A Study on the Exposure to E-Learning during COVID-19: Special Reference to Management Undergraduates of Non-State Universities

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INTRODUCTION

One of the most significant and essential sectors of the economy is education. In recent years, the competition within the education sector has considerably increased. As a result, education is considered a priority for every human being in this era of globalization and technological (Rasheed et al., 2020). With today's rapid changes, the dynamic world has evolved into a technology-driven icon. Furthermore, with the ever-changing technology, the educational sector has undergone many significant changes requiring individuals to reconsider and evaluate each and every aspect concerning the education industry (Ekanayake & Weerasinghe, 2008).

Many of the universities and colleges have been compelled to change their learning and teaching processes via online mode worldwide (Parsad & Lewis, 2008). Razeeth et al. (2019) highlighted that more than three million higher education students switched to online education by 2012 and now it is reaching a high level. In some instances, online learning students were the best compared to those who followed traditional learning (Shachar & Neumann, 2010). Even though most universities have changed their method of education delivery to online, still the majority of students in higher education are learning using face to face conventional methods (Ibrahim et al., 2007). According to Razeeth et al. (2019), the higher education system has been advancing with time and technological progress. At the same time, Asian universities are experiencing a major transformation to meet the demands of the twenty-first century. Over the last two decades, the number of people enrolled in higher education in

the Asia has surged (Bank, 2012). This transformation in the education system has allowed college students to gradually shift their interest from a traditional learning mode to one that is online.

Apparently, e-learning is a rapidly growing educational mode outperforming the traditional educational methods. This is mainly due to the emergence of advanced and high-speed internet technologies along with the developments in the Information Technology sector (Shah & Barkas, 2018). As Chitra and Raj (2018) asserted, e-learning is a learning system that is focused on formalized instruction yet using electronic tools and made available to a large number of viewers via an internet transmitting machine. Knowledge can also be shared through the internet, which is available 24 hours a day, 7 days a week, anywhere and at any time. Moreover, as per Solc et al. (2012), the key benefit of e-learning is that students can study whenever they want, anywhere they want at their convenience. They can also learn at their own pace. Therefore, higher educational institutions attempt to discover the impact of e-learning delivery on the academic performance of undergraduates.

Recognizing the emerging coronavirus's (Covid-19) global impact, the World Health Organization declared it a pandemic on the 11 March in 2020 (Jena, 2020). To control the spread of the Covid-19, most governments around the worldwide imposed countrywide lockdowns and took social distancing measures. As a result, education is one of the most critical sectors affected by the Covid-19 pandemic across the globe (Rameez et al., 2020). In this context, the Sri Lankan government temporarily closed universities in the country on the 12 March 2020 and suspended all academic activities with immediate effect (Adaderana, 2020). During this time, the higher education industry in Sri Lanka experienced several issues on many fronts. Mainly, education delivery in physical classrooms was not feasible due to mobility restrictions and social distancing imposed. In Sri Lanka, where the potential is considerable, e-learning is relatively a new concept. E-learning offers an important alternative to Sri Lanka's delivery of secondary and higher education. During the COVID-19 pandemic, Sri Lankan educational institutions were suddenly transformed into the global education landscape in favor of e-learning.

Due to the COVID-19, developing countries including Sri Lanka were urged to adapt to and interact with e-learning platforms and systems (Hewagamage et al., 2020). Therefore, it is rare to have an entire university experience compacted into a personal electronic device in a developing country. As a result, there is a need to provide educators and learners with accurate information about the perceived value of e-learning exposure on students. Hence, the primary goal of this study is to examine the level of exposure to e-learning. Further, as a sub-objective, researchers compare and analyze the significant differences of academic success in e-learning and traditional learning.

PROBLEM STATEMENT

Sun et al. (2008) underlined that many educational institutions use e-learning to take advantage of rapid technological advancements that aid in enhancing the learning experience and boosting its effectiveness. As a result of this tendency, in previous several years??, the rate of e-learning adoption in educational institutions surpassed by thirty-five to forty per cent indicating its significant growth in the education industry. Even though e-learning has effectively been adopted in many educational settings, e-learning efforts have faced slow progress (Liaw, 2008).

Apparently, developing countries continue to lag behind developed countries, and the fundamental reason for this may be that several developing European countries continue to rely on outdated information and communication technologies (Moussa & Moussa, 2009). This may impose several limitations on the use of e-learning systems. Even though e-learning has been growing rapidly in developing countries, there are still many barriers to overcome. As an example, Bhuasiri (2012) indicated some obstacles to e-learning in developing countries; inadequate investments in technology such as hardware and issues related to software licenses, learning material development, equipment maintenance and training. Nevertheless, only a few research studies have been conducted on the e-learning process in the Sri Lankan context. Most of these few studies have focused on the benefits of using e-learning. Thowfeeka and Jaafar (2012) focused on advantages of receiving e-learning in Sri Lankan colleges in the future. Similarly, Gunawardhana (2020) featured the meaning of e-learning as a stage in distance learning by characterizing the critical zones of distance learning, key segments of fruitful e-learning, and the learning hypothesis to be followed to make successful e-learning instruments in order to drive distance learning in the proper direction. Also Mozelius (2011) indicated that the conversion of the BIT program to an e-BIT program resulted in and contributed to a rise in Sri Lanka's e-learning competency levels. Further, Samsudeen and Mohamed (2019) investigated the factors that might influence the intention and user behavior in the usage of e-learning systems by students in state universities in Sri Lanka, and they discovered that the adoption of an e-learning system in Sri Lankan state universities is fairly low. As a result, additional research is urgently needed in this area to better understand and apply e-learning.

In the light of the above, the researchers have identified that there is a research gap in identifying the level of exposure to e-learning in the Sri Lankan educational framework. In other words, there is a need to provide educators and learners in the local context with detailed information regarding the perceived value of e-learning exposure. In this view, the current study seeks to shed light on the success of e-learning on undergraduates using the level of their exposure.

LITERATURE REVIEW

Introduction To E-Learning

In general, education is the key to many people's success, and the advantages received via education are numerous and indispensable. Education is the process of acquiring knowledge and information that lead to a successful future (Al-Shuaibi, 2014). Hence, education paves the way to view obstacles as challenges that can be overcome with no fear. According to Raja and Nagasubramani (2018), the education integrated with modern technology results positively. Therefore, automation of education through technology helps to enhance the efficiency while providing ease of use to students as well as to educators which makes the learning and teaching processes more enjoyable. E- Learning is formally known as electronic learning where the delivery of learning and training is provided through a digital medium using digital components such as computers, tablets and smartphones (Valverde-Berrocoso et al., 2020). The origin of electronic learning endeavored with the discovery and development of computers, yet it was restricted to an insignificant number of users. However, with the development and rapid growth in the information and technology industry, universities and other higher educational institutes embraced the use of electronic learning and incorporated it with their teaching to deliver the students with a more integrated way of learning.

History And Evolution Of E-Learning

According to Connolly and Stanfield (2007), more student-affiliated e-learning-based platforms were developed in the late 1990s where e-learning could be categorized into three generations. They emphasized that the first generation was from the mid-90s until early 2000s. During this period, all the traditional educational materials were simply transformed into the online format that was found to be ineffective with respect to the student engagement. The second generation was in the early 2000s where lecturers and other educators were considerably more familiarized with the online teaching platforms. So, at that time, they used increased resources, rich streaming media and interesting learning environments for students. Similarly, Dašić (2012) differentiated the e-learning framework of early 2000 with the e-learning framework of 2010 where he?? highlighted that eLearning in 2010 generated new knowledge and was in possession of students which created a learning community through a tool supporting partnership. However, e-learning in 2000 was found to be distributing knowledge with more e-tutoring, and the enrolled students seemed to be isolated. Further it revealed that e-learning in 2000 suppressed student’s creativity as it only focused on technology and content. The third generation of e-learning is the modern era which is currently underway. The modern era is embraced with a tech-savvy generation where internet and other electronic portfolios are very prominent among both educators and students (Connolly & Stanfield, 2007). Therefore, e-learning has been converted into an inherited culture among students to acquire higher education levels by combining traditional educational methods and e-learning together.

E-Learning Dimensions

Most of the previous research idealized the level of student exposure based on a variety of aspects. Accordingly, Uppal (2017) measured the e-learning success based on three factors which are namely service quality, information quality and system quality. Similarly, Pham (2019) showed the interrelationship between e-learning service quality dimensions such as system quality, instructor and course quality, and administrative and service quality which are heavily dependent on the overall e-learning service quality. In addition, Blayone (2018) showed that students' self-reported skills for digital learning is high on average with a mean value of 4.5 in a scale ranging from 1 to 6. Also, Jones (2012) emphasized that students in the present are highly adapted to the technological improvements and digital technologies. Further, Wangpipatwong (2008) stated that e-learning is heavily influenced by the attitude of the students towards computers and their perception of e-learning. And this was further affirmed by Zaraii–Zavaraki and Rezaei (2011) who found that using an electronic portfolio for educational purposes improves students' attitudes while also boosting strong motivation that ultimately leads to academic success. As an outcome, after reviewing the previous literature, this study concentrates on four dimensions considered under e-learning with respect to the system quality, instructors' quality, digital readiness and e-learners' attitudes.

System Quality

System quality is a measure of an information system from the technical and design perspectives (Majed & Suliman, 2013). The study conducted by Elango et al. (2008) considered multiple quality factors such as relevance of course contents, web usage, online interaction of students and course compliance to assess the quality of online learning methods. Bacow (2012) reported from the data collected out of twenty-five higher education institutes that universities tend to invest in more online courses and their related needs to provide students with a better service rather than to reduce costs. This will potentially take precedence over quality electronic learning methods in the future. Kaye and Anthony (2002) criticized the quality of the online based degree programs conducted in Sri Lanka as the governing authorities of regulation have failed to produce the basic requirements needed to fulfill online based education methods. However, Pikkarainen (2006) found that content, ease of use and the accuracy of the content play a pivotal role in online based platform quality assessments. Furthermore, Cidral (2018) highlighted that e-learning has expanded rapidly with the dense popularization and the advancements of multimedia and network technologies such as high-speed internet, high-definition video, smart devices and intelligent functionalities of learning management systems

Instructors Quality

According to Elango et al. (2008), instructor quality can be idealized as the instructor support and commitment, preparedness, knowledge, communication, unbiasedness and effective utilization of technology in coursework. Consequently, each of these factors directly affects the instructor quality. The study conducted by Martinez-Arguelles and Batalla-Busquets (2016) considered both quality of

instructional services and the non-instructional services. The results showed that there is a statistical significance in instructional and non-instructional services on the learning service quality, satisfaction and loyalty. On the contrary, Maier and Paechter (2010) compared the quality of online learning and traditional learning methods and concluded that online learning is comparatively better for some students yet can have less acceptance particularly among Austrian learners due to their personal preferences with traditional learning setting that encourages to have a learning environment with more interpersonal relations. Thus, it affirms that the interaction between the instructor and the student is essential for an enhanced e-learning experience. Premawardhena (2007) showed that the key constraints faced by university administration are lack of qualified academic staff to conduct face to face teaching and inability to find industry experts to align the students' practical skills with industry requirements. Therefore, these limitations can be compressed with the adoption of e-learning methodologies.

Digital Readiness

The digital readiness in e-learning indicates their technological knowledge, abilities, attitudes, and competences to use digital technologies in online based platforms (Hong, 2018). According to Blayone (2018), digital readiness should be measured based on a multi contextual approach which incorporates the individual student, university, available resources etc. Lau and Shaikh (2012) conducted a study to identify the factors governing the digital readiness among undergraduates by selecting a sample of Malaysian learners. The authors concluded that the readiness towards online platforms depends on various factors such as internet efficacy, computer skills and even personal demographics like gender, family background, level of the study as well as their financial status. Moreover, Horrigan (2016) stated that one sixth of the adults are digitally ready for e-learning as they are economically stable and highly educated. Among them, there is a significant 40% who has personally learned from the internet. The digital readiness of the students are assessed with respect to two core parameters which are digital equipment and e-learning tools. This was further backed by Topal (2016) stating that digital readiness is an ideology that should be understood as a whole and taken into account alongside physical materials.

Song et al. (2004) examined factors related to online learning effectiveness from the graduate students' perspective, and it was concluded that design and time management of are the most crucial factors that could affect the success of an online course. Parkes et al. (2015) arrayed on the reasons why most universities in the present are investing on e-learning environments. The study demonstrated that students prefer e-learning delivery to face-to-face methods due to the high technology literacy and the digital nativity. Such that, more students tend to be familiarized with the digital learning environments as it provides more smart learning platforms than the conventional time-consuming learning techniques. Thereby the students are able to engage in their studies while

executing other work as well. The study further elaborated that the e-learning is the best method for the 21st century as it enables the students to multitask in their work while performing other tasks. Weerasinghe, I and Fernando, R. (2018) mentioned in their study that universities are shifting the teaching strategies from teacher-centered to student-centered in order to meet the student's expectation and satisfaction levels. However, the service quality should be increased as e-learning is yet to be considered as a supplementary educational method. Thus, the system quality in online education is controversial as it is dependent on the external factors related to the university, internet service providers etc. The overall educational system quality is reliable on the tools and techniques incorporated by the educators and learners which reflects the prime responsibility of the university to assimilate the requirements of the students.

E-Learners' Attitude

The e-learner's attitude was best defined by Liu and Tsai (2008) as the learner's impression of participating in e-learning activities through computer usage. According to Morrison-Shetlar (2002), students have a positive effect of constructive learning, problem solving and critical thinking when using web-based teaching methods. In opposition, Xu and Jaggars (2013) concluded that the likelihood of course persistence is reduced by 7% for a student when choosing online learning techniques over traditional learning methods of face-to-face formats. Moreover, if the student somehow persists toward the end of the course, then the likelihood of decreasing their final grade point average is by 0.3 points. On the contrary, Nassoura (2012) studied on the attitude of students towards e-learning and found that various factors such as monthly salary of students, level of education and other psychological factors influence the attitude of the students. The study further found that the attitude of the university students in developing countries have huge variations, yet in general, the overall attitude towards e-learning is positive. Moreover, Mozelius (2011) revealed that the transformation of the Bachelor of Information Technology program to e-BIT has resulted in and contributed to an enhancement in the e-learning proficiency levels in Sri Lanka which has also specified that the pass rates of the program due to the transformation has spiked in a colossal increment of 68%.

RESEARCH METHODOLOGY

This research study mainly focuses on two objectives. As the main objective, researchers explore to identify the student's level of exposure to e-learning, and the sub-objective is to analyze the significant differences of academic success in e-learning and traditional learning. Basically, this research is based on a descriptive study with no causal or other hypotheses. Hence, the research strategy of a questionnaire survey has been used in this study. The researchers have chosen the quantitative research design since they have collected numeric data.

In this study, researchers mainly focus on individuals of the management faculties in ABC and XYZ universities. Therefore, the unit of analysis in the present study can be identified as an individual student. This research follows a cross sectional study. The sampling method is convenience sampling as a sample of management students among non – state universities have been selected with accordance to the convenience. Moreover, the convenience sampling method helps to select sample from a group of people who are easy to contact or reach for research purposes. The population of this study is 2500 undergraduates from two non-state universities in Sri Lanka including third and fourth year management undergraduates from the chosen universities based on the count. The third and fourth year students are primarily targeted due to their experience in both traditional learning and e-learning. The sample size of the population is 332 based on the table developed by Krejcie and Morgan (1991).

To collect data, researchers have devised a survey questionnaire which was intended to be distributed among students in a non-state institution's management faculty. They have been questioned on four dimensions namely system quality, instructor quality, digital readiness and E-learner attitude by using a Likert scale. A Likert scale has been used to assign ratings from 1 to 5 (1: Strongly Disagree, 5: Strongly Agree). The analysis has been done with the aid of the Statistical Package for Service Solutions (SPSS). This research primarily employs descriptive analysis which includes a one-sample t-test and descriptive statistics. One sample t-test analysis has been used to compute the mean value of the e-learning exposure with respect to four dimensions of system quality, instructor quality, digital readiness and learners' attitude. Further, descriptive statistics has been used to analyze the significant differences of academic success in e-learning and traditional learning using central tendency measures.

RESULTS

Reliability Test

The pilot survey has been conducted by the researchers to ensure that the survey is reliable. The pilot survey has only been sent to forty five undergraduates at two non-state universities who are chosen for the study. These responses have been used to compute the Cronbach's alpha. The

Dimensions	Number of items	Cronbach's Alpha
System Quality	5	.867
Instructors' Quality	5	.858

Digital Readiness	5	.831
Learners Attitude	5	.817
Overall	20	.942

shows Cronbach's alpha for the dimensions of the current investigation.

Table 5: Cronbach's Alpha for the Dimension of the Pilot Survey

Dimensions	Number of items	Cronbach's Alpha
System Quality	5	.867
Instructors' Quality	5	.858
Digital Readiness	5	.831
Learners Attitude	5	.817
Overall	20	.942

Source: SPSS Reliability Test Output

The results of the pilot survey are determined to be reliable with a Cronbach's alpha of 0. 942. The result obtained is more than 0.6. The value of the System Quality is found to be 0.867, the value of the Instructor Quality is found to be 0.858, and the value of Cronbach's alpha for Digital Readiness is found to be 0. 831.The Learners Attitude is noted to be having a value of 0.817.

To Identify the Student's Level Of Exposure To E-Learning

The main objective of the study is to evaluate the students' level of exposure to e-learning. As a result, the authors have selected the dimensions in this study to measure e-learning exposure based on previous literature reviews. In the current study, the students' level of exposure to e-learning is projected with respect to four dimensions which are system quality, instructors' quality, digital readiness and learners' attitude. The variable which is e-learning is considered as the combination of the four dimensions, thereby obtaining the mean value of the e-learning for the one-sample test. However, the students' level of exposure is assessed for the range of 1 to 5 where the moderate is considered as 3 for the average score.

If EL < 3, then students' level of exposure is **Low.**

EL= 3, then students' level of exposure is **Moderate.**

EL > 3, then students' level of exposure is **High**

The result of the one-sample test is shown in Table 6. The results are based on three hundred respondents from the total sample, with a response rate of 90%, and it reveals that the mean of the e-learning is 3.92. Therefore, it records a higher level of student exposure to e-learning with the mean value above 3.00, further implying that students are highly satisfied with the use and engagement in e-learning.

Table 6: One-Sample T-test statistics

	N	Mean	Std. Deviation	Std. Error Mean
E- learning	300	3.92	.787	.045

Source: SPSS One Sample T-Test Output

The significance of the one-sample test is shown in Table 7. The results demonstrate a t value of 20.28 with highlighting a significance lower than 0.05 for the variable whilst the significance of 0.000 affirms that there is a statistical relationship between the e-learning and the students' level of exposure determinants.

	Test Value = 3					
					95% Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
E- learning	20.280	299	.000	.922	.83	1.01

Table 7: Significance of One-Sample T-test Statistics

Source: SPSS One Sample T-Test Output

Based on the obtained results, the students' level of exposure towards e-learning is dependent on system quality, instructors' quality, digital readiness and learners' attitude. The obtained results reveal that these four factors are highly influential towards the students' level of exposure to e-learning. Therefore, current study concludes that these factors have strong influence on e-learning.

To Analyze The Significant Differences Of Academic Success In E-Learning And Traditional Learning

The sub-objective of the study is to analyze the significant differences of academic success between e-learning and traditional learning, and to find the students' level of exposure to e-learning platforms. Therefore, the academic success between e-learning and traditional learning is assessed with the

consideration of the Grade Point Average (GPA) of three hundred respondents for four semesters within the time span of two years. Thus, their e-learning had been based for two semesters of year 2020 while traditional learning had been based for two semesters of year 2019. Usually, there are two options when it comes to examination mode; supervised and non-supervised. In the current study, the two institutions under consideration mostly adopt the supervised method in the mid and final exams. As control mechanisms in a monitored or supervised environment, numerous approaches such as lockdown browser, viva and plagiarism are applied. Based on findings, the average GPA for each year has been obtained as shown in .

Descriptive Statistics		
	Average 2020 GPA	Average 2019 GPA
Mean	**3.35**	**3.15**
Std. Deviation	.364	.306
Median	3.37	3.10
Mode	3.55	3.05

Table 8: Average GPA Comparison for 2020 and 2019

Source: SPSS Descriptive Statistics Output

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The current study results reflect that the average GPA for 2020 is higher than the average GPA for 2019. Such that, the researchers conclude that the academic success of e-learning is comparatively higher than of traditional learning as the GPA in 2020 is 3.35 which is higher than the GPA in 2019. Furthermore, the results explicate that the mode of 2020 is 3.55 whereas for 2019 it is 3.05. It is substantially lower than 2020 alluding that the several students tend to increase the GPA in 2020 as the most occurring GPA is 3.55. The median back these findings further as the median of 2020 is 0.27 higher than that of 2019.

DISCUSSION

The core objective of the present study is to examine the level of exposure to e-learning of undergraduates. Therefore, to achieve that, the researchers have conducted a study by selecting two private higher education institutes in Sri Lanka that have adopted e-learning to their education delivery in 2020. The researchers have conducted several analysis methods to fulfill their research objectives. Thus, the primary objective of the research has been based on a one sample t-test analysis. Furthermore, sub-objective has been followed by descriptive statistics.

Most of the previous researchers idealized the student level of exposure based on several other perspectives. Such that, Pham (2019) assured the interrelationship between e-learning service quality dimensions such as system quality, instructor and course quality, and administrative and service quality are heavily dependent on the overall e-learning service quality, e-learning student satisfactions and the e-learning student loyalty, and thus, they are critical factors for student's level of exposure. The student's digital readiness is a considerate factor in the academic success as Kim (2019) proved that the relationship between digital readiness and academic success is strongly positive. Furthermore, Wangpipatwong (2008) stated that e-learning is heavily influenced by the attitude of the students towards computers and their perception of e-learning.

The current study therefore assesses e-learning based on the system quality, instructor quality, digital readiness and learners' attitude. The above findings are confirmed by the results of the present study as the one-sample test suggested a mean of 3.94 for the e-learning with combining the service quality, instructors' quality, digital readiness and learners' attitude. Thus, the obtained results reveal that these four factors are highly influential towards the students' level of exposure as the mean of the e-learning was above the test level of 3. Further it implies that students are highly satisfied with the use and engagement in e-learning platforms.

The academic success of the students for traditional learning methods and online learning methods are found to be controversial as most of the past studies have presented different results with highlighting

major constituents. Despite that, Ashby (2011) said that online learning is the best of the three educational modes (face-to-face, online, and blended learning). Girard (2016) asserted that there is no significant difference in the chi squared analysis conducted to identify the difference between the face-to-face learners' results and the online learner performance. Further, Hamann et al. (2020) asserted with results obtained from the study that success of all students declines as a greater proportion of the students have directly transformed from traditional learning to complete online learning with the covid-19 pandemic.

However, the researchers of the current study have found that the mean GPA of the students have increased substantially in 2020 with the adoption of e-learning. This increase is considerate as the mean increment is 0.22 while even the minimum GPA has increased from 2.25 to 2.34 along with the maximum GPA from 3.91 to 4.00 from the year 2019 to 2020 where traditional learning was conducted in 2019 and e-learning in 2020. Further, both universities have employed numerous control measures to verify the above results. As a control measure, lockdown browser is implemented, which prohibits you from printing, copying, going to another Uniform Resource Locator (URL) or accessing other programs. Further, browser accomplishes this by detecting any strange behavior that is regarded as cheating attempts using the webcam and microphone. In addition, a viva session is held to examine the validity of the answers and the paper is inspected for plagiarism using appropriate tools. Eventually, the researchers of the current study affirm that the e-learning has a major influence on the academic success when considering the GPA.

CONCLUSION

The primary contribution of this paper is to identify and examine the level of exposure to e-learning of undergraduates. The research is oriented around two objectives which are to find the students level of exposure to e-learning and to explore the significant difference of academic success between e-learning and traditional learning.

The researchers have considered the students level of exposure to e-learning with respect to the four individual determinant of system quality, instructors' quality, digital readiness and learners' attitude. Based on the findings, students engaged in e-learning are highly satisfied with the use and engagement. Contrastingly, e-learning depends on factors such as the system quality, instructors' quality, digital readiness and learners' attitude. Therefore, improving the four determinants enables in a high-quality e-learning environment which alternatively impacts positively on the level of exposure of -learning on students. Furthermore, the results prove that the GPA of the students is high with the adoption of e-learning to their learning method. Hence, the transition from traditional learning to e-learning has improved the students' GPA by 0.2 which is considerable. Therefore, the authors have proved that e-learning has resulted positively towards the academic success of the students.

These findings have significant implications for policymakers and higher education providers as well as instructors. Hence, policymakers have the opportunity to investigate the major factors that influence student's e-learning and thereby set priorities for allocation of limited resources and achieve better educational outcomes. The study's findings are also beneficial to stakeholders in education delivery such as instructors and students. Apart from policymakers, they too can have a better understanding of what aspects to strengthen if to gain quality education outcomes via online platform. As per the current study, the major limitation is that this study has been conducted based only on management undergraduates in the private educational institutes in Sri Lanka. Moreover, researchers have only accessed details about education delivery in non-state universities. Hence, it is recommended for the future researchers eto mphasize more on this area expanding categorizations according to the demographics of the students, faculty of studies and the enrollment status. Furthermore, they can also expand the scope of e-learning to hybrid learning. Hence, it is recommended to conduct further research on the same research problem on a broader scale with an increased sample size by considering both private and state universities in Sri Lanka.

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REFERENCES

Adaderana (Producer). (2020). All universities to be temporarily closed over coronavirus fears. Retrieved from http://www.adaderana.lk/news/61355/all-universities-to-be-temporarily-closed-over-coronavirus-fears

Al-Shuaibi, A. (2014). The Importance of Education.

Ashby, J., Sadera, W. A., & McNary, S. W. (2011). Comparing student success between. Journal of Interactive Online Learning, 10(3), 128 - 140.

Bacow, L. S., Bowen, W. G., Guthrie, K. M., Lack, K. A., & Long, M. P. (2012). Barriers to adoption of online learning systems in U.S. higher education. Retrieved from New York:

Bank, W. (2012). The World Bank Annual Report 2012 Retrieved from Washington, DC:

Bhuasiri, W., Xaymoungkhoun, O., Zo, H., Rho, J., & Ciganek, A. (2012). Critical Success Factors for E-learning in Developing Countries: A Comparative Analysis between ICT Experts and Faculty. Computers and Education, 58(1), 843-855.

Blayone, T. J. B., Mykhailenko, O., & Kavtaradze, M. (2018). Profiling the digital readiness of higher education students for transformative online learning in the post-soviet nations of Georgia and Ukraine. Int J Educ Technol High Educ, 15(37).

Chitra, A., & Raj, M. (2018). E-Learning. Journal of Applied and Advanced Research, ISSN 2519-9412.

Cidral, W. A., Oliveira, T., Di Felice, M., & Aparicio, M. (2018). E-learning success determinants: Brazilian empirical study. Computers & Education, 122, 273–290.

Connolly, T., & Stanfield, M. (2007). Developing Constructivist Learning Environments to Enhance eLearning. In N. Buzzetto-More (Ed.), Principles of Effective Online Teaching :A Handbook for Experienced Teachers Developing eLearning: Informing Science.

Dašić, J., Dašić, P., & Serifi, V. (2012). Evolution of e-learning, Tivat.

Ekanayake, E., M,H,L, & Weerasinghe, T., D. (2008). Sustainable Engagement of University Students in E- Learning Kelaniya Journal of Human Resource Management, 15(2), 47-73.

Elango, R., Gudep, V. K., & Selvam, M. (2008). Quality of e-Learning: An Analysis Based on e-Learners' Perception of eLearning. The Electronic Journal of e-Learning, 6(1), 31 - 44.

Girard, J. P., Yerby, J., & Floyd, K. (2016). Knowledge retention in capstone experiences: An nowledge management & e-learning: an, 8(4), 528–539.

Gunawardhana, L., K,P,D. (2020). Review of E-Learning as a Platform for Distance Learning in Sri Lanka. Education Quarterly Reviews, 3(2), 141-145.

Hamann, Glazier, & Wilson (Producer). (2020). Online teaching, student success, and retention in political science courses. Retrieved from https://link.springer.com/article/10.1057/s41304-020-00282-x#citeas

Hewagamage, K., P, Garcia, M., Maddawin, M., & Hayashi, R. (2020). Online Learning in Sri Lanka's Higher Education Institutions during the COVID-19 Pandemic. ADB BRIEFS, 151.

Hong, A. J., & Kim, H. J. (2018). College Students' Digital Readiness for Academic Engagement (DRAE) Scale: Scale development and validation. Asia-Pacific Education Researcher, 27(4), 303–312. doi:https://doi.org/10.1007/s40299-018-0387-0.Return

Horrigan, J. (2016). The spectrum of digital readiness for e-learning.

Ibrahim, M., Rwegasira, K., S,P., & Taher, A. (Producer). (2007). Institutional Factors Affecting Students' Intentions to Withdraw From Distance Learning Programs in the Kingdom of Saudi Arabia the Case of the Arab Open University (AOU). Retrieved from http:// www.westga.edu/~distance/ojdla/spring101/ibrahim101.htm.

Jena, P. (2020). Impact of Pandemic COVID-19 on Education in India. International Journal of Current Research, 12(7), 12582-12586.

Jones, C. (2012). Networked learning, stepping beyond the Net Generation and digital natives. In New York, NY.

Kaye, & Anthony, R. (2002). The Current Situation of External Degrees in Sri Lanka.

Kim, H. J., Hong, A. J., & Song, H. (2019). The roles of academic engagement and digital International Journal.

Krejcie, & Morgan. (1991). Determining Sample Size for Research Activities. Sample Size Determination In Geotechnical Site Investigation Considering Spatial Variation And Correlation

Lau, C. Y., & Shaikh, J. M. (2012). The impacts of personal qualities on online learning readiness Educational Research and Reviews, 7(20), 430–444.

Liaw, S.-S. (2008). Investigating students' perceived satisfaction, behavioral intention, and effectiveness of e-learning: A case study of the Blackboard system. Computers and Education, 51(2), 864-873.

Liu, C. C., & Tsai, C. C. (2008). An analysis of peer interaction patterns as discoursed by on-line small. Computers and Education, 50(3), 627–639.

Maier, B., & Paechter, M. (2010). Online or face-to-face? Students' experiences and preferences in e-learning. The Internet Higher Education, 51.

Majed, M., & Suliman, O. (2013). The Impact of System Quality in E-learning System. Journal of Computer Science and Information Technology, 1.

Martinez-Arguelles, M., & Batalla-Busquets, J. (2016). Perceived service quality and student loyalty in an online university. International Review of Research in Open and Distributed Learning, 17(4), 264–279.

Morrison-Shetlar, S. (2002). Student attitudes toward web-enhanced instruction in an introductory biology course. Journal of Research on Computing in Education, 33(3), 251-262.

Moussa, N., & Moussa, S. (2009). Quality Assurance of E-learning in Developing Countries. Nonlinear Analysis, 71(12), e32-e34.

Mozelius, P., Hewagamage, K., & Hansson, H. (2011). Towards e-learning for all in Sri Lanka – progress and problems in some selected Sri Lankan 21 st century initiatives. Retrieved from

Nassoura, A. B. (2012). Students' acceptance of mobile learning for higher education in Saudi Arabia. American Academic & Scholarly Research Journal,, 4(2).

Parsad, B., & Lewis, L. (2008). Distance Education at Degree-Granting Postsecondary ; 2006–07. Washington, DC. : National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education.

Pham, L., Limbu, Y., Trung, B., Nguyen, H., & Pham, H. (2019). Does e-learning service quality influence e-learning student satisfaction and loyalty? Evidence from Vietnam. International Journal of Educational Technology in Higher Education, 16(7), 1-26.

Pikkarainen, K., Pikkarainen, T., Karjaluoto, H., & Pahnila, S. (2006). The measurement of end-user computing satisfaction of online banking services: Empirical evidence from Finland. International Journal of Bank Marketing, 24(2/3), 158–172.

Premawardhena. (2007). Web-based teaching as a performance enhancer in foreign language teaching in Sri Lanka.

Raja, R., & Nagasubramani, P. (2018). Impact of modern technology in education. Journal of Applied and Advanced Research, 3(1), S33-S35.

Rameez, A., . Fowsar, M., A, M, & Lumna, N. (2020). Impact of Covid-19 on Higher Education Sectors in Sri Lanka: A Study based on South Eastern University of Sri Lanka. Journal of Educational and Social Research, 10(6), 341-349.

Rasheed, H., He, Y., Khalid, J., Khizar, H., & Sharif, S. (2020). The relationship between e-learning and academicperformance of students. Journal of Public Affairs, 2492.

Razeeth, M., Kariapper, R., Pirapuraj, P., . Nafrees, A., Rishan, U., & Ali, S. (2019). E-Learning at Home Vs Traditional Learning Among Higher Education Students: A Survey Based Analysis.

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.

Shachar, M., & Neumann, Y. (2010). Twenty Years of Research on the Academic Performance Differences between Traditional and Distance Learning: Summative Meta-Analysis and Trend. MERLOT Journal of Online Learning and Teaching, 6, 318-334.

Shah, R. K., & Barkas, L., A. (2018). Analysing the impact of e-learning technology on students' engagement, attendance and performance. Research in Learning Technology,, 26, 1-18.

Solc, M., Legemza, J., Sutoova, A., & Girmanova, L. (2012). Experiences with Utilizing E-learning in Education Process in University Environment. Procedia – Social and Behavioral Sciences(46), 5201-5205. .

Sun, P., C, Tasi, R., J, Finger, G., Chen, Y., Y, & Yeh, D. (2008). What drives a successful e-Learning? An empirical investigation of the critical factors influencing learner satisfaction. Computer and Education, 50, 1183-1202.

Thowfeeka, M., & Jaafar, A. (2012). Instructors' View about Implementation of E-learning System: An Analysis based on Hofstede's Cultural Dimensions. Procedia - Social and Behavioral Sciences 65, 961 – 967.

Topal, A. D. (2016). . Examination of university students' level of satisfaction and readiness for eourses and the relationship between them. European Journal of Contemporary 15(1), 7–23.

Uppal, M., Ali, S., & Gulliver, S. (2017). Factors determining e-learning service quality: ELQ factors. British Journal of Educational Technology. .

Valverde-Berrocoso, J., Garrido-Arroyo, M., Burgos-Videla, C., & Belén, M. (2020). Trends in Educational Research about e-Learning:. Sustainability, 12(5153).

Wangpipatwong, S. (2008). Factors Influencing the Intention to Use E-Learning: A Case Study of Bangkok University. Retrieved from Bangkok:

Xu, D., & Jaggars, S. S. (2013). The impact of online learning on students' course outcomes: Evidence from a large community and technical college system,. Economics of education review,, 37, 46–57.

Zaraii-Zavaraki, E., & Rezaei, E. (2011). The Impact of Using Electronic Portfolio on Attitude, Motivation,and Educational Progress of Students' Khaje Nasir Toosi University. Educational Measurement periodica, 2(5, 67-96.