Study Time**

Participants were divided into three groups (Group 01: Less time available, Group 02: More time available, Group 03: Nor less time, nor more time available). The ANOVA results suggested that the future E-learning preference of the groups differ significantly (*F2*,

383=48.166, *P*<0.000).

Since the Levene’s test is significant, the equal variance was not assumed. To check for individual differences between groups post-hoc comparisons were assessed using **Dunnett’s T3**. The test indicated that the mean score for More time (*M*=3.90, *SD*=1.027) was significantly different from Less time (*M*=2.68, *SD*=1.186). More time differed significantly to Nor less time, nor more time (*M*=2.98, *SD*=0.906). However, no significant difference was detected between Nor less time, nor more time to Less time available for individual study.

**Conclusion**

The aim of the study was to examine the student’s perspective on E-Learning for education in Sri Lankan state universities. Based on age, gender, residential environment, previous E- Learning experience, year of study etc. However, researcher did not formulate a hypothesis. In this study researcher investigates online teaching & learning in the perspective of students. The population of this study was the undergraduate university students of Sri Lankan state universities. The population was very large, and it was identified as 147,892 and according to the Morgan table, researcher had to take a sample of minimum 384 respondents. However, the sample of analyzed data consisted of 386 responses. Objective of this study was to identify the way universities managed to provide knowledge in the context of exclusively online learning on student’s perception, to identify the ability to learn and assimilate information in the context of exclusively online learning on student’s perception & to identify the use of E-learning platform in the process of exclusively online learning on student’s perception. The study found that important aspects of E-learning that will be vital in making the overall E-learning experience fruitful.

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