



**Continuous intention of using zoom for e-learning:
Empirical evidence from management undergraduates in
University of Ruhuna, Sri Lanka**

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Abstract

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The purpose of this study is to investigate the factors that influence Sri Lankan university students' intention to continuous use of government-introduced zoom applications for e-learning during the post-COVID-19 pandemic. This study is a quantitative study and self-administered questionnaire survey was used to collect data for a sample of 200 undergraduates of the Faculty of Management and Finance, University of Ruhuna. The results of the study found that performance expectancy, hedonic motivation, effort expectancy, work-life quality, facilitating conditions and internet experience are the most influential factors that influence Sri Lankan university students' intention for continuous use of zoom application for e-learning. The study's findings provide important recommendations for policy-makers, designers, developers, and researchers, allowing them to get more familiar with the main factors that influence to continue the use of zoom for e-learning during the pandemic. Recognizing the factors influencing the intention for continuous use of the system is a major problem faced by the universities and higher educational institutions that implement e-learning for conducting academic activities continuously since there is a lack of knowledge on the essential issues and elements that influence the student's continuous intention for use of e-learning systems during and after the COVID-19 pandemic. Further, the current study was done by adding another three variables to UTAUT 2 model to examine students' continuous intention of using zoom for e-learning.

Keywords: *e-learning, intention of continuous use, post Covid-19, undergraduates*

1. Introduction

Coronavirus disease (COVID-19) is an infectious disease transmitted from human to human rapidly and individuals infected with the COVID-19 virus suffer mild to severe respiratory infections (WHO, 2020). The mode of transmission of coronavirus from humans to humans necessitated social distancing and avoid-

ance of crowded environments (WHO, 2020). The epidemic has spread to 210 countries and territories worldwide, with more than 576 million confirmed cases of the COVID-19 reported, and a death toll of more than 6.4 million based on the statistics of the COVID-19 world meter for the date of 30th July 2022 (WHO, 2022). Given this, most governments have closed schools and institutions where large crowds are unavoidable until further notice.

The sudden closing of educational facilities led officials to propose emergency remote teaching to ensure that students are not left idle during this pandemic period. As a result, for the time being, traditional approaches have been replaced by online e-learning (Mpungose, 2021). E-learning is defined as learning that is enabled electronically (Akbar & Rais, 2020). Typically, e-learning takes place over the internet where students may access their learning materials at any time from any location. Online courses, online degrees, and online programs are the most common forms of e-learning (Mpungose, 2021). At the same time, the government of Sri Lanka has ordered the closure of all educational institutions, including 15 state universities and around 40 additional state and non-state tertiary education institutions as of March 12, 2020 (Hewagamage et al., 2020). Interruptions in higher education induced by the COVID-19 may postpone the development of the leaders and skilled workforce needed for the country to successfully transition to upper-middle-income status (Hewagamage et al., 2020).

According to the Sri Lankan university grant commission, there are around 100,000 undergraduates and around 35,000 postgraduate students enrolled in 15 state universities. Due to the pandemic situation, face-to-face lectures were closed in higher education institutions. Moodle-based learning management systems are hosted on university web servers to offset the impact of interrupting learning (Hewagamage et al., 2020). The Lanka Education and Research Network (LEARN) was linked to university web servers and was used for online learning. The network may track Zoom usage daily (Hewagamage et al., 2020). Furthermore, throughout the epidemic, all internet service providers in Sri Lanka gave free access to university web servers (Hewagamage et al., 2020) and continuously provide free service to the Sri Lankan university system. Zoom is a video conferencing technology that has been introduced and imposed as a convenient medium for engaging with students virtually to disseminate content while they are in class (Mpungose, 2021). From the 17th of March 2020, Sri Lankan

universities will continue their education system using the Zoom application. After more than two years, overall deaths and affected persons in Sri Lanka have been steadily rising due to the rapid spread of the novel COVID-19 based on Sri Lankan health ministry figures, 2022. According to Sri Lankan Health Ministry figures, the overall number of deaths reported to end of July 2022 as 16519. Several times in the past, from 2020 to 2022, Sri Lankan universities attempted to re-open universities for physical education programs, but all attempts were futile, and universities continued education activities through the Zoom application.

Moreover, not only the COVID-19 circumstance but also due to the economic crisis experiencing by Sri Lanka during the 2022 year, most of university administrations continue university academic activities by using Zoom application (UGC, 2022). However, the undergraduates' intention to continuous use the online teaching is an important phenomenon to be investigated further as the level of participation with online teaching significantly fluctuates over the time.

As the university administration expecting to continue this practice until the situation comes back to normal understanding the factors influence on intention to continuous use online teaching via Zoom is of paramount importance. As the previous studies continue, intention focus is lacking and only examined based on UTAUT-introduced constructs. Therefore, this study aims to identify the factors that influence undergraduates' continuous intention to use Zoom for e-teaching.

1.1. Research Problem

Due to the extreme the COVID-19 outbreak, most universities and higher educational institutes around the world have shifted their academic activities entirely to e-learning mode (Mpungose, 2021). Due to that traditional classroom activities moved to online platforms and the usual learning culture completely changed. This transformation of e-learning required to be familiarity with modern technologies for successful implementation (Mpungose, 2021).

A significant consideration to consider in this implementation is whether the learners can use e-learning and whether it would be effective in an online environment based on their responses (Demirel & Diker, 2010). When comparing the developed world to developing countries, it was discovered that developing countries face problems such as slow internet access, insufficient knowledge

about how to use ICT, and a lack of content development when using e-learning (Jain, 2018). E-learning use and acceptance by users is a difficult problem for many institutions in developing countries, but it is likely to be less of a challenge in developed countries. The reason for that is the ability of developed context students due to the use of the e-learning systems, as major progressive steps have already been taken in this regard (Venkatesh, Thong, & Xu, 2012).

According to Eltahir (2019), the complexities of implementing an e-learning framework in developing countries remain a challenge due to the digital gap in the developing context. While learners can show favouritism in traditional education and classroom settings, this alone does not guarantee success in an online learning environment. The level of acceptance to continue using e-learning among university students, who are expected to benefit from it, determines e-learning performance (Lewis, Fretwell, Ryan, & Parham, 2013).

Many studies have shown that most higher education institutes in developing countries that have already built e-learning programs are not adequate due to a variety of challenges (Samsudeen, & Mohamed, 2019; Zozie & Chawinga, 2004). However, the issue of low use and acceptance persists due to several factors that contribute to learners' inability to use modern technologies in developing countries (Almaiah, Al-khasawneh, & Althunibat, 2020). As a result, empirical research is necessary to recognize the key challenges that face e-learning system continues use during the COVID-19 pandemic as well as necessary situations to assist policymakers in universities in overcoming the problem of low e-learning system use.

Sri Lanka is a developing country that is experiencing a COVID-19 pandemic, with deaths and infected people steadily increasing from 2020 to 2022. The Sri Lankan Ministry of Health anticipates that total deaths will rise with the new variants found in COVID-19 (Sri Lanka Health Ministry report, 2022). Due to the released COVID-19, safety precautions were again established, and Sri Lanka Health Ministry regulated to wearing a mask is essential in public places. The Sri Lankan government has attempted several times to re-open universities for undergraduate students, but each time has been unsuccessful. Due to the current economic crisis and COVID-19 situation, Sri Lankan universities continue academic activities by using the zoom application. The University of Ruhuna is a state university in the southern province of Sri Lanka, ranked third in

webometrics rankings among Sri Lankan universities. Around 10,000 internal undergraduates and around 1,000 postgraduates are enrolled at the University of Ruhuna, which is comprised of ten faculties.

Concerning government instruction, the University of Ruhuna has been conducting academic activities using the Zoom network since the 30th of March 2020 and several times re-open and all unfortunately due to the COVID-19 and now the economic crisis that efforts also wasted and currently several faculties including Faculty of Management and Finance continue academic activities by using Zoom application. For decades, the acceptance and usage of information technology have been critical to information systems study and practice (Dwivedi, Rana, Chen, & Williams, 2011).

A mini survey was conducted with the participation of several academics in the university system to find out the trends in using online teaching. This revealed that though students were initially motivated to actively participate in online teaching, relatively participation level is reducing over the period. As it is uncertain when the university is going to start offline teaching and learning practices and they are expecting to continue online teaching and learning mode in the future as well this low participation becomes a critical issue.

The UTAUT 2 model used most of the studies to examine the intention of students' technology adoption. That model is limited to a few variables that influence students' intention of adopting technology. Sri Lanka is a developing country that is far from technology infrastructure and knowledge compared to developed countries. Therefore, factors that influence students' continuous intention to use technology is varying and more factors are derived from students' continuous intention to use technology. Therefore, based on the previous literature researchers extended the UTAUT 2 model by adopting three additional variables.

Further, most of the previous studies focus on the initial intention of adopting technology (Ndubisi, 2004; Zhang, Wen, Li, Fu, & Cui, 2010) and do not properly study the continuous intention to use technology in an e-learning setting. Therefore, to fill this theoretical and empirical knowledge gap current study focuses on investigating the factors that influence undergraduates' continuous intention to use Zoom applications for e-learning.

2. Literature Review

2.1. E-Learning

E-learning is the use of electronic interventions for teaching, learning, and evaluation (Mlitwa, & Belle, 2011). E-learning is defined as flexible learning that makes use of ICT resources, tools, and applications, with an emphasis on information access, interaction among teachers, learners, and the online environment collaborative learning, and the development of materials, resources, and learning experiences (Bagarukayo, 2015). E-learning allows students to improve their problem-solving skills while also allowing educators to better convey and teach knowledge (Bagarukayo, 2015).

2.2. E-Learning Usage

E-learning usage refers to either the amount of effort exerted in interacting with a particular technological system (Fitzgerald, 1993). Continuous use of technology refers to a person's future desire, expectation, or goal to employ presently in use technology or system. According to Ajzen and Fishbein 1980, this is a measure of a person's propensity to continue using technology or system. E-learning definitions emphasized that e-learning is done by interacting with technology.

Thus, e-learning refers to the use of technology. Several theoretical models have emphasized the significance of behavioural intention as the most important predictor of human behaviour in the continuous use of technology (Lee & Rao, 2009). In the context of the present study, the intention was to assess if the undergraduates, who are using e-learning for their academic activities, would be willing to continue using the e-learning method for future studies. From the 30th of March 2020 Sri Lankan university students using the zoom application for e-learning (Hewagamage et al., 2020) Thus, the study aims to assess students' intentions regarding the continued use of the provided e-learning system in future e-learning activities.

In the current study, we specify an e-learning application namely zoom. Accordingly, Zoom is a free HD meeting app with videos and screen sharing for a limited crowd. The reason for selecting zoom for this study is Sri Lankan government introduced zoom to Sri Lankan universities for e-learning in the pan-

demic era. Government links the zoom portal with LEARN system and provides free access to users in Sri Lankan universities (Hewagamage et al., 2020). Zoom is an information and communication technology application founded by Eric Yuan (Akbar & Rais, 2020). Thus, this study investigates the continued use of zoom applications for e-learning.

2.3. Theories of E-Learning Usage

The most widely used technology usage and adoption explained theories are Technology Acceptance Model (TAM) by Davis (1989), Theory of Planned Behavior by Ajzen (1991), Theory of Reasoned Action by Fishbein and Ajzen (1977), Unified Theory of Acceptance and Use of Technology (UTAUT) by Venkatesh et al. (2003) and Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) by Venkatesh et al. (2012).

According to Hone, Tarhini, Hone, & Liu (2014), UTAUT2 is the most commonly and widely used model in recent times to explore areas of use information technologies, including e-learning. Thus, in the current study, we used UTAUT to develop a theoretical model. Based on the UTAUT2 model following constructs were selected as the drivers of e-learning usage.

2.3.1. Performance Expectancy

Performance expectancy is described as the extent to which a person feels that using the method can assist him or her in achieving improvements in performance tasks (Venkatesh, 2003). It further indicates that an individual's degree of confidence in the use of a certain information system using, it will improve his or her learning performance (Almaiah et al., 2020). The previous studies indicated that when performance expectancy is aligned with an e-learning sense, e-learning assists learners by allowing them to conduct their learning tasks quickly and easily, as well as enhancing the learners' educational skills and efficiency (Samsudeen, & Mohamed, 2019).

2.3.2. Effort expectancy

Effort expectancy refers to the degree of ease associated with learners' use of technology (Venkatesh & Zhang, 2014). It is the level of comfort associated with the use of information systems (Venkatesh & Zhang, 2014), and the extent to

which a person feels that he or she can use technology without extra effort (Budu, Yinping, & Mireku, 2018).

It demonstrates the ease at which users interact with technology (Wilson & Budu, 2018). Since e-learning is still in its early stages, effort expectancy is regarded as one of the most significant considerations in determining users' behavioural intention to use the systems (Salloum, 2018).

2.3.3. Social influence

Social influence can be defined as the degree to which a person perceives influences of the system for using the new system (Venkatesh & Zhang, 2014). Further, social influence describes as an influence that other people's opinions have over someone's decision to use an information system (Ruiz, Mintzer, & Leipzig, 2006). People are more likely to use a particular device if it comes highly recommended by those that are important to them (Zuiderwijk, Janssen, & Dwivedi, 2015).

2.3.4. Hedonic motivation

Hedonic motivation is the pleasure or gratification obtained from the use of a technology (Venkatesh & Zhang, 2014). It assesses users' perceived happiness and entertainment (Venkatesh & Zhang, 2014). Venkatesh has been using this variable in the UTAUT2 model to investigate the function of endogenous utilities. It's the joy of experimenting with a new system. The hedonic motivation's main impact is brought by the innovativeness inherent in a modern method (Dwivedi, 2015).

2.3.5. Internet experience

Internet experience has a direct association with technology adoption (Ali, Raza, Qazi, Phuah, 2018) and Internet experience is accepted to be included as one of the key factors determining technology acceptance by past studies (Dwivedi, 2015). Anandarajan et al. (2000) emphasized the importance of internet experience in technology-related investigations. Even though prior studies on web-based learning systems focused less on internet experience as a key determinant (Ali et al., 2018), this study attempts to investigate internet experience on e-learning continued usage.

2.3.6. Work-life quality

Work-life quality refers to a person's expectation or impression that by using a tool, their work quality can increase; in this instance, the use of an e-learning system is intended to improve student's learning process by saving them time and money as they download learning materials and literature or interact with their colleagues or teachers (Hone, Tarhini, Liu., 2014). Further, Hone et al. (2014) and Kripanont (2007) investigated the importance of acceptance of technology to enhance work-life quality (Tarhini, 2014).

2.3.7. Facilitating Conditions

The degree to which an individual feels that an organizational and technological infrastructure exists to facilitate the operation of the system is referred to as the Facilitating Conditions (Venkatesh et al., 2003). Factors in the environment that impact a person's motivation to complete a task, such as technical help, skill training, and access to information or resources, are examples of facilitating conditions (Groves & Zemel, 2000). Accordingly facilitating conditions could directly predict the influence of the continuous use of computers and other technical systems (Alalwan et al., 2013).

3. Methodology

In this study, UTAUT is regarded as a baseline paradigm that has been used to investigate the application of diverse developments in a variety of operational environments. Performance expectancy, effort expectancy, facilitating conditions and social influence adopt from UTAUT developed by Venkatesh et al. (2003). Hedonic motivation, (Venkatesh & Zhang, 2014) from UTAUT2. In addition, internet experience (Ali, Raza, Qazi, Phuah, 2018) and work-life quality (Hone et al., 2014) have been adopted to develop the conceptual framework this study showed in Figure 1.

3.1. Conceptual Framework

Figure 1 shows the conceptual framework of the study.

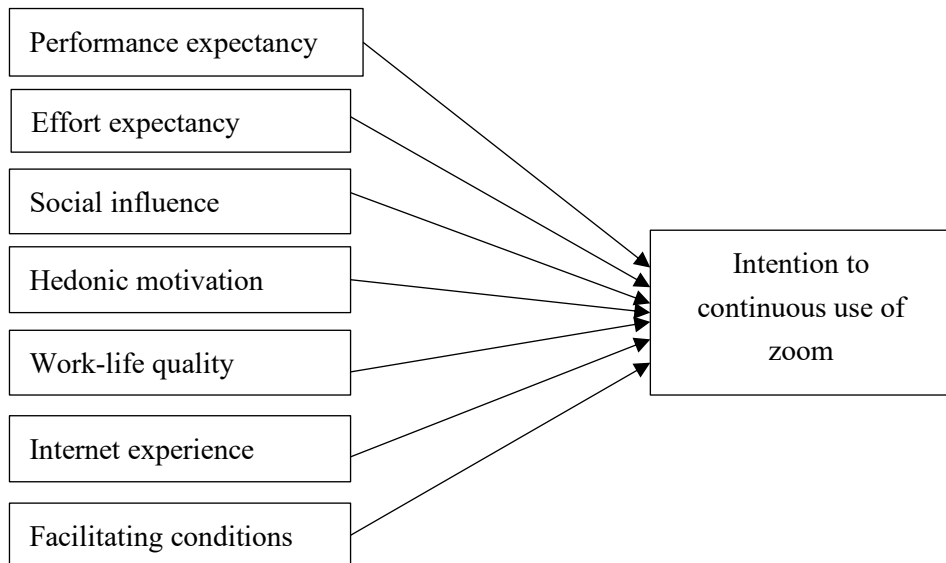


Figure 1. Conceptual Framework

3.2. Hypotheses Development

Performance expectancy in the e-learning context indicates the degree to which e-learning assists learners to conduct their learning tasks quickly and easily, as well as enhancing the learners' educational skills and efficiency (Zuiderwijk, Janssen, & Dwivedi, 2015). Performance expectancy is an indicator of intention to use a new method in a variety of contexts, including e-learning (Hone et al., 2014). According to the current literature, Performance expectancy has a substantially positive relationship with behavioural intention's use of an e-learning method (Samsudeen, & Mohamed, 2019; Budu, Yinping, & Mireku, 2018). As a result, the following hypothesis was formulated:

H₁: Performance expectancy has a positive impact on students' continuous intention to use Zoom for e-learning.

Effort expectancy means the degree of ease associated with users' use of technology (Punnoose, 2012). It is the level of ease associated with the use of information systems (Venkatesh, 2003) and the extent to which a person feels

that he or she can use technology without extra effort (Zuiderwijk, Janssen, & Dwivedi, 2015). Since e-learning is still in its early stages, effort expectancy is regarded as one of the most significant considerations in determining users' intention to use the method (Mpungose, 2021). The ease of use and user-friendliness of e-learning programs can influence individuals' adoption and desire to use such systems (Salloum, 2021). Previous research has shown that effort expectancy affects positively the intention to use a system and is a key determinant of intention to use e-learning programs (Hone et al., 2014; Dwivedi et al., 2011). Thus, this study assumes that if a learner finds an e-learning system easy to use, he or she is more likely to adopt it. As a result, the following hypothesis was developed:

H₂: Effort expectancy has a positive impact on students' continuous intention to use Zoom for e-learning.

Social influence defined by Venkatesh et al. (2003) emphasized that social influence is the degree to which a person perceives that essential other believe he or she would use the new system. That is the influence that other people's opinions have over someone's decision to use an information system (Zuiderwijk, Janssen, & Dwivedi, 2015). The UTAUT model suggested that social influence captures the position of social forces, pictures, and subjective norms. Many studies have confirmed SI as a major influence factor that decides people's intention to use (Almaiah et al., 2020; Dwivedi, 2015). Thus, this research assumes that individuals' intentions to continuous use an e-learning method are conditioned by their lecturers, teachers, and colleagues' beliefs and based on the following hypothesis postulated:

H₃: Social influence has a positive impact on students' continuous intention to use Zoom for e-learning.

Hedonic motivation is the pleasure or gratification obtained from the use of a technology (Venkatesh & Zhang, 2014). It assesses users' perceived happiness and entertainment (Venkatesh & Zhang, 2014). Venkatesh used this variable in the UTAUT2 model to investigate the function of intrinsic utilities. Prior research (for example, Zuiderwijk, Janssen, & Dwivedi (2015)) discovered that hedonic motivation plays an important role in influencing users' intentions to use technology, especially in e-learning and Hone et al. (2014) emphasized that because

using an e-learning framework makes people happy, they are more likely to try it again. Based on that the following theory was postulated:

H₄: Hedonic motivation has a positive impact on students' continuous intention to use Zoom for e-learning.

Work-life quality (WLQ) refers to a person's understanding or belief that by using a tool, their work quality can increase, in this instance, the use of an e-learning system is intended to improve student's learning process by saving them time and money as they can download learning materials and literature or communicate with their colleagues or teachers (Ali, Raza, Qazi, & Puah, 2018). The value of work-life quality-related studies on e-learning is very limited. Hone et al. (2014) and Ali, Raza, Qazi, & Puah (2018) have shown that Work-life quality has an important effect on the decision to use e-learning programs. As a result, work-life quality can be a good indicator of an individual's plan to use e-learning programs. Thus, the following hypothesis was derived:

H₅: Work-life quality has a positive impact on students' continuous intention to use Zoom for e-learning.

Internet experience means individual internet use and familiarity have a major association with technology adoption (Dwivedi, 2015). Internet experience is recognized as a primary factor in assessing technology acceptance by previous research (Dwivedi et al., 2011). Individuals' perceptions of using electronic systems are firmly developed as the internet experience increases (Hone et al., 2014). Previous research on Web-based learning systems have paid less attention to internet experience as the main determinant and this study aims to incorporate internet experience as an exogenous factor influencing e-learning system and purposed the following hypothesis:

H₆: Internet experience has a positive impact on students' continuous intention to use Zoom for e-learning.

Facilitating condition is the belief in the availability of characteristics and resources that will support students in e-learning learning activities (Chiu & Wang, 2008). In the university system, there are several parties for support and facilities to students, especially in the task related to technology (Rahmat & Au,

2013). In an e-learning environment university technological infrastructure, university academic staff support, and nonacademic staff assistance are significant for the success of implemented systems. Previous research has shown that there is a favourable and substantial association between conducive conditions and the desire to continue using (Tarhini, Hone & Liu, 2013; Rahmat & Au, 2013). Based on that following hypotheses were derived for the study.

H₇: Facilitating conditions have a positive impact on students' continuous intention to use Zoom for e-learning.

This employed a descriptive research design that allows assessing the associations between the variables described in the model. After reviewing the literature, six independent variables were identified. Based on the conceptual framework shown in Figure 1, seven hypotheses were postulated.

This study focuses on investigating the intention to continuous use of online teaching for Sri Lankan university undergraduates. Hence, the unit of analysis was individual. The theoretical population of this study is undergraduate students at state universities in Sri Lanka. Among them, 2nd largest annual intake for Sri Lankan national universities enroll under the Management stream (UGC, 2021). From that, Management undergraduates from the University of Ruhuna were chosen as the study population. The faculty of Management and Finance is the 6th Faculty of the University of Ruhuna established in 2003. Since 2021, annually 2nd largest batch of the management stream enrolled in the Faculty of Management and Finance, the University of Ruhuna among 16 management faculties of 16 state universes in Sri Lanka (UGC, 2021). Each undergraduate year represents students from 9 provinces in Sri Lanka and different demographic and socio-economic backgrounds. Therefore, the authors believed that the generalizability of the study findings among undergraduates of Sri Lankan is high due to the authors of this study selecting undergraduates of the Faculty of Management and Finance, the University of Ruhuna as the study population and data gathered from them.

A questionnaire was designed using Google Forms. Designed questionnaires were distributed among 250 undergraduates of the Faculty of Management and Finance, University of Ruhuna by using emails and social media networks, and 200 responses were gathered proceed for further analysis. The study had to adopt

the snowball sampling method because requested respondents to pass the questionnaire among undergraduates in the faculty.

The constructs of the research model were measured using previously validated instruments. All the constructs used a five-point Likert scale where respondents marked their agreement scaling from strongly disagree (1) to strongly agree (5). Gathered data analyzed by using SPSS 25 version. In SPSS, internal consistency was tested using reliability analysis and validity was assessed using discriminant and convergent validity analysis. To check multicollinearity issues correlation analysis was performed and descriptive analysis was used to describe the demographic characteristics of respondents. The hypothesis was tested by using multiple regression.

4. Results

4.1. Sample Composition

The data was gathered from 200 undergraduates of the Faculty of Management and Finance, University of Ruhuna. According to table 1, 41.5% represents the 21-22 age group, the 25-26 age group represents 25% of the sample, and the lowest percentage 4% represents from 19-20 age group. According to the responder' year of study 1st, 2nd, 3rd and 4th years represent 79,17,17,87 students respectively. According to gender 116 (58%), students are female and 84 (42%) are male. Pertaining to the devices used to access for zoom platform most of the students (104) used the laptop, 85 students used a smartphone, 10 students used a desktop, and one student used a tablet. 105 (52.5%) used dialog and 77 (38.5%) use SLT-Mobitel as their internet service provider.

Further, 17 students used Hutch, and 1 student used Airtel internet service provider for access to zoom. 73 students used zoom only for one semester as a percentage it is 36.5%. 59 students use 2 semesters, and 54 students use three semesters of zoom application for e-learning. 12 students experiencing zoom for more than 4 years and the rest of the others in the sample use the zoom application for three semesters for e-learning.

Table 1. Sample composition

Variable	Category	Frequency	Percentage (%)
Age group	19-20	8	4
	21-22	83	41.5
	23-24	44	22
	25-26	50	25
	More than 21	15	7.5
Gender	Male	84	42
	Female	116	58
Undergraduate Year	1st year	79	39.5
	2nd year	17	8.5
	3rd year	17	8.5
	4th year	87	43.5
Number of semesters use zoom application for e-learning	1 semester	73	36.5
	2 semesters	59	29.5
	3 semesters	54	27
	4 semesters	2	1
	More than 4 semesters	12	6
Used device for access to zoom platform	Desktop	10	5
	Laptop	104	52
	Smartphone	85	42.5
	Tablet	1	0.5
Internet service provider used for access to zoom	Dialog	105	52.5
	SLT-Mobitel	77	38.5
	Airtel	1	0.5
	Hutch	17	8.5

Moreover, a considerable deviation is not observed in descriptive statistics analysis and the possible reason might be the period of data collection and especially since this application is new to a majority of respondents of this study. Furthermore, respondents of this study are undergraduates and all of them enrolled on universities after completing of General Certificate Examination of Advanced Level. During that period, they have to complete the General Certificate of Information and Communication Technology course and through that provide adequate knowledge about managing and handling Information and Communication Technology tools and applications. Due to that students have a certain level of confidence in using these kinds of applications for their studies.

4.2. Reliability

The reliability of the constructs was measured using Cronbach alpha values and the results are indicated in Table 2. The highest reliability value indicates (0.962) by Hedonic motivation while the lowest reliability value is

reported by effort expectancy (0.825). According to (Bagozzi & Yi, 1988) a threshold level of 0.6 or the highest value is required to demonstrate a satisfactory level of reliability. As all constructs meet the threshold value there are no concerns about low internal consistency among the constructs.

Table 2. Reliability Statistics

Variable	Cronbach's Alpha	No of Items
Performance Expectancy	0.900	5
Effort Expectancy	0.825	4
Social Influence	0.919	3
Hedonic Motivation	0.962	3
Work-Life Quality	0.878	4
Internet Experience	0.885	3
Facilitating Conditions	0.843	4
Behavioural intention	0.934	5

4.3. Correlation and Multicollinearity

According to Table 3, correlation coefficient values between the independent variables were very high. Multicollinearity was evaluated using Tolerance and VIF values and the findings indicate that there is no multicollinearity among all independent variables since the Tolerance values are greater than 0.10 and the VIF values are lower than 10.

4.4. Hypothesis Testing

The hypothesis was tested using multiple regression analysis using SPSS and regression results are shown in Table 4. The Adjusted R Square value amounts to 0.701. Thus, the regression model explains 70% of the variance in the intention to continuously use e-learning with Zoom with the seven independent variables specified in the research model and the ANOVA test confirmed that the regression model is statistically significant ($F = 78.622, P = 0.000$).

Table 3. Correlations and multicollinearity diagnostics

	PE	EE	SI	HM	WLQ	IE	FC	Continues intention	Tolerance	VIF
PE	1								.202	4.800
EE	.822	1							.210	4.702
SI	.801	.722	1						.241	4.186
HM	.799	.784	.722	1					.212	4.326
WLQ	.805	.789	.766	.701	1				.253	4.786
IE	.712	.699	.612	.621	.589	1			.208	4.921
FC	.831	.788	.766	.752	.749	.786	1		.191	5.227
Continues intention	.843	.811	.800	.710	.763	.721	.774	1	.254	5.412

Note: All correlation coefficients are significant at 1% level of significance.

According to Table 4 Performance expectancy ($b = 0.445$, $p = 0.000$). Hedonic Motivation ($b = 0.191$, $p = 0.000$), Work-Life Quality ($b = 0.904$, $p = 0.000$), Internet Experience ($b = 0.370$, $p = 0.002$), and facilitating conditions ($b=0.242$, $p=0.001$) have significant positive effect on explaining intention to continuous use of zoom application for e-learning. Thus, derived H_1 , H_4 , H_5 , H_6 and H_7 hypotheses were accepted with observed data. Effort Expectancy had a significant negative impact on intention to continue the use of zoom application for e-learning, supporting H_2 ($b = -0.196$, $p = 0.044$). Social Influence was not found to have a significant effect on the intention to continue the use of zoom application for e-learning, not supporting H_3 . In sum, this study confirms the results of UTAUT.

Table 4. Regression results

	Unstandardized Coefficients		t	Sig.
	B	Std. Error		
PE	0.445	0.090	4.925	0.000
EE	-0.196	0.098	-1.997	0.044
SI	0.068	0.064	1.063	0.289
HM	0.191	0.052	3.701	0.000
WLQ	0.904	0.168	5.368	0.000
IE	0.370	0.121	3.068	0.002
FC	0.242	0.101	3.956	0.001
Adjusted R ²	0.701			
ANOVA	F = 78.622, (P= 0.000)			

5. Discussion

The objective of this study is to investigate about factors that influence for intention to continuous use of zoom application for e-learning among undergraduates in Sri Lankan universities. The results of the study indicate that performance expectancy, hedonic motivation, work-life quality, internet experience and facilitating conditions significantly and positively impact the intention to continuous use the zoom application for e-learning. Further, effort expectancy is significantly and negatively related to the intention to continue the use of zoom applications for e-learning.

This study found empirical support for the relationship between performance expectancy and intention to continuous use of zoom applications for e-learning. This means that undergraduates use the zoom application for future e-learning activities if they feel that the system helps them to reach their goals of learning activities and benefited from a climb up their expected performance level. These findings are consistent with previous work (Samusdeen, 2019). The relationship between hedonic motivation and intention to continuously use zoom application for e-learning has been documented and the results confirmed the importance of the link between them. This finding indicates that undergraduates use the zoom application for their future studies if the application derives pleasure in the e-learning described. Consistent with the previous empirical findings of Ali, Raza, Qazi, & Puah (2018), the present study found empirical support for the relationship between work-life quality and intention to continuous use of zoom application for e-learning. This means that the usage of the zoom application is supposed to improve students learning process by bringing savings for them in terms of time and cost when they download learning materials and literature or making communications with their colleagues or teachers (Hone et al., 2014). Moreover, this study found empirical support for the relationship between internet experience and intention to continue the use of zoom applications for e-learning. Internet experience is considered a key factor determining technology acceptance by past studies (Ali, Raza, Qazi, & Puah, 2018) and this study indicated the same results and derived that if students have previously strong internet experience, they might use the zoom application in future e-learning activities.

This study found significant results confirming the relationship between effort expectancy and intention to continuous use of zoom applications for e-learning. This implies that students are willing to use e-learning platforms for their future studies when they perceive that the online platform is not much complicated to learn and operate. This finding is consistent with the previous work (Samusdeen, 2019). Further, it found empirical support for the relationship between facilitating conditions and undergraduates' continued intention to use zoom for e-learning (Azlina, Bakar, Bin & Razak, 2014). However, contrary to the previous studies of Venkatesh et al. (2003), Venkatesh and Zhang (2014) and Hone et al. (2014), this study did not find an empirical support for this claim. A possible reason for insignificant results would be that respondents in this context did not pay keen attention to the other influences practically for using the zoom application in their future studies. In sum, Sri Lankan university students' intention for continuous use of zoom application for e-learning is explained by the performance expectancy, work-life quality, hedonic motivation, effort expectancy and internet experience.

From a theoretical standpoint, the conceptual model validated in the developing context gives a clearer understanding of the variables that affect students' continuous intention to use the Zoom application which is mostly used in Sri Lankan higher education for e-learning activities. This study was laid from the UTAUT model with the addition of three variables adopted from previous empirical research findings. The findings emphasize how important the adopted variables are to deriving students' continuous intention to use such e-learning applications. Thus, this study provides a base for future studies conducted on the same study phenomenon by using an extended version of the UTAUT model.

For practical implications study results will point out that more effort could be paid to make to ensure the continuous intention of using e-learning applications in higher education. It gives them a deeper view of the preferences of university students in the case of e-learning system implementation, as well as what these students would want to see and, in their technology, -assisted learning phase lead them to a high satisfactory level of e-learning. So those potential implementations and current installations can be better tailored to meet these students' needs and desires and finally, it leads to continuous intention towards using such applications for e-learning.

For vendors who develop these applications that add more attractive features to enhance the ability to meet the users' expectations, concern about designing more convenient and user-friendly applications, providing regular updates and upgrades about applications and providing superior service to users will determine the continued intention of undergraduates regarding use of e-learning applications. Therefore, vendors and developers must consider the above things when they design, develop, and offer these applications to the market. Not only that make these applications easier for students to use e-learning services by working with mobile and tablets and developing applications that provide pleasure and enjoyableness also determine the user's continuous intention to use these applications and vendors have to consider those when designing and updating their e-learning applications.

Lecturers and instructors need to allow students with little internet experience to use e-learning systems and to try to increase the work-life quality of university undergraduates and it will also increase their continuous intention to use these applications. Moreover, this study derived implications for the country's policymakers and relevant authorities. Those are offering low-cost Internet data services with dedicated dongles for university students and provide hardware devices based on instalment plans and that kind of other methods also ensure students' continuous use of these applications for e-learning.

Students are willing to use zoom for e-learning continuously if the facilitating things such as technology infrastructure, necessary resources, and further assistance and support will provide by the university academic, nonacademic staff and administration. Therefore, as the implementors of the system, it is highly necessary to provide technology technological support and assistance for handle the system and it will increase students' continuous intention for using zoom for e-learning.

6. Conclusions

During the pandemic era, Sri Lankan universities launch the zoom platform for e-learning. As a result, universities must continue to use zoom during the pandemic period. Sri Lankan undergraduates have been using zoom for over a year, but there is a question about whether they would be willing to

continue using it in the future. This study investigated the reasons that undergraduates seek from the system and system operators to continue utilizing zoom for their e-learning activities. According to the findings, the factors that Sri Lankan universities considered are performance expectancy; work-life quality, hedonic motivation, effort expectancy, internet experience and facilitating conditions for continued use of zoom for e-learning. According to the literature Rajeh et al. (2021) conducted a theory-based study about the same phenomenon and explore students' continuous intention to use technology for their learning activities in different contexts and the findings of that study were different from the current study.

Moreover, Fuady et al. (2021) explore the student perception of using these e-learning applications specifically during the COVID-19 period and Damuri et al. (2021) explore the same phenomenon in secondary school students. However, there is a gap in the literature about undergraduates' continuous intention regarding e-learning applications and in the Sri Lankan university education system. Thus, it is paramount important to know specifically how students perceive Zoom application since it is the only application that is freely available for Sri Lankan university undergraduates. Further, due to the economic crisis and COVID-19 situation university administrations are expected to continue education activities by using Zoom it is necessary to check students' intentions because all of these systems' success depends on the user's perception of that particular application.

Moreover, in the Sri Lankan setting, there is a challenge in generalizing findings of developed countries' studies because Sri Lanka is different in terms of technology infrastructure and resource availability, technological knowledge and attitudes. Thus, this study fulfils existing theoretical and empirical research gaps by exploring undergraduates' continuous intention of using Zoom for e-learning activities and adding value to existing literature. From a theoretical standpoint, the conceptual model developed by extending UTAUT 2 model validated in the Sri Lankan context gives a clearer understanding of the variables that affect students' continuous intention and e-learning system usage behaviour. The results will point out that more effort could be paid to make the adoption process a success. It gives them a deeper view of the preferences of university students in the case of e-learning system implementation, as well as what these students would want to see and see in their technology-assisted

learning phase. So those potential implementations and current installations can be better tailored to meet these students' needs and desires.

We acknowledge the following limitation of the study while indicating directions for future research. The first limitations refer to the sample size and the context of the study. Due to time and financial constraints, the sample was limited to 200 respondents from the University of Ruhuna. A larger sample would increase the statistical power and offer rigorous findings (Hair et al., 2010). Future studies with a larger sample size representing undergraduates from other universities are therefore required. The second limitation pertains to the research design. This study used a cross-sectional design, wherein data were collected at one point in time. As the intention to continuously use e-learning is viewed as a psychological construct where longitudinal empirical studies are required to gain in-depth understanding future studies with a longitudinal research design would greatly contribute to the literature.

The fourth limitation is related to the data collection tools. The present study used a questionnaire survey to collect primary data about the phenomenon of interest. Alternative mechanisms, such as interviews would facilitate an in-depth understanding of the continuous usage behaviour and its determinants. Thus, future studies that employ interviews and qualitative analysis of interview data would generate important insights into this phenomenon. The fifth limitation relates to the inclusion of independent variables in the research model. The study used only seven factors based on the UTAUT theory and literature. Additional variables specified in other theories, Theory of planned behaviour, institutional theory, transaction cost theory, and Diffusion of Innovation Theory might have an impact on the intention to continue the use of e-learning.

References

- Ali, M., Raza, S. A., Qazi, W., & Puah, C. H. (2018). Assessing E-Learning System in Higher Education Institutes: Evidence from Structural Equation Modelling. *Interactive Technology and Smart Education*, 15(1), 59-78.
- Almaiah, M. A., Al-Khasawneh, A., & Althunibat, A. (2020). Exploring the critical challenges and factors influencing the E-learning system usage during COVID-19 pandemic. *Education and information technologies*, 25(6), 5261-5280.

- Bagarukayo, E., & Kalema, B. (2015). Evaluation of elearning usage in South African universities: A critical review. *International Journal of Education and Development using Information and Communication Technology*, 11(2), 168.
- Bagozzi, R. P., & Yi, Y. (1988). On the evaluation of structural equation models. *Journal of the Academy of Marketing Science*, 16(1), 74-94.
- Bakar, A. A., & Razak, F. Z. B. A. (2014). The role of facilitating condition and social influence towards continuance intention to use e-learning. *International Journal of Technical Research and Applications*, 2(1), 12-14.
- Bervell, B., & Arkorful, V. (2020). LMS-enabled blended learning utilization in distance tertiary education: establishing the relationships among facilitating conditions, voluntariness of use and use behaviour. *International Journal of Educational Technology in Higher Education*, 17(1), 1-16.
- Budu, K. W. A., Yinping, M., & Mireku, K. K. (2018). Investigating the effect of behavioral intention on e-learning systems usage: Empirical study on tertiary education institutions in Ghana. *Mediterranean Journal of Social Sciences*, 9(3), 201-201.
- Chawinga, W. D., & Zozie, P. (2016). Information needs and barriers to information sources by open and distance learners: A case of Mzuzu University, Malawi. *South African Journal of Information Management*, 18(1), 1-12.
- Damuri, A., Isnain, N., Rahmatika, R., Priyatama, A., Chandra, Y. I., & Putra, A. S. (2021). E-Learning Proposal System in Public Secondary School Learning. *International Journal of Educational Research & Social Sciences*, 2(2), 270-275.
- Demirel, M., & Coşkun, Y. D. (2010). A study on the assesment of undergraduate students' learning preference. *Procedia-Social and Behavioral Sciences*, 2(2), 4429-4435.
- Dwivedi, M. W. (2015). The unified theory of acceptance and use of technology (UTAUT). *Journal of Enterprise Information Management*, 28(3), 443-488.
- Eltahir, M. E. (2019). E-learning in developing countries: Is it a panacea? A case study of Sudan. *IEEE Access*, 7, 97784-97792.

- Epidemiology Report. (2020). Provisional Clinical Practice Guidelines on COVID-19 suspected and confirmed patients. Epidemiology unit, Ministry of Health, Sri Lanka.
- Epidemiology Report. (2022). Provisional Clinical Practice Guidelines on COVID-19 suspected and confirmed patients. Epidemiology unit, Ministry of Health, Sri Lanka.
- Fitzgerald, E. P. (1993). Success measures for information systems strategic planning. *The Journal of Strategic Information Systems*, 2(4), 335-350.
- Fuady, I., Sutarjo, M. A. S., & Ernawati, E. (2021). Analysis of students' perceptions of online learning media during the Covid-19 pandemic (Study of e-learning media: Zoom, Google Meet, Google Classroom, and LMS). *Randwick International of Social Science Journal*, 2(1), 51-56.
- Hayashi, R., Garcia, M., & Maddawin, A. (2020). Online learning in Sri Lanka's higher education institutions during the COVID-19 pandemic. Asian Development Bank. <http://hdl.handle.net/11540/12485>
- Jain, A. (2018). Study on employee's satisfaction towards e-HRM in banking: A comparative study between public and private sector banks. *International Journal of Advanced Research in Commerce, Management & Social Science*, 1(2), 34-41.
- Kripanont, N. (2007). Examining a technology acceptance model of internet usage by academics within Thai business schools (Doctoral dissertation, Victoria University).
- Lewis, C. C., Fretwell, C. E., Ryan, J., & Parham, J. B. (2013). Faculty use of established and emerging technologies in higher education: A unified theory of acceptance and use of technology perspective. *International Journal of Higher Education*, 2(2), 22-34.
- Masadeh, R., Tarhini, A., Mohammed, A. B., & Maqableh, M. (2016). Modeling factors affecting student's usage behaviour of e-learning systems in Lebanon. *International Journal of Business and Management*, 11(2), 299-299.
- Mlitwa, N., & Van Belle, J. P. (2011). Mediators for lecturer perspectives on learning management systems at universities in the Western Cape, South Africa. *PACIS 2011 Proceedings*. 135

- Mpungose, C. B. (2021). Lecturers' reflections on use of Zoom video conferencing technology for e-learning at a South African university in the context of coronavirus. *African Identities*, 1-17.
- Muqorobin, M., & Rais, N. A. R. (2020). Analysis of the Role of Information Systems Technology in Lecture Learning during the Corona Virus Pandemic. *International Journal of Computer and Information System (IJCIS)*, 1(2), 47-51.
- Ndubisi, N. O. (2004, July). Factors influencing e-learning adoption intention: Examining the determinant structure of the decomposed theory of planned behaviour constructs. In *Proceedings of the 27th Annual Conference of HERDSA* (pp. 252-262).
- Punnoose, A. C. (2012). Determinants of intention to use eLearning based on the technology acceptance model. *Journal of Information Technology Education: Research*, 11(1), 301-337.
- Rajeh, M. T., Abduljabbar, F. H., Alqahtani, S. M., Waly, F. J., Alnaami, I., Aljurayyan, A., & Alzaman, N. (2021). Students' satisfaction and continued intention toward e-learning: A theory-based study. *Medical Education Online*, 26(1), 1961348.
- Rana, N. P., Chen, H., & Williams, M. D. (2011). A Meta-analysis of the Unified Theory of Acceptance and Use of Technology (UTAUT). In *Governance and Sustainability in Information Systems: Managing the Transfer and Diffusion of IT (Working conference)* (pp. 155-170). Springer.
- Ruiz, J. G., Mintzer, M. J., & Leipzig, R. M. (2006). The impact of e-learning in medical education. *Academic Medicine*, 81(3), 207-212.
- Saeed Al-Marouf, R., Alhumaid, K., & Salloum, S. (2020). The continuous intention to use e-learning, from two different perspectives. *Education Sciences*, 11(1), 6.
- Samsudeen, S. N., & Mohamed, R. (2019). University students' intention to use e-learning systems: A study of higher educational institutions in Sri Lanka. *Interactive Technology and Smart Education*, 16(3), 219-238.
- Situational report of World Health Organization. (2020). Coronavirus disease (COVID-19), World Health Organization. <https://apps.who.int/iris/handle/10665/331224>

- Situational report of World Health Organization. (2022). Coronavirus disease (COVID-19), World Health Organization. <https://apps.who.int/iris/handle/10665/331224>
- Tarhini, A., Hone, K., & Liu, X. (2014). The effects of individual differences on e-learning users' behaviour in developing countries: A structural equation model. *Computers in Human Behavior*, *41*, 153-163.
- Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, *425-478*.
- Venkatesh, V., Thong, J. Y., & Xu, X. (2012). Consumer acceptance and use of information technology: Extending the unified theory of acceptance and use of technology. *MIS Quarterly*, *157-178*.
- Venkatesh, V., Thong, J. Y., & Xu, X. (2016). Unified theory of acceptance and use of technology: A synthesis and the road ahead. *Journal of the Association for Information Systems*, *17(5)*, 328-376.
- Zhang, L., Wen, H., Li, D., Fu, Z., & Cui, S. (2010). E-learning adoption intention and its key influence factors based on innovation adoption theory. *Mathematical and Computer Modelling*, *51(11-12)*, 1428-1432.
- Zuiderwijk, A., Janssen, M., & Dwivedi, Y. K. (2015). Acceptance and use predictors of open data technologies: Drawing upon the unified theory of acceptance and use of technology. *Government Information Quarterly*, *32(4)*, 429-440.