
Factors Affecting Students' Satisfaction in Online Learning: Evidence from National Institute of Business Management (NIBM), Sri Lanka

C. D. Muthugamage^{a*}, B. L. Galhena^b

^aSchool of Computing, National Institute of Business Management, Sri Lanka

^bDepartment of HRM, Faculty of Management and Finance, University of Ruhuna, Sri Lanka

A B S T R A C T

With the accelerated use of online learning practices, there is an imperative requirement to investigate factors affecting students' satisfaction in online learning. Sri Lanka is a developing country that is far different from developed countries in the context of technology, economy, and environment. Consequently, there is a deficient insight into motivating factors predicting students' satisfaction in the online learning environment in Sri Lanka. As a result, there is a need to learn what factors affect the students' satisfaction in online learning, as organizations invest largely in adopting online learning platforms. Therefore, the purpose of this study was to discover the factors affecting students' satisfaction in online learning in the National Institute of Business Management. A descriptive research design with quantitative approach was employed to answer the research question of the study. After an extensive survey of the existing literature, the independent variables were identified. A survey questionnaire was distributed among students at the National Institute of Business Management and 500 responses were gathered. Multiple Regression analysis was performed to test the four hypotheses of this study. Findings revealed that lecturers' performance, student – lecturer interactivity, course evaluation, and the quality of the online learning system are significant factors determining the students' satisfaction in online learning. These findings would be beneficial to all the students, top management, and other higher educational institutes to improve satisfaction in online learning.

Keywords: course evaluation, interactivity, online learning, performance of the lecturer, satisfaction

*Corresponding author: muthugamagecd@gmail.com

1. Introduction

Education means a change in man's conduct of life, upgrading a man's ability to choose the best alternative available in any circumstance he faces. It means the development of the person to prepare him to adopt the best approach to a problem at any given time (Hassan & Idrisa, 2011). Education is defined as the 'adjustment ability to a changing situation and environment. Further, Kapur (2019) has mentioned that education develops a country's economy and society; therefore, it is the milestone of a nation's development.

Many factors affect the education system. Culture, technology, and economical matters have a much impact on the education system of a country (Johan & Harlan, 2014). Technology is important because it is used in all areas of life. The Internet has become a foremost tool for effective teaching as well as a learning tool. Teachers can use it as a teaching tool by posting their teaching materials (notes and videos) on school websites or other forums. Rapid growth and enhanced access to technologies are said to pose new possibilities to teach and learn (Jahnke et al., 2017). The learning process becomes fascinating and diverse with the use of tutorial videos and notes. Teachers can teach with the use of animation, PowerPoint slides, and images to capture the students' attention.

Online learning is gaining wider acceptance and has become a viable alternative to conventional classroom teaching (Zaheer et al., 2015). E-learning is the use of education technologies, electronic media, and information and communication technologies such as emails, internet, and computers in the educational process (Alaraibi et al., 2019).

Satisfaction on e-learning among its users is an interesting phenomenon in the educational and management literature. Previous studies conducted to investigate the satisfaction in online learning were in the context of developed and impoverished countries. Gopal and Singh (2020) have done a study in India to find the impact of online classes on the satisfaction and performance of students during the pandemic period of COVID 19 and found that quality of instructor; course design, prompt feedback, and expectation of students positively impact students' satisfaction. Tan and Chuah (2016) have done a study in Malaysia to discover the factors affecting university students' satisfaction with online learning and found that internet self-efficacy, self-motivation, and interaction impact students' satisfaction. Giray (2020) has done an empirical study with computer and software engineering undergraduates to shed light on the students' satisfaction with e-learning in Turkey and found that the use of video recordings intensively for e-learning is useful for improving the satisfaction.

The findings were not consistent among the studies and further a less number of studies have been conducted in countries with emerging economies like Sri Lanka. Moreover, the findings of the previous studies in the developing context are rather difficult to generalize into a context like Sri Lanka due to the contextual differences in terms of technological, and cultural aspects. Unlike the developed countries, in Sri Lanka, the infrastructure facilities like Internet and Wi-Fi are not evenly distributed throughout the education system. As an island, Sri Lankan context is unique compared to the previous studies. Such contextual differences may lead to different findings pertaining to the online teaching satisfaction among students. Thus, it is imperative to learn about the factors affecting the students' satisfaction in online learning to successfully implement online courses by both the faculty and students of the organizations. In order to receive benefits from online learning the students' satisfaction is

critical. Thus, the purpose of this study is to examine factors determining the students' satisfaction in online learning at NIBM, Sri Lanka.

1.2. Research problem

Sri Lanka is a middle-income country with a GDP per capita of USD 3,852.48 U.S in 2019 and a total population of 21.8 million people (Anon, 2019). Contributing to more than 55 percent of Sri Lanka's GDP, as of 2008 to 2019, the services sector is by far the largest generating source of the country's production and public spending on education as a share of GDP for Sri Lanka was 2.8% in the year 2017 (World Bank Sri Lanka, 2021).

Among different sectors contributing to the service sector economy in the country; education plays a major role. The development of a country can be determined by whether its citizens have good education or not. The better the quality of education that a country has, the faster it is likely to develop (Johan & Harlan, 2014). No matter what global problems that a country is facing, whether it is the elimination of poverty, the creation of peace, or environmental energy problems, the solutions will always include education (Johan & Harlan, 2014).

The Sri Lankan educational system has four main pillars. They are pre-school level, primary level, secondary level, and tertiary level (Liyanage, 2014). Moreover, higher education imparts knowledge, develops the student's ability, and also gives him/her a wider perspective of the world around. Higher education becomes an input to the growth and development of industry and is seen as an opportunity to participate in the development process of the individual through a flexible education mode (Sharma & Sharma, 2015).

Integration of information technology is of an important essence for modern educational systems as it acts as an effective tool for the delivery of education to its users (Al-Alwani, 2014). To gain a competitive edge and to keep up with the ever-changing landscape, Davies and West (2013), note that it has become expected by students that teachers use technology to enhance their teaching process and thereby enhancing their education (Axtell & Asino, 2020).

The lack of investment in technology-based learning in higher education may be a significant barrier to the ability of universities to compete in new or changing markets (Sarker & Davis, 2010). While Web-based courses have advantages, it is equally important to note that there are disadvantages. These might include little or no "in-person" contact with the faculty member, feelings of isolation, a difficult learning curve in how to navigate within the system, problems with the technology, the need for the student to be actively involved in learning, and increased lead-time required for feedback regarding assignments (Kattoua & Al-Lozi, 2016). Liyanagunawardena (2008) and Adams et al., (2014) found that resistance to change, resource limitation, infrastructure limitation, lack of student support for online learning, language, and digital literacy as challenges in online learning in the study of Blended learning in distance education: Sri Lankan perspective.

There is a separate Ministry of Higher Education (MHE) in charge of universities and higher technical institutes offering higher national diploma certificates under a minister assisted by a deputy minister in Sri Lanka. The National Institute of Business Management (NIBM) is an educational institute that comes under the ministry of higher education Sri

Lanka and having a legacy of over 51 years of service in the business of higher education and operates in Colombo, Galle, Matara, Kandy, and Kurunegala (NIBM, 2021).

NIBM started online teaching for their students from 2019 and they have already invested two million rupees to implement their online learning platform for the students (NIBM, 2021). Twenty modules taught each month, in every branch from June 2020 to April 2021 online, were analyzed based on the attendance of the students, and the facts are presented in the Table 1, and it is evident that 37% of the students had not attended online lectures as an average in all five branches, which is a significant value.

Table 1: Students Who Did Not Attend the Online Sessions

Month	No of students who did not attend the online sessions	Total students	Percentage
20-Jun	3585	12408	29%
20-Jul	5324	13771	39%
20-Aug	1531	3014	51%
20-Sep	843	1733	49%
20-Oct	3060	7012	44%
20-Nov	3638	11162	33%
20-Dec	5000	15511	32%
21-Jan	3309	10584	31%
21-Feb	2969	10785	28%
21-Mar	3141	9466	33%
21-Apr	2275	6438	35%
Total	34675	101884	34%
Average			37%

Source: LMS Data of NIBM (2021)

The students' satisfaction is crucial for NIBM to operate its functions in the future, and it will affect the objectives of the NIBM. Therefore, it is important to study the factors affecting students' satisfaction in online - learning. It would be more beneficial for the top management for future implementations of online teaching. Thus, the research question of the present study is to identify the factors affecting students' satisfaction in online learning at NIBM.

2. Related literature

2.1. Definitions of online learning

While there were many definitions identified for online learning by reviewing the previous literature; some of the selected definitions given by several researchers are presented in the Table 2.

According to the Table 2, the definitions of Online Learning have been evolved over the past and still those definitions are being reviewed. Consequently, the topic of the present study is still valid. According to the Table 2, all the scholars Rosenblit (2005), Mayer (2011), Mustea et al., (2014) and Dull and Sakshi (2019), and others had identified online learning as online distance education, e-learning, or as virtual learning access via the internet.

Additionally, it can be justified that, after reviewing the previous studies the definitions used to describe online learning were widely used and it described the most comprehensive elements of online learning. Consequently, after reviewing the literature, online learning can be defined as follows. Online learning is a web-based learning that delivers education with the support of internet technology.

Table 2: Evolution of the Definition of Online Learning

Author and year	Definition
Rosenblit (2005)	E-learning relates to the use of electronic media for a variety of learning purposes that range from add-on functions in conventional classrooms to full substitution for face-to-face meetings by online encounters.
Mayer (2011)	E-learning, which is also known as web-based learning is defined as the delivery of education in a flexible and easy way through the use of the internet to support individual learning or organizational performance goals
Mustea et al (2014)	e-learning is the method which allows people especially students to take courses from home or anywhere as he/she can access the internet, among other platforms such as peer-to-peer, client-server, and web services
Gasaymeh (2017)	Defined online learning as Virtual learning associated with formal learning and with relationships between teachers, students supported by the internet.
Dull and Sakshi (2019)	Online Learning encompasses a range of technologies such as the world wide web, email, chat, new groups and texts, audio and video conferencing delivered over computer networks to impart education

2.2. Satisfaction in online learning

To measure the satisfaction in online learning, Muzammil and Sutawijaya (2020) used the dependent variable as students' satisfaction in e-learning. In the context of this study, the students' satisfaction is used to assess the student engagement in studies in order to drive their success in learning. Gyamfi and Sukseemuang (2018) did their study to investigate EFL learners' satisfaction with the online learning program Tell Me More (TMM) and used the dependent variable, learner satisfaction to measure the satisfaction in e-learning or computer-assisted learning. As reviewed by many researchers like Muzammil and Sutawijaya (2020), Sukseemuang (2018), and Jabeen et al., (2014) satisfaction in online learning had been used as the dependent variable of the study.

2.3. Determinants of students' satisfaction in online learning

After reviewing the previous literature, it was evident that the findings of the research studies were having similarities and as well as inconsistencies. But the methodology of the studies was almost similar. Based on the empirical findings following constructs have been identified as determinants of students' satisfaction in online learning for the current study: Performance of Lecturer, Student – Lecturer Interaction, Course Evaluation, and Online Learning System Quality.

2.4. Research model

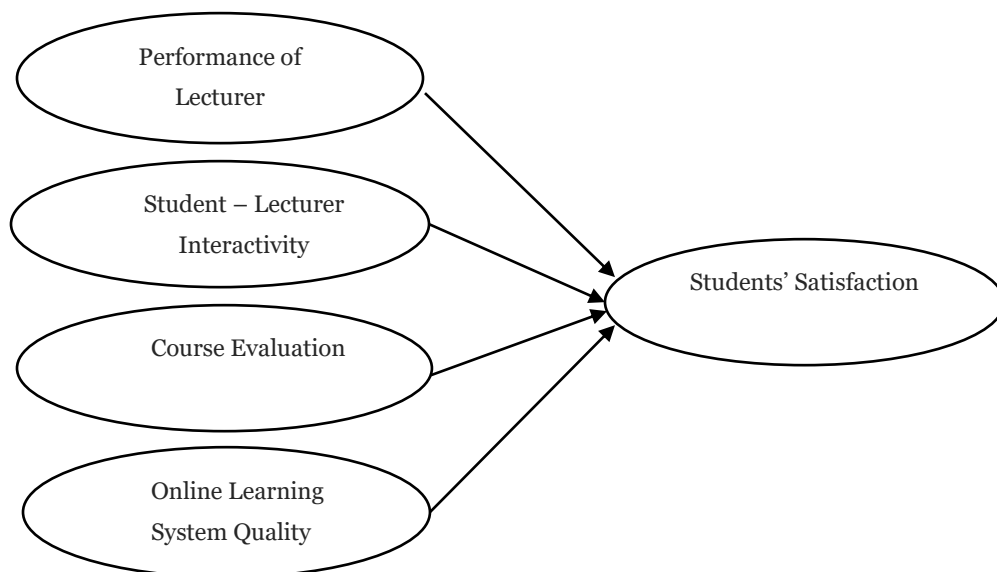


Figure 1: Research Model

2.5. Hypothesis

2.5.1. Performance of lecturer

In an online learning environment, the instructor is required to possess new set of skills for success since the latest technologies bring as much change to instructors as they do to students (Ali & Ahmad, 2011). Moreover, the teachers' role is to encourage and accept student autonomy and create a comfortable atmosphere for student expression," acting as guides for their students (Keiler, 2018). Moreover, Ali and Ahamad (2011) mentioned that in an effective online learning environment, instructor plays a central role. It is not only because of technology but also because of the practical accomplishment of the technology that has certain effects on learning.

It is anticipated that instructors should have both technical skills and pedagogical skills to facilitate courses offered via e-learning systems (Mtebe & Raphael, 2018). Ozkan and Koseler (2009), Sun et al., (2008) have indicated that the quality of instructors significantly influences learners' satisfaction with e-learning systems (Mtebe & Raphael, 2018). Hence, the present study hypothesizes the following

H1: The performance of the lecturer is positively related to the student's satisfaction in Online Learning.

2.5.2. Student – Lecturer interaction

Ali and Ahmad (2011) have mentioned that in distance education practices, interaction often appears as a defining characteristic of quality learning experiences. Also, in the education literature, researchers' belief in the importance of student-teacher interaction is so widespread that it is assumed to be a basic need for learning to occur (Anderson & Garrison,

1995; Picciano, 2002). Learner-teacher interaction in an online-learning setting is usually carried out through real-time feedback systems, learning management systems, class discussions, emails, and phone calls (Zhang & Lin, 2019). As reviewed by Zhang and Lin (2019) it has shown to have a positive impact on students' learning satisfaction via scaffolding (Murphy & Rodriguez-Manzanares, 2009). Hence the present study hypothesizes the following.

H2: Student-Lecturer interaction is positively related to the student's satisfaction in Online Learning.

2.5.3. Course evaluation

The development of an online environment allows students to participate in the educational process by exploring and playing with the lesson material. Particularly the subjects that involve discussion, brainstorming, and reflection are best suited to the online format (Ali & Ahmad, 2011). Along with this, course design must have rich communication potential, as the level of communication has a clear impact upon students' learning, satisfaction, and retention in online courses (Ali & Ahmad, 2011). Therefore, in an online learning environment, getting student feedback about their needs and preferences is crucial for the satisfaction of the students. This leads to the following claim.

H3: Course Evaluation is positively related to the student's satisfaction in Online Learning.

2.5.4. Online learning system quality

Online Learning System Quality is concerned with whether the system has bugs and is easy to use. The quality of the system has an impact on learners' satisfaction, especially those features that have an impact on how learners use the system (Mtebe & Raphael, 2018). Online Learning System Quality is a crucial factor of students' satisfaction (Ghazal, et al., 2018). Online Learning System Quality is related to the characteristics of a system and in the context of e-learning, system characteristics were found to be significant for e-learning success (Al-Busaidi, 2012). Online Learning System Quality deals with the issues such as usability, availability, reliability, adaptability, and response time (e.g., download time) (Song, 2010). Del and McLean, (1992) mentioned that Good Online Learning System Quality is empirically, positively related to the system use and user satisfaction.

H4: Online Learning System Quality will be positively related to the student's satisfaction in Online Learning.

3. Methods

The main objective of the present study is to find out the factors that affect students' satisfaction in online learning at NIBM. Therefore, the students were the respondents of this study, and data was gathered from each individual and treating each student's response as an individual data source. Thus, the unit of data analysis is individual.

The present study was carried out in the Sri Lankan Context. The majority of the previous studies which were done on the students' satisfaction in online learning were in the context of developed and impoverished countries. Compared to those studies less amount of studies have been done in countries with emerging economies like Sri Lanka. Further, the findings of the previous studies done in the developing context are rather difficult to

generalize into a context like Sri Lanka. Many regions in Asia have had a rapid but heterogeneous development, where information technology has sometimes made drastic changes to urban regions but often had no impact at all on rural areas. As an island, Sri Lankan context is unique compared to the previous studies hence there is significant importance in studying the students' satisfaction in online learning in the Sri Lankan context as education is very important for an individual's success in life. 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 500 students from 7406 students of NIBM. From each subgroup in five different locations, 6.75% of students were selected to form a sample of 500 students. The data from the sample, clustered in the above branches of NIBM were collected through online questionnaires. Independent and dependent variables of this study were operationalized and measured using already tested scales based on the present literature and the Likert scale was used to examine how strongly subjects agree or disagree with statements on a five-point scale.

4. Results

4.1. Demographic characteristics

The demographic profile of the sample of 500 respondents was analyzed and the results are shown in Table 3

Table 3: Demographic Profile of the Sample

Variable	Operationalization	Frequency	Percentage (%)
Gender	Female	253	50.6
	Male	247	49.4
Faculty	School of Computing	335	67.0
	School of Business	138	27.6
	School of Language	27	5.4
Course	Diploma Level	264	52.8
	Certificate Level	136	27.2
	Higher Diploma Level	100	20.0
Branch	Colombo	285	57.0
	Kandy	61	12.2
	Kurunegala	60	12.0
	Galle	50	10.0
	Matara	44	8.8
Mode(s) of Online Learning Access	Personal Computer at Home	219	43.8
	Mobile Phone	160	32.0
	Mobile Phone, Personal Computer at Home	107	21.4
Most Preferred Learning Method	Offline	294	58.8
	Both	165	33.0
	Online	41	8.2

Source: Survey Data (2021)

According to the collected data from the sample of 500 students, 50.6% (n = 253) were female students and the rest 49.4% (n = 247) were male students. The majority of the students belong to the School of Computing 335 (67.0%) out of the sample of 500 students. Further, 138 (27.6%) students belong to the school of business and twenty – seven (5.4%) students are from the school of language. The majority of the students in the selected sample are in the diploma level representing 264 (52.8%). Another 136 (27.2%) students are in the certificate level and 100 (20%) are in the higher diploma level.

Most of the students belong to Colombo, which is about 285 students, out of the sample of 500 students. The composition of students from Kandy was revealed as 61 students (12.2%). while 60 students (12.0%) were reported from Kurunegala. Moreover, the composition of the students from Galle was revealed as 50 students (10.0%). Compared to other branches, the composition results revealed from Matara branch is below 10% resulting in 44 students (8.8%).

It is evident that the popular mode of online learning is by personal computer at home. That was revealed as 219 (43.8%). Further, 160 (32.0%) students are learning online by using mobile phone and personal computers at home. It is also revealed that 107 (21.4%) students of the sample are learning online by using only mobile phones. It was evident that 294 (58.8%) students of the sample prefer to learn in offline mode. Further, 165 (33.0%) students of the sample preferred to learn by both the online and offline modes. Another 41 (8.2%) students of the sample preferred to learn by online mode only.

4.2. Reliability

Table 4: Reliability of the Measures

Independent Variable	Cronbach's Alpha	Number of Items
Performance of the Lecturer	0.942	9
Student – Lecturer Interactivity	0.931	5
Course Evaluation	0.905	6
Quality of online learning system	0.955	4
Students 'Satisfaction	0.969	6

Source: Survey Data, 2021

To establish the reliability of the data, the Cronbach Alpha values were tested, and the results are shown in Table 4. This table shows that the alphas were all well above 0.60 which indicates that all the selected questions in the questionnaire carried acceptable reliability to test the selected variables.

4.3. Correlations, means, standard deviations and multicollinearity diagnostics

Consequently, correlation among independent variables was measured using Pearson correlation coefficients, and results are shown in Table 5. The result in Table 5 shows that multicollinearity does not exist among all independent variables because the tolerance values

are more than 0.10 and VIF values are less than 10. The result indicates that the study does not have any multicollinearity problem.

Table 5: Correlations, Means, Standard, Deviations and Multicollinearity Diagnostics

	LP	SL	CE	SQ	SS	Tolerance	VIF
LP	1					.127	7.872
SL	.900**	1				.173	5.770
CE	.893**	.850**	1			.184	5.446
SQ	.782**	.767**	.766**	1		.353	2.833
SS	.834**	.817**	.821**	.848**	1		

Source: Survey Data, 2021

4.4. Hypotheses testing

Regression analysis was used to test how independent variables affect satisfaction in online learning and the results are illustrated in Table 6. Research findings have shown that the R-Square was 0.808 (80.8%) and the adjusted R-Square was 0.806 (80.6%). The significant value of the set of variables is 0.000. According to the findings, it can be determined that the overall conceptual model was statistically significant and 80.6% of the variance in satisfaction in online learning has been explained by the selected independent variables of the model.

Table 6: Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
LP	.235	.073	.178	3.226	.001
SL	.173	.054	.152	3.212	.001
CE	.271	.065	.192	4.176	.000
SQ	.496	.037	.444	13.394	.000
Adjusted R Square				.806	
ANOVA				F = 519.649, Sig: .000	

Source: Survey Data (2021); Dependent Variable: SS

According to the results of the regression analysis stated in Table 6; H1, the performance of the lecturer (LP) is accepted and had a significant positive impact on satisfaction in online learning ($\beta=.178$ $p = 0.001$). Furthermore, the second hypothesis (H2) student- lecturer interactivity (SL) is accepted and had a significant positive impact on the satisfaction in online learning ($\beta=.152$ $p = 0.001$). Supporting H3, course evaluation (CE) had a positive impact on satisfaction in online learning ($\beta=.192$ $p = 0.000$). Further, the fourth hypothesis (H4) is also supported, as the Quality of the online learning system (SQ) had a positive impact on satisfaction in online learning ($\beta=.444$ $p = 0.000$).

5. Discussion

The results indicated in this study show that there is a positive significant effect on students' satisfaction in online learning. The finding was consistent with previous research. Gopal et al. (2021) had stated that the lecturers' performance is the most prominent factor that affects the

student's satisfaction during online classes. This means that the lecturer needs to be very efficient during the lectures. He needs to understand students' psychology to deliver the course content prominently. If the teacher can deliver the course content properly, it affects the student's satisfaction and performance (Gopal, et al., 2021). The teachers' perspective is critical because their enthusiasm leads to a better online learning process quality. Therefore, lecturers of online education should be available, provide prompt responses, and encourage their students through online learning activities and thus the performance of the lecturer affects the student satisfaction.

The results also emphasized that the student and the lecturer interactivity have a positive significant effect on the students' satisfaction in online learning. Ho et al. (2021) showed that the interaction between students and lecturers are crucial for the students' satisfaction in online learning, as lecturers play an important role in enhancing the concentration, motivation, and level of understanding of learners, and facilitating quality online learning when the class is conducted through video conferencing tools. Proactive interaction between learners and lecturers through optimizing the use of the functions available in the online learning system would warrant student satisfaction. As such, this will invariably enhance students' level of satisfaction towards the online learning system.

The results also found that the course evaluation is a significant factor for the students' satisfaction in online learning and it has a positive impact. The diversity in assessment materials significantly determines the online educational quality of the online learning systems which contributes to the prediction of perceived satisfaction (Ho et al., 2021). This result is consistent with Ali and Ahmad (2011) as they showed in their study, that the factors such as learning experiences, assignments, course materials, achievement of course targets, workload, and evaluation criteria in their online education contribute to online learning satisfaction based on the answers provided by the students when they were queried about their feelings regarding those factors.

The results also found that the quality of the online learning system also has a positive significant impact on students' satisfaction in online learning. The finding suggests that the provision of quality online learning systems can potentially increase learners' satisfaction with e-learning systems. The quality of an online learning system pertains to how productively information is processed within the system. The relevance, timeliness, and accuracy of the information generated by an information system are often measured as a part of learner satisfaction (Al-Busaidi, 2012). The result was consistent with previous studies as Isik (2006) and (Ali & Ahmad, 2011) had mentioned that the quality of an online learning system affects user satisfaction positively.

5.1. Implications

With the accelerated use of online learning practices, there is an imperative requirement to investigate factors affecting students' satisfaction in e-learning. This study investigated how students' satisfaction could be measured in online learning. This study aimed to develop an accurate model to predict students' satisfaction in online learning. From the factors discovered in the extensive literature review, only four constructs including lecturer performance, student-lecturer interactivity, course evaluation, and quality of online learning system were proposed to be important for predicting the students' satisfaction in online learning.

The first crucial contribution of this study is that the lecturers' performance affects the students' satisfaction. There is an extra responsibility for lecturers who teach online courses as they would have to polish their technical skills throughout the process and encourage students' technical knowledge in this environment. In higher education, the teacher's standard referred to the instructor's specific individual characteristics before entering the class (Gopal, et al., 2021). Martin (2021) stated that these attributes include factors such as instructor content knowledge, pedagogical knowledge, inclination, and experience. The present study indicates that the higher performance of lecturers creates higher students' satisfaction in online learning. Hence the administration can take necessary actions to accelerate the performance of the lecturers by providing specific training on online teaching.

The second vital finding of this study was the student – lecturer interactivity affects the students' satisfaction. Increasing the dialog between the students and the teacher is an important factor in bridging the gaps between them. Therefore, online-learning instructors should strive to ensure that a maximum amount of dialog takes place in the courses that they offer (Moore, 1989). It is also found in the present study that; course evaluation leads to students' satisfaction in online learning. Higher course evaluation leads to higher students' satisfaction. Thus, the administration can take necessary actions to increase course evaluation by giving assignments that enable students to express what they have learned and what they still need to learn, breaking up class activities into shorter pieces than in an in-person course, giving frequent quizzes or other assessments, conducting live sessions in which students can ask questions and participate in discussions.

The quality of the online learning system is the fourth crucial finding that revealed higher quality of online learning system leads to higher students' satisfaction. Thus, the administration can increase the infrastructure of computer labs that are installed for online learning systems and those should be developed and made accessible to all the students. Further, it should provide more flexibility in learning as to time and place and sufficient functions should be made available for the students learning.

5.2. Limitations and future research

There are certain limitations of this study. The respondents of this study were selected based on the sample size of 500 students due to limitation of time and accessibility difficulties. For future research, the sample size could be made greater to generalize the research findings. Further, the sample was chosen only from the students of the NIBM. In future studies, the sample should consist of students from other higher educational institutes in Sri Lanka.

Third limitation was that the study selected only four independent variables namely, the performance of the lecturer, student–lecturer interactivity, course evaluation and quality of online learning system. Future research could study the other possible factors disclosed in previous literature. The fourth limitation was that the study was carried as a cross-sectional study of a group of students at a given point of time. The “intention” is a psychological factor and as a result, there is a tendency for people to change their perspectives time to time. Therefore, the future research could be conducted as longitudinal studies since the longitudinal studies involve taking multiple measures over an extended period.

References

Al-Alwani, (2014). Information technology integration in higher education. *International Journal of Emerging Technologies in Learning*, 9(6) 32-36.

- Al-Busaidi, K. A., (2012). Learners' perspective on critical factors to lms success in blended learning: An empirical investigation, *Cilt* 30. 11-34.
- Ali & Ahmad, (2011). Key factors for determining students' satisfaction in distance learning courses: A study of allama iqbal open university. *Contemporary Educational Technology*, 2(2). 118-134.
- Anon, (2021). *World Bank Sri Lannka*.
- Axtell & Asino, (2020). Emerging information technology issues in higher education.
- Costley, K, (2014). The positive effects of technology on teaching and student learning. 30 October.
- Ghazal, S., Aldowah, H. & Umar, I., (2018). Critical factors to learning management system acceptance and satisfaction in a blended learning environment. 687-698.
- Gopal, Singh & Aggarwal, (2021). Impact of online classes on the satisfaction and performance of students during the pandemic period of COVID 19. *Education and Information Technologies*.
- Hassan, Z. & Idrisa, F., (2011). The role of education in shaping youth's national identity. *UKM Teaching and Learning Congress*. 443-450.
- Ho, Cheong & Cheong, (2021). Predicting student satisfaction of emergency remote learning in higher education during COVID-19 using machine learning techniques.
- Hubackova, (2015). History and perspectives of elearning.
- Johan & Harlan, (2014). Education nowadays. *International Journal of Educational*, 4(5), 51-56.
- Kapur, R., (2019). Role of education in promoting well-being of the community.
- Kattoua & Al-Lozi, (2016). A review of literature on e-learning systems in higher education. *International Journal of Business Management and Economic Research*, 7(5). 754-762.
- Keiler, (2018). Teachers' roles and identities in student-centered classrooms. *International Journal of STEM Education*.
- Liyanage, K., (2014). Education System of Sri Lanka. 116-140.
- Moore, (1989). Three types of interaction.
- Mozelius , P., (2014). ICT4D hubs for region-wide dissemination of blended learning. *Education for All in Sri Lanka*.
- Mtebe & Raphael, (2018). Key factors in learners' satisfaction with the e-learning system at the university of Dar Es Salaam, Tanzania. *Australasian Journal of Educational Technology*, 34(4),107-122.
- Oketch, M., McCowan, T. & Schendel, R., (2014). The impact of tertiary education on development.
- Pettersson, F., (2020). Understanding digitalization and educational change in school by means of activity theory and the levels of learning concept. *Education and Information Technologies*, 30 June. 187-204.
- Sarker, F. & Davis, H., (2010). The role of institutional repositories in addressing higher education challenges. *International Workshop on Semantic Web Applications in Higher Education*.
- Sarker, F., Davis, H. & Tiropanis , T., (2010). A review of higher education challenges and data infrastructure responses. 10.
- Sharma & Sharma, (2015). Indian higher education system: Challenges and suggestions. *Electronic Journal for Inclusive Education*, 3(4).
- Song, S. M., (2010). E-learning: Investigating students' acceptance of online learning.
- Tan, Chuah & Ting, (2016). Factors affecting university students' satisfaction on online learning system. *Tarc international conference on learning & teaching 2016*, October.
- Wanger, Schramm & Werner, (2000). Student perceptions of the effectiveness of web-based courses.
- Zaheer, Babar & Gondal, (2016). E-learning and students' satisfaction.
- Zaheer, M., Babar, M. & Gondal, U., (2015). E-learning and students' satisfaction.
- Zhang & Lin, (2019). Student interaction and the role of the teacher in a state virtual high school: What predicts online learning satisfaction?. 29(2).

