



## Factors Influence on Students' Intention of the Continuous Usage of the Learning Management System (LMS)

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### Abstract

When considering higher education in Sri Lanka, technology received a high demand in most situations due to the passage of time and the conversion of teaching and learning methods into education. Moreover, in the contemporary world, there is a trend for using Learning Management Systems (LMS), which enhance learning online. Sri Lanka is an emergent nation that is far different from developed countries in the context of technology, economy, and the environment. In order to receive the benefits of investing in the LMS, the student's intention to continuous usage of the LMS is more critical. Though a significant number of students registered with the LMS, the active students are marginally at a low level in certain educational institutes. The continuous usage of the LMS is relatively low among professional students. Though the student intention to use the LMS has been explored largely, the intention of continuous usage of the LMS is largely unexplored in the developing context. Thus, there is a compelling need to learn about what factors affect the intention to the continuous usage of the LMS by students as organizations invest largely in implementing and maintaining the LMS. Thus, the purpose of this study is to discover the factors affecting professional students' intention to the continuous usage of the LMS with special reference to the National Institute of Business Management. Following a survey of the existing literature, the independent variables were identified. A survey questionnaire was distributed to professional undergraduates of the National Institute of Business Management, and 250 responses were gathered. Multiple Regression analysis was performed to test the four hypotheses which were developed in this study. The findings revealed that the perceived ease of use, the perceived usefulness, self-efficacy, and the quality of the LMS are significant factors determining the intention for the continuous usage of the LMS. This study is important for several stakeholders, such as administrators and vendors, as the findings of the study contribute to making certain strategic and policy decisions in ensuring the continuous active use of e-learning platforms such as the LMS. The present study contributes to the existing knowledge as the study explains an unexplored phenomenon of the continuous usage of the LMS in developing country contexts focusing on professional students.

**Keywords:** Continuous Usage; Perceived ease of use; Perceived Usefulness; Self-Efficacy; The Quality of the LMS

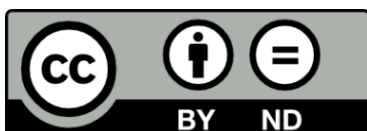
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### INTRODUCTION

Education is considered as a tool that enables people to generate information in a variety of aspects and fields. When people understand the value of education, they can effectively sustain their living conditions, meet employment opportunities, and develop into moral and ethical human beings (Kapur, 2019). Education is a fundamental human virtue, a scientific need, the foundation of a good life, and a symbol of liberty. A variety of factors influence the educational system. Culture, technology, and the environment all have a significant impact on a country's educational system (Johan & Harlan, 2014). Apart from these factors, technology plays an important role in the educational system.

The digitalization of education is an influential direction in terms of reconversion and refurbishment of the global education environment (Olga, 2017). As the power of digitalization grows, there will be more applications that will aid students in development and learning (Raja & Nagasubramani, 2018). Whiteboards, chat rooms, polls, quizzes, discussion forums, and surveys are some of the features that allow instructors and students to connect and exchange course content online (Mukhtar & Arooj, 2020). This education digitalization process has become more adaptive, and a multitude of e-learning solutions, such as Learning Management Systems, have emerged (LMS). A learning

management system (LMS) is a web-based learning management system (Chung, Pasquini, & Koh, 2014). The programs in this system help instructors achieve their pedagogical goals by organizing course content, which in turn helps students learn better (Salem & Salem, 2015).

The intention of use and actual usage of the LMS has become an important phenomenon that both academics and practitioners have looked into in the past decade. This is due to the gap experienced between the expected usage and the actual usage of the LMS. Previous studies in the range of LMS usage behaviour were mostly undertaken in the context of developed and improved communities: Antecedents of continuous use of LMS in Tanzanian universities (Lwoga & Mercy Mlay Komba, 2015); intention to use e-learning among undergraduate Malaysia (Salem & Salem, 2015); University students' intention to use mobile learning management systems in Sweden (Sarioia & Gao, 2018); students' acceptance of the E-learning system in Higher Educational Environments in the UAE (Salloum & Shaalan, 2018). Furthermore, the findings of these studies are more difficult to generalize in a context like Sri Lanka. Unlike developed countries, infrastructures such as the Internet and Wi-Fi are not distributed through the education system in Sri Lanka.

A few research projects have been undertaken in emerging economies such as Sri Lanka on the phenomena of



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the intention of the continuous use of e-learning technologies (LMS). The studies conducted in the Sri Lankan context mainly explore the E-Learning systems success (Tennakoon & Lasanthika, 2021) and University students' intention to use e-learning systems (Samsudeen & Mohamed (2019). These studies in the Sri Lankan context do not explore the phenomenon of the continuous usage of e-learning platforms. Furthermore, earlier research in the context of Sri Lanka tried to investigate the success of e-Learning systems and the desire to utilize e-Learning systems among Public University undergraduates. However, no research has been conducted in other educational institutions to investigate the phenomena. There is a significant impact in studying the continuous use of the LMS among students in other educational institutes in the Sri Lankan context.

The educational system in Sri Lanka is built on four fundamental foundations. There are four levels: pre-school, elementary, secondary, and post-secondary (Liyanage, 2014). Tertiary education is vigorous as it yields monetary benefits (Oketch, McCowan, & Schendel, 2014). It is a gateway to better-paying jobs with many opportunities. The higher education industry in Sri Lanka has encountered a variety of problems and possible risks to effective learning and teaching support during the previous decade (Sarker, Davis, & Tiropanis, 2010).

Curriculum design, student employability, learning and teaching quality, research quality, student retention, and emerging technologies are just a few of the challenges that higher education faces today (Sarker, Davis, & Tiropanis, 2010).

Because of the rapid advancement of information technology, a plethora of new tests for higher education are now available (Sarker, Davis, & Tiropanis, 2010). Universities' capacity to compete in new or changing markets may be hampered by a lack of investment in technology-based learning (Sarker & Davis, 2010). Technologies like the internet and its associated technologies can increase an educator's capacity to help students make connections (Costley, 2014).

The National Institute of Business Management (NIBM) is an educational institute operating under the purview of the Ministry of Higher Education in Sri Lanka offering full-time and part-time Degree programs and short-term Certificate programs in the fields of Information Technology, Management, and Languages (NIBM, 2019). NIBM has already invested two million rupees to implement the Learning Management System for both, full-time and part-time registered students (NIBM, 2019). Part-time students are a significant population among the total students of NIBM (NIBM, 2019), and their active use of the LMS platform remains at a low level compared to the full-time students. Though the institute has spent a significant amount of



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money on the digitalization process of the LMS; only 27.94% of the part-time students continuously use the LMS for their activities (LMS Data of NIBM, 2019).

Moreover, as there are some differences between full-time and part-time (professional) students in terms of the number, learning style and attitudes, there is a possibility to observe certain differences which determine the behaviour of the continuous usage of the LMS. Thus, the purpose of this study is to examine the factors determining the intention of the continuous usage of the LMS by professional undergraduates of the NIBM.

This study is essential for numerous stakeholders since the findings help to make strategic and policy decisions on guaranteeing the continuous usage of e-learning platforms such as the LMS. The administrative officers in the higher education institutes will benefit as this study finds key drivers of the continuous usage of the LMS. Moreover, the vendors who develop online technologies will also benefit as they can understand the significant factors determining the active use of online platforms and they will be able to design their products taking into account such drivers.

## RELATED LITERATURE

### Definitions of an LMS

While many definitions for the Learning Management System were identified by reviewing prior literature, some of the selected definitions given by several researchers are presented in table 1.

Table 1: Evolution of the Definition of LMS

Author and Year	Definition
Szabo (2002)	"A learning management system can be defined as a learning management system that has the facilities to convey and manage instructional content, evaluate personal and collective learning or training goals, monitor progress toward these goals, and gather and present results for the oversight of an organization's learning experience as a whole."
Alias & Zainuddin (2005)	"A Learning Management System (LMS) is defined as a web-based technique that facilitates in the planning, distribution, and evaluation of a particular learning process."
Stone & Zheng (2014)	"An LMS is a web-based information system that manages and organizes learning content and activities."
Chaubey & Bhattacharya	"A learning management system (LMS) is a web-based or cloud-based software program that aids in the



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- (2015) teaching-learning process and aids in the successful delivery of instruction, training, and development initiatives.”
- Gasayme h (2017) “LMSs are software applications and web-based technologies that facilitate in the learning and teaching of procedures.”
- Alshaikh i & Mahmoud d (2018) “A learning management system (LMS) is an ICT-based tool that supports in the design, delivery, and evaluation of a learning process.”
- Ouadoud , Chkouri & Nejari (2018) “A LMS (Learning Management System) or e-learning platform is a software that includes a variety of services that help teachers manage their courses.”
- Jung & Huh (2019) “A Learning Management System (LMS) is a system that aids and manages the teaching/learning of learners via cyberspace.”

As seen in Table 1, the definitions of the LMS have evolved through time, and these definitions are continually being revised. As a result, the picture of the previous study remains valid. According to Table 3, all the scholars Szabo (2002), Alias & Zainuddin (2005), Gasaymeh (2017), Alshaikhi & Mahmoud (2018) and Jung & Huh (2019) and others had identified the LMS as an ICT based web application and thus the above definitions can be identified as very much similar. Furthermore, after examining prior research, it can be claimed that the

definitions used to characterize the LMS were widely utilized, and it described the most comprehensive features of the LMS. Following this, the Learning Management System may be characterized as follows after examining the literature; the Learning Management System is an information technology application that allows you to manage your teaching and learning activities online.

### Evolution of the LMS

During the early stages of education, using computers was referred to as Computer Based Instructions (CBI). According to Stne and Zheng (2014), the history of the LMS dates back to the 1960's, when the PLATO learning system was developed at the University of Illinois in Urbana-Champaign. The term "LMS" was initially used to refer to the system's management component (Chaubey & Bhattacharya, 2015).

Both Britain and Liberer have reviewed it (1999) Learning Management Systems (LMSs) first arose in the second part of the 1990's, with computer-based communication functions, online support for educational content, and managing the educational process as an integrated web-based learning environment (Kotsilieris & Dimopoulou, 2013).

According to Stone and Zheng (2014), contemporary learning Management Systems were established amid the substantial rise of the Web and have



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been critiquing the capabilities of educational institutions. The collection of capabilities given by an LMS allows the management of student access, student monitoring, and registration to be detached from specific courses, allowing connection with third-party information systems (Stone and Zheng, 2014).

### LMS Usage

To measure the LMS usage, Lwoga and Komba (2014) use the dependent variable of their study as the continued usage intention of the LMS. In this survey, students who are about to finish their studies were asked if they would be willing to utilize the LMS for future studies such as postgraduate degrees or lifetime learning.

In the study of "investigating students' acceptance of E-learning system in Higher Educational Environments in the UAE" done by Salloum and Shaalan (2018) use the acceptance of e-learning systems as the dependent variable in their study. In the study "Learners' acceptance of e-learning in South Korea" done by Lee and Yoon (2009) use the dependent variable of their study as the intention to use e-learning. Here in their study, the intention to use e-learning has been defined as the extent to which students intend to participate in e-learning.

As reviewed by many researchers like Lwoga and Komba (2014), Saroia & Gao (2018), Lee and Yoon (2009) and Bouznif (2017) use the dependent

variable of their study as the intention for the continuous usage of the LMS. As a result, the current study is relevant because it seeks to identify the factors that influence a professional student's desire to continue using the LMS of the National Institute of Business Management. As a result, the present study's dependent variable is also the intention to continue using the LMS.

### Theories of LMS Adoption/ Use/ Acceptance

E-Learning Technologies, are technologies that are developed in the infrastructure of Information Communication Technology (ICT). As a result, information and communication technology acceptance models are effective in explaining the adoption of E-Learning Technologies (Alone, 2017).

Research that looks at the factors that influence the adoption of e-learning technologies rely on technological acceptance theories. Numerous scholars have used a variety of models to explain and predict user behaviour and intentions in order to adapt technologies (Murshitha & Wickramarachchi, 2016; Lasanthika & Tennakoon, 2019; Lwoga & Komba, 2015). The most widely used theories are: Theory of Reasoned Action (TRA) (Ajzen & Fishbein, 1975), The Technology Acceptance Model (TAM) (Davis, 1989), Theory of Planned Behaviour (TPB) (Ajzen, 1991) and Unified Theory of Acceptance and Use



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of Technology (UTAUT) (Venkatesh, Morris, Davis, & Davis, 2003). These theoretical paradigms mentioned in Table 2 deliver to understand the factors that affect the adoption of e-learning technology in the present study.

Table 2: Theories of LMS Adoption

Theory	Description	Reference
Theory of Reasoned Action (TRA)	“According to this theory, the direct reasons of people's behavioural intents are governed by their attitudes toward completing the activity as well as the subjective norm associated with the behaviour.	Fishbein & Ajzen (1975)
Technology Acceptance Model (TAM)	The technology acceptance model (TAM) is a well-known model of innovation acceptance that is used to assess user acceptability of information technologies. TAM discovered that two criteria, perceived usefulness and perceived ease of use, had a considerable influence on the utilization of information technology in businesses (Davis, 1989). TAM consists of Perceived usefulness (PU) is defined as the degree to which a user believes that using a specific innovation will improve his or her job performance, whereas perceived ease of use (PEOU) is defined as the degree to which an user perceives that using a	Davis (1989); Venkatesh and Davis (1996)

specific innovation will require no physical or mental effort.”		
Theory of Planned Behavior (TPB)	“The TPB expanded on the TRA by including the construct of perceive behavioural control, which is thought to be an additional predictor of intention and conduct. The Theory of Planned Behaviour was created to forecast an individual's intention to engage in a given behaviour at a specific location and time. This model's most important component is behavioural intention. Behavioural intentions are influenced by one's attitude towards the potential that the behaviour will result in the inevitable result, as well as one's subjective assessment of the risks and advantages of that outcome. Three factors influence this intention: their attitude toward the specific conduct, their subjective norms, and their perceived behavioral control.”	Ajzen, (1991)
Unified Theory of Acceptance and Use of Technology (UTAUT)	“Based on the following technology acceptance paradigms and theories, UTAUT gives a unified picture to better understand user acceptance of technology: Theory of Reasoned Action (TRA); Motivational Model (MM); Theory of Planned Behavior (TPB); Technology Acceptance Model (TAM);	Venkatesh, Morris, Davis, & Davis (2003)



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Combined TAM and TPB (C-TAM-TPB); Model of PC Utilization (MPCU); Innovation Diffusion Theory (IDT); and Social Cognitive Theory (SCT).”

“Performance expectancy, effort expectancy, social influence, and facilitating conditions are four basic categories that play an important role as direct predictors of user technology adoption and usage behaviour in UTAUT. In addition to the core variable, the following variables play a specific moderating function in determining technology usage behaviour both indirectly and directly (gender, age, voluntariness, and experience).”

### Determinants of Intention of Continuous LMS Usage

An extensive literature review was carried covering both global and local contextual studies to identify the determinants of intention of the continuous LMS Usage. Extant literature on the intention of continuous usage of LMS/e-learning technologies is relatively low, while many studies explored the behavioural intention to use/adopt/accept the LMS. Thus, to develop the research model, extant literature on both the intention to use the LMS and the intention of

continuous LMS Usage was reviewed. Previous studies vary, mainly in terms of the technology taken into account for the study, user types, theories employed, and the findings

When it comes to technology, previous studies were aimed at different technologies, namely LMS (Ashrafi, Zareravasan, Savoji, & Amani, 2020; Buabeng-Andoh, & Baah, 2020; Cigdem, & Ozturk, 2016; Alharbi, & Drew, 2014; ) and e-learning (Revythi, Tselios, 2019), M-learning (Qashou, 2021). Previous studies also explored the determinants of the intention of continuous usage from different stakeholder perspectives, such as students (Ashrafi, et. Al. 2020; Cigdem, & Ozturk, 2016)., instructors (Alharbi, & Drew, 2014; Cigdem, & Topcu, 2015), and institutions (Maina, & Nzuki, 2015; Gonçalves, & Pedro, 2012).

Previous studies were based on several theories such as the Technology Acceptance Model (Mokhtar, et. al 2018), Theory of Planned Behavior (Khoa, Kien, & Oanh, 2021), Diffusion of Innovation Theory (Botha, Smuts, & Villiers, 2018)., Self-Efficacy Theory (Lee, & Hwang, 2007) and Unified Theory of Acceptance and Use of Technology (Buabeng-Andoh, & Baah, 2020). The explanatory power of these theories is significantly different as the theories used the same constructs with slight modifications. Previous studies on this phenomenon found that, several drivers determine the behavioural intention to use the LMS





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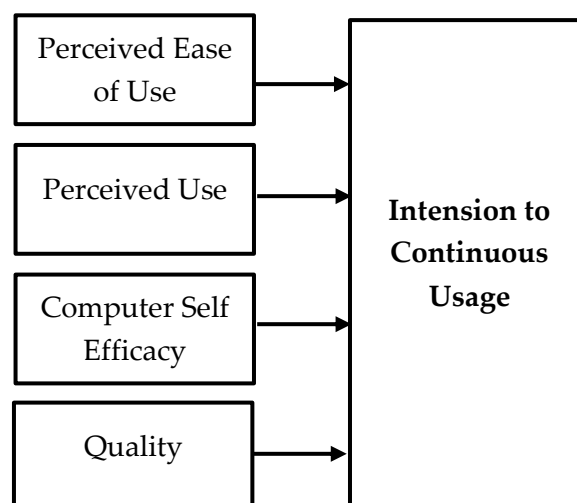
and the intention of the continuous usage of the LMS. The main drivers were perceived as usefulness (Cigdem, & Ozturk, 2016; Alharbi, & Drew, 2014; Cigdem, & Topcu, 2015; Eraslan & Kutlu, 2019), perceived usefulness (Alharbi, & Drew, 2014; Cigdem, & Topcu, 2015), prior LMS usage experience, job relevance (Alharbi, & Drew, 2014), self-efficacy (Revythi, & Tselios, 2019), technological complexity, subjective norm (Eraslan & Kutlu, 2019; Cigdem, Topcu, 2015), Task Technology Fit (Mokhtar, Katan, & Hidayat, 2018), social influence (Buabeng-Andoh, & Baah, 2020) and perceived enjoyment (Khalid, 2014). Based on the existing literature, the following constructs have been identified as determinants of intent for continuous LMS use for the current study since they reflect similar results across prior LMS adoption studies: Perceived Ease of Use, Perceived Usefulness, Self-Efficacy, and LMS Quality.

### Research Model

In order to address the research question of what the determinants of professional students' interest in continuing to use the LMS are, it is unavoidable to construct a research model that is supported by the well-built LMS. As the LMS is treated as a technical innovation, both IT adoption/acceptance and technological innovation adoption/diffusion are reviewed.

Research that study the factors influencing the adoption of e-learning systems, make use of technology acceptance theories. Many models for explaining and forecasting user acceptance of new technologies have been proposed (Omer & Vrieler, 2015). The Technology Acceptance Model (TAM) (Davis, Bagozzi, & Warshaw, 1989; Davis, 1989) and its successor, The Unified Theory of Acceptance and Use Model (UTAUT), also known as TAM2 (Venkatesh, Morris, Davis, & Davis, 2003; Venkatesh, 2000), have received a great degree of attention for predicting users' adoption of new technology (Omer & Vrieler, 2015). The research model for this study was developed using extended TAM and consists of four elements, as shown in Figure 1.

Figure 1: The conceptual model of the study





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### HYPOTHESIS

#### Perceived Ease of Use

Davis et al. (1989) define perceived ease of use as "users' impressions of the ease of adopting a system". Cheng (2011) defined the perceived ease of use (PU) of a system as the degree to which an individual believes that utilizing a certain technology will be simple". Participants' adoption and utilization of an e-learning system will develop in tandem with their perceived ease of use.

As a result, PU refers to a student's assumption that utilizing an e-learning system would take little time and effort and that it will be straightforward to use (Salloum & Shaalan, 2018). As a result, the current study hypothesizes the following:

*H1 – Perceived Ease of Use is positively related to intention to continuous usage of LMS*

#### Perceived Usefulness

Perceived usefulness, defined as "the degree to which a person believes that utilizing a given system would improve his/her job performance within an organizational content" (Davis, 1989) emphasizes that it is one of the key factors found to significantly affect behavioural intention to use a technology (Cigdem & Topcu, 2015; Sun et al., 2008; Venkatesh & Morris, 2000). According to Lim, Lee, and Nam (2007), the usefulness of e-learning is an important factor that can influence the

effectiveness of e-learning among learners.

The e-learning system may be thought of as an information technology tool, and students will only use it if they believe it will improve their learning performance (Salloum & Shaalan, 2018). Thus, in the context of e-learning, Perceived Usefulness denotes the extent to which students believe that utilizing an electronic learning system would improve their learning performance (Salloum & Shaalan, 2018).

*H2 – Perceived Usage is positively related to intention to continuous usage of LMS*

#### Computer Self Efficacy

Adewole-Odeshi, (2014) defines self-efficacy as "individuals' confidence in their own ability to take steps required to deal with future problems" (Salloum & Khaled, 2018). Learners' perceptions of self-efficacy may also influence their opinions of the LMS. In this study, self-efficacy is defined as the learners' ability to judge their willingness to use the Internet to carry out e-Learning-related activities (i.e., the users' faith in their own abilities to use the LMS). According to (Akman & Turhan, 2017), computer self-efficacy (CSE) has an important role in shaping an individual's feelings and behaviour (Salloum & Khaled, 2018). If the learners' computer self-efficacy is ruined, they are more likely to be satisfied. In the context of e-learning, self-efficacy may be defined as a



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student's belief in his or her ability to complete some learning activities using a learning management system (LMS) (Rashida, Nawaz, & Sameem, 2018).

It is said there that high efficacy expectations have a higher possibility of contributing to success in a specific endeavour. The use of the LMS was significantly influenced by computer self-efficacy. As a result, the following hypotheses is arrived at in this study:

*H3 – Computer Self Efficacy is positively related to intention to continuous usage of LMS*

### The Quality of the LMS

The quality of a system is an important aspect in student contentment and acceptance of any technology, including LMS (Ghazal, Aldowah, & Umar, 2018). The quality of the system is critical to an LMS's success. System quality is linked to system characteristics, and system features have been shown to be important for e-learning success in the past (Al-Busaidi, 2012). System quality addresses aspects such as usability, availability, dependability, flexibility, and reaction time (for example, download time) (Song, 2010). According to Del and McLean (1992), good system quality is experimentally positively associated to system utilization and user pleasure. As a result, the following hypothesis was stated in the study:

*H4 – Quality of LMS is positively related to intention to continuous usage of LMS*

### METHODS

The major purpose of this study is to find out what characteristics drive undergraduate professional students at the National Institute of Business Management to utilize the LMS on a regular basis. This study involved professional students, and data was collected individually, considering each student's response as a separate data source. As a result, the unit of analysis is individual.

The current study was published in the Sri Lankan Textbook. The bulk of prior research that resulted in the use of the LMS took place in developed and upgraded areas. In comparison to these studies, a scarcity of studies has been found in emerging economies such as Sri Lanka. Furthermore, it is more difficult to extrapolate findings from past studies done in impoverished countries to a situation like Sri Lanka. Many Asian regions have experienced rapid but unproven development, with information technology causing major changes in urban areas but having little impact in rural areas at times. The international digital divide in Sri Lanka is not as obvious as it is in neighbouring countries such as India and Bangladesh (Mozelius, 2014). Nevertheless, there is an emerging trend towards technology in Sri Lanka, especially in Information Technology. It is because of this new horizon; the present study has significant importance. Since the Sri Lankan context is unique when compared to previous studies, there is a significant value in investigating the



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continuous use of the LMS in the Sri Lankan context, as education is very important for an individual's success in life.

The selected organization for the present study is the National Institute of Business Management. NIBM is a semi-government organization that works under the Higher Education Ministry. NIBM offers assortments of courses for both school leavers (Full-time undergraduates) and professionals (Part-time undergraduates). Part-time students are considered a very significant contribution to higher education (Callender et al, 2009). Part-time students face serious consequences in their studies, such as low attendance, a lack of commitment, and low grades (Curtis et al, 2002) and maintaining balance in their life, work, and study (Abbasi et al, 2012). To conduct the present study, the population was narrowed down by selecting part-time students at the National Institute of Business Management.

The population of the present study represents five subgroups of NIBM in different locations Colombo, Kandy, Kurunegala Matara, and Galle. The present study used a stratified random sampling method to select the sample of 250 professional undergraduate students from 1353 professional undergraduates of NIBM. From each subgroup in five different locations, 18.5% of students were selected to form a sample of 250 students.

The data from the sample clustered in the Galle and Matara branches of NIBM were collected through personally administered questionnaires and the data from the samples clustered into Colombo, Kandy, and Kurunegala were collected through online questionnaires.

The independent and dependent variables in this study were operationalized and quantified using already tested scales based on current literature, and the Likert scale was used to examine how strongly subjects agree or disagree with the statement. Univariate, bivariate, and multivariate analysis techniques were employed in analyzing observed data. Univariate techniques, namely frequency distribution and mean, were used to identify the demographic differences of the respondents. The correlation was used to observe the association among independent variables. Multiple regression was used to test the hypothesis.

## RESULTS AND DISCUSSION

The demographic profile of the respondents was first analyzed and results are shown in Table 5. According to the collected data from the research sample of 250 students, 50.8% ( $n = 127$ ) were male students and the rest 49.2% ( $n = 123$ ) were female students. The majority of respondents belonged to the age group of 26 to 35 years and it is about 105 respondents out of the 250 students (42%). Respondents belonging



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to the age group of 18 to 25 were 97 (38.8%). Respondents belonging to the age group of 36 to 45 were 45 (18%). Research findings revealed that only (1.2%) of the respondents are belonging to the age group of 46 to 55. The majority of the students were belonging to the School of Business and that value is 176 (69.6%) out of the sample of 250 students. Forty-six (18.4%) students are belonging to the school of engineering and Computing. Moreover, it is revealed that about thirty (12%) students are belonging to the school of Language. The majority of the students are going to Colombo, which has about 159 students out of a total of 250 students. As a percentage, 63.6 percent has been revealed. The number of students from Kandy has been revealed to be 33. (13.2 percent ). The number of students from Kurunegala has been revealed to be 25. (10 percent ). When compared to the other branches, the composition results revealed from the Galle and Matara branches are below 10%, resulting in 17 students (6.8%) from the Galle branch and 16 students (6.4%) from the Matara branch.

The majority of the students in the sample spent their time between 1 to 2 hours per day with the LMS. According to Table 3, that result indicates about 122 students among 250 students (48.8%). Moreover, 86 (34.4%) students of the sample are spending their time less than one hour per day with the LMS. Research further revealed that only 42 students (16.8%) are spending

their time with the LMS for more than two hours per day. A majority of students which is about 215 (86%) are using the LMS weekly. Moreover, according to the data, a few students of the sample which is about 35 (14%) are using the LMS daily. It is evident that the popular mode of accessing the LMS is by a mobile phone and the personal computer at home. That revealed 108 (43.2%). Fifty students (20%) are accessing the LMS by only using the mobile phone and 46 (18.4%) students of the sample are accessing the LMS by using only personal computers at home. It is evident that 64 (25.6%) students of the sample are accessing the LMS to access course materials only. Fifty-eight (23.2%) students of the sample are accessing the LMS to view course information and access course materials. Another 27 (10%) students of the sample are accessing the LMS to view course information, access course materials, and access library resources. It is evident that 142 (56.8%) students of the sample of 250 respondents have not used the LMS before the Covid-19 situation. Moreover, 108 students (43.2%) of the sample have continued using the LMS frequently from before closing the NIBM for Covid-19 to the present situation.

Table 3: Demographic profile of the sample

Variab le	Operatio nalizatio n	Frequen cy	Percenta ge (%)
Gender	Male	123	49.2
	Female	127	50.8
	18 to 25	97	38.8



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Age Group	26 to 35	105	42.0
	36 to 45	45	18.0
	46 to 55	3	1.2
Branch	Colombo	159	63.6
	Galle	17	6.8
	Kandy	33	13.2
	Kurunegala	25	10.0
	Matara	16	6.4
Time spent with the LMS	1 to 2 hours	122	48.8
	Less than 1 hour	86	34.4
	More than 2 hours	42	16.8
Frequency of using the LMS	Daily		
		35	14.0
Mode of the LMS Access	Mobile Phone, Personal Computer at Home	108	43.2
	Mobile Phone, Personal Computer at Home	50	20.0
Purpose of Accessing the LMS	Access Course Materials	64	25.6
	View Course Information, Access Course Materials	58	23.2
	View Course	27	10.8

Use of the LMS before Covid-19	No		
		142	56.8
	Yes	108	43.2

Source: Survey Data (2020)

The measurement validity was statistically evaluated. When a measure has a low correlation with measurements of distinct ideas, it is said to have discriminant validity (Zikmund et al., 2010). Using the Fornell–Larcker criteria, the discriminant validity of the variables was assessed in this study. According to the Fornell–Larcker criteria, a latent variable's assigned indicators share more variance than any other latent variable (Fornell & Larcker, 1981). This indicates that each latent variable's AVE is higher than its squared correlation with the other constructs in the model. Table 4 indicates that the diagonal values, which reflect the AVEs, are always bigger than the off-diagonal values in the corresponding row and column, indicating that the constructs are discriminantly valid.



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Table 4: Correlations, and AVEs

Constructs	PU	PEOU	CSE	QLT	ICU
Perceived Usefulness	0.821				
Perceived Ease of Use	0.588	0.842			
Computer Self-Efficacy	0.635	0.562	0.872		
Quality of the LMS	0.749	0.613	0.586	0.845	
Intention of Continuous Usage	0.712	0.642	0.627	0.658	0.821

Note: Diagonal elements are AVEs and off-diagonal elements are correlations.

In order to establish the reliability of the data, the Cronbach Alpha values were tested and the results shown in Table 5 provide an overview of Cronbach's alpha for the five variables. This table shows that the alphas were all well above 0.60 and closer to 1 which indicates that all the selected questions in the questionnaire reached acceptable reliability to test the selected variables.

Table 5: Reliability of the Measures

Independent Variable	Cronbach's Alpha	Number of Items
Perceived Usefulness	0.959	6
Perceived Ease of Use	0.946	7
Computer Self-Efficacy	0.845	6
Quality of the LMS	0.936	6

Intention of Continuous Usage	0.946	6
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Source: Survey Data, 2020

The correlation among independent variables was measured using Pearson correlation coefficients, and the results are shown in Table 6. The correlation coefficients among independent variables were found to have a rather high multicollinearity when tested using Tolerance and VIF values. Table 6 demonstrates that multicollinearity does not exist across all independent variables because the Tolerance values are greater than 0.10 and the VIF values are less than 10. The results show that there is no multicollinearity in the investigation.

Table 6: Correlations, Means and standard, Deviations and Multicollinearity diagnostics

Variables	PU	PEOU	CSE	QLT	Tolerance	VIF
PU	1				.204	4.902
PEU	.797**	1			.303	3.304
CSE	.767**	.750**	1		.339	2.947
QL	.866**	.783**	.766**	1	.214	4.678

Source: Survey Data, 2020



## Hypotheses Testing

Table 7 illustrates the results of a regression analysis used to test how independent variables affect the intent to continue using the LMS. The R-Square was 0.845 (84.5 percent), and the adjusted R-Square was 0.843, according to research findings (84.3 percent). The set of variables' significant value is 0.000. According to the findings, the overall conceptual model was statistically significant, and 84.3 percent of the variance (adjusted R Square) in the context of continuous use of LMS has been explained.

Table 7: Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients		Sig.
	B	Std. Error	Beta	T	
PU	.280	.052	.301	5.406	.000
PEU	.230	.049	.212	4.652	.000
SE	.137	.052	.112	2.601	.010
QL	.374	.056	.365	6.728	.000
Adjusted R Square			.843		
ANOVA			F = 335.137, Sig: .000		

Source: Survey Data (2020)

a. Dependent Variable: ICU

The findings of this study show that there is a positive significant effect on the intention to continue using the LMS. The result was consistent with previous research. Lasanthika & Tennakoon (2019) have found that perceived ease of use is a significant contributor to students' attitude towards LMS adoption. Vululleh (2018) has mentioned that perceived ease of use has a significant positive influence

on students' behavioural intention to accept and use e-learning. According to the results of the regression analysis stated in Table 8; H1, Perceived ease of use (PEOU) is accepted and had a significantly positive impact on intention to continuous usage of LMS ( $\beta=.212$   $p = 0.000$ ). Supporting H2, Perceived Usefulness (PU) had a significant positive impact on intention to continuous usage of LMS ( $\beta=.301$   $p = 0.000$ ). Computer self-efficacy had a significant positive impact on intention to continuous usage of LMS supporting H3 ( $\beta=.112$   $p = 0.010$ ). The quality of the LMS had a positive impact on the intention of the continuous usage of the LMS supporting H4 ( $\beta=.365$   $p = 0.010$ ).

on students' behavioural intention to accept and use e-learning.

The results also indicated that the perceived usefulness positively and significantly affect the intention of the continuous usage of the LMS and the hypothesis was accepted. The finding was consistent with previous research. According to Cigdem and Zturk (2016), the intention to use online learning was shown to be directly influenced by





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perceived usefulness. As a result, when learners perceive that a system is useful or practicable, they are more likely to use it for learning objectives (Cigdem, 2016). This is congruent with the arguments advanced by Cigdem and Topcu (2015), Liaw (2008), Sun et al. (2008), and Venkatesh and Morris (2008). (2000).

The results of the study indicated that computer self-efficacy positively and significantly affects the intention of the continuous usage of the LMS and the hypothesis was accepted. Bian Linlin (2012), showed that IT expertise is a significant factor to affect the organizational decision for the continuous usage of the LMS and IT expertise is a good determinant factor. The results were consistent with previous research. Computer self-efficacy is a self-evaluation of one's capacity to execute tasks using computer capabilities (Compeau et al., 1995). The higher a learner's computer self-efficacy, the more likely they are to be satisfied with it (Murshitha & Wickramarachchi, 2016).

The study also found that the quality of the LMS positively and significantly affects the intention of the continuous usage of the LMS and the hypothesis was accepted. The current study's findings are in accordance with earlier research. According to DeLone and McLean (2003), the users' happiness and the continuous usage of the LMS are greatly influenced by their sense of the high quality of the IS service, which may have arisen through acceptable

student-instructor interactions. Al-Busaidi (2012) and Salloum and Shaalan (2018) discovered a favorable association between the quality of the LMS and the intention to use the LMS indefinitely.

### Implications

The extended TM is used to construct the theoretical framework of the current study in order to understand the factors affecting continuous interest in LMS use of NIBM professional undergraduates. Jibade (2018) stated that the Technology Acceptance Model (TM), which was developed by Davis (1989), assumes that when users get a kind of technology that is useful and easy to use, they would be eager to use it.

Numerous studies examined the technology used in the LMS as well as the use of Information and Communication Technology (ICT) to identify the factors that influence the continuous intent to use the LMS in developing countries.

Sri Lanka is a developing country that differs significantly from developed countries in terms of technology, the economy, and the environment. Therefore, this study supports identifying the major determinants that impact the adoption of the LMS among Higher Educational institutes in the Sri Lankan context. Further, previously no studies have been done related to the factors affecting the continuous intention of



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LMS usage by professional undergraduates of Sri Lanka.

The present study outcomes propose a greater understanding of the external variables and according to the TAM, it reasons that perceived usefulness, perceived ease of use, computer self-efficacy, and the quality of the LMS have supported the theoretical model.

The research findings show how perceived ease of use, perceived usage, self-efficacy, and quality of the LMS relate to students' intention continuous usage of the LMS are significant. According to the findings; the higher the perceived ease of use; the higher the continuous intention of LMS usage. Because of this, the administration may take necessary steps to reduce LMS complications by shortening the time it takes for materials to load, providing a fast internet service, and making it simple for students to use.

It is also clear that the more the perceived usefulness, the higher the continuous intent to use the LMS. As a result, the culture of e-learning systems should be instilled in students by guiding them through awareness programs. The management can guide the students through providing the online platform through the LMS to do group projects, research, homework, communicate with lecturers, upload lecture materials, online quizzes, and forums to enhance the perceived usefulness. Training courses should be set up to encourage students' perception of ease and usefulness of the

LMS, as this would improve their intention to use the LMS.

Students' self-efficacy should be examined by the management as it is reasoned to increase the continuous intention of LMS usage. According to Adewole-Odeshi, (2014), self-efficacy is "the individual's confidence in their own capacity to take steps needed to deal with future situations". The management should take necessary steps to monitor the students' computer self-efficacy before and after they enrol in the LMS and further, they should support them by providing the appropriate manuals of the LMS.

The quality of the LMS should also be examined, as it is reasoned to increase continuous interest in LMS use, and computer labs that are installed with suitable facilities for an LMS should be developed and made accurate. Furthermore, it should provide more flexibility in learning in terms of time and place, as well as make sufficient functions available for students to learn. Maintaining the quality of the LMS also necessitates reliability.

### Limitations and Future Research

Even though this study has attempted to make an effective attempt to explain the students' continuous intention of LMS usage, it has some limitations. Due to time constraints and accessibility issues, the study's respondents were chosen based on a sample size of 250 students. The sample size for future research might be



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increased to better generalize the research findings. Furthermore, the sample is chosen from just the NIBM's part-time students. The undergraduate professionals were considered as the respondents of the study as the study focused on undergraduate professional students. Apart from the professional students, the full-time students and lecturers are also users, dealing with the LMS of NIBM. However, to get a better understanding of the continuous usage of the LMS, the study of the LMS usage of all the users are important. For future research, the sample should be made from representing both full-time and part-time students as well as the lecturers of NIBM.

The second limitation was that the study only looked at four independent variables: computer self-efficacy, LMS quality, perceived ease of use, and perceived use, all of which have an impact on LMS usage. Future research might be based on other factors revealed in previous literature.

The third constraint was that, the study was conducted as a cross-sectional examination of a group of students at a certain period in time. Because "intention" is a psychological component, people's opinions evolve with time. As a result, future research might be studied as a Longitudinal research. Longitudinal studies necessitate taking several measurements over an extended period of time.

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