Effectiveness of Moodle for E-Learning to the undergraduates during the COVID-19: special reference to South Eastern University of Sri Lanka

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Abstract: The COVID-19 epidemic spreading around the world has had a major impact on human life. Therefore, in restoring the lives of the human, all sectors carrying out their services through the Internet. Among those, the field of education can be considered as one of the main sectors. The majority of the undergraduates are in Sri Lanka pursuing their studies from primary to higher education based on traditional learning styles; that is the face-to-face method. But in the present, they conduct their studies through the online learning method. Accordingly, the main objective of this study is to research the effectiveness of the use of VLE/ Moodle in the distance learning among students of the South Eastern University of Sri Lanka during the covid 19 epidemic period. Accordingly, a special questionnaire on the effectiveness of VLE/ Moodle was created and distributed among the undergraduate students from all six faculties. Through this, 330 responses were obtained using stratified random sampling and the data was further analyzed using SPSS software for the descriptive analysis. Results of this study confirmed that Moodle/VLE is an effective tool and the easiest device for continuing distance education at South Eastern University; meanwhile, this study strongly suggested motivating students to use the laptops for the use of VLE/ Moodle by providing interest-free loans or free laptops to the students. It was further suggested that the government must pay attention to increase the effectiveness of Moodle/VLE by free stable internet. We also suggest that Moodle/ VLE can be used in private universities as well as education organizations as it is an effective tool for higher education. In addition to that, we plan to research the effectiveness of e-learning in government universities in Sri Lanka in the future.

Keyword: Moodle/ VLE, E-learning, Online education, Higher education, COVID-19

Introduction: The global crisis happening due to a deadly virus called COVID-19, which is a pandemic situation discovered in China in 2020. Furthermore, social distancing is one of the main media to reduce the virus spreading among the human declared by WHO. In that sense, every sector such as education, health, business, and, transport swiftly moves to the online platform to support the new normal in the country. Therefore, the education sector was almost moved to a virtual platform via VLE/ Moodle, google classroom, ZOOM, and some other tools to increase the quality of E-learning.

Students are pursuing their higher education in 16 government universities in Sri Lanka under the Sri Lankan Higher Education system. Among the universities, nearly 5000 students are pursuing their degree courses under the six faculties in South Eastern University of Sri Lanka. However, the covid-19 epidemic that has plagued all over the world including Sri Lanka over the past two years make social changes that have taken place to direct impact on the education of university students. With the outbreak of COVID-19, all educational institutions including schools and universities were closed by the government of Sri Lanka on March 12, 2020.

However, with the long-standing impact of COVID-19, there is a growing focus on e-learning (electronic learning) as a solution to prevent and mitigate the impact of university education on students.

Information technology (IT) has revolutionized in every field as well as field of education. The remarkable development of e-learning (education through electronic resources) has greatly increased through distance education in these epidemics. LMS (Learning management system) and VLE (virtual learning environment) are the latest trends in E learning, providing students with a wide range of knowledge and notes related to a various of subjects (Video, mp3s, word file, pdf,..). VLE is a software system designed to support learning and teaching. Moodle is a secure and integrated system that creates a personalized learning environment for learners, administrators and teachers.

Moodle is used in more than 60% of the world's higher education institution. With over 210 million users in the world Moodle is a easiest e-learning platform that makes teaching and learning Very effective. Moodle has now become one of the leading medium of higher education in all government universities in Sri Lanka under the COVID-19 epidemic and the distance education system. Just then, all six faculties of South eastern University of Sri Lanka also conducts distance education using Moodle. Accordingly, this study is based on the practical experience of using Moodle and its effectiveness among undergraduates studying at the South Eastern University of Sri Lanka.

Therefore, this study was followed a statistical technique using SPSS to analyse the effectiveness of VLE among university students by collecting data from south eastern university undergraduates. Furthermore, this article was concentrate on previously conducted research works too.

Literature review

Moodle is an eco-friendly online learning management system used globally to teach undergraduates and doctoral students online courses. (Moodle and online learning in Pakistan medical university).

As a result of evaluating the effectiveness of LMS, it appears that many students prefer the current system and it is much easier to access. It is also useful for further education. (Kommerell & Klein, 1986) With the advancement of information technology, the "teacher-centred" traditional learning method has begun to shift to the "learning- centred" method. They point out that VLE is the best alternative to the classroom-centric learning system. (Impact of virtual learning for improving). But another study confirms that the quality of traditional education is higher than that of Moodle education. Introducing Moodle /VLE as part of the teaching process shows significant improvement in student performance. The greatest improvement is seen among children with poor outcomes (Montalbo & Chua, 2014). It also helps to improve the overall quality of the process (Effectiveness of Moodle Application on Technical Tertiary Education in Sri Lanka). (MMT MarikKar & Jayarathne, 2016) VLE has a positive impact on students' English language learning activities. By linking English language activities with VLE, students can become more involved and motivated to engage in subject related activities. (Dissanayake & Alahakoon., 2020) & Zedan, 2008) Moodle's productivity and success depend on the active and interactive participation of teachers. Awareness campaigns should also be conducted to avoid the effects of Moodle's unfamiliar activities and to promote professionalism.

During the pandemic of covid-19 it was effective to use the blended learning model in elementary school teacher education students. (Rachmathullah, 2020), and because it enhances the quality of e-learning (Rabiman et al., 2020) and encourages students to explore new technologies and knowledge of learning through Moodle. VLE / Moodle has been accessed. Blending learning - Although they want to integrate with the learning law, they do not want to learn completely online.

(Rabiman et al., 2020) said that Moodle LMS is a popular e-learning platform in Africa and other universities.

A study found that private university students need an awareness campaign and computer training. Access to campus is an advantageous and effective factor (Sahoo et al., 2020) There is a strong positive response to Moodle learning among students and there is not enough technical support to improve the current situation. The lecturers' point of view is quite different and they say that the traditional learning method improves the quality of the learning method in Moodle (Moodle effectiveness in a developing country).

Investigating the effectiveness of blended learning using Moodle to improve writing skills shows that students 'responses and attitudes to mixed learning activities in the writing course are positive, and that students' writing performance in Moodle-based mixed learning is improved. Writing courses for instructors and learners are more proactive and effective compared to the traditional face-to-face approach and help to expand students' learning opportunities beyond the classroom. (El-Maghraby, 2021) (Rameez et al., 2020) A study by teachers on online teaching methods shows that students are satisfied with their online classes and are adequately trained. Get help but traditional Classroom teaching is not assumed to be complemented by online classes, as teachers face various difficulties when teaching online. The biggest challenge for the online class is the technology and network challenge that needs to be addressed to overcome the barriers to emergency online learning and take the right steps to overcome it. Face-to-face education will not replace it. (Priyadarshani & Jesuiya, 2021) Implementing LMS has become a requirement in universities as it enhances the learning and teaching environment. Universities need to use LMS to improve students' perspectives, and lecturers use LMS in teaching and learning activities and have the ability to use it (Chaubey & Bhattacharya, 2015). Should do. It raises their motivation level and distance learning can be a good experience. It is also recommended to further empower students to complete online assessments and activities on time, and to focus more on providing students with the technical support they need to increase their satisfaction with distance education (Sudusinghe & Kumara, 2020). And students face many challenges in education due to lack of proper knowledge related to Moodle usage. As a solution, the university should focus on a hybrid education system to make the teaching and learning process more effective (Rameez et al., 2020).

Methodology: Under this study, an elaborative research has been accomplished on the effectiveness of the usage of Moodle /VLE during the pandemic of COVID-19, among the students of South Eastern University Of Sri Lanka using the dual method of " Qualitative " and "Quantitative" and Stratifies random sampling method was used for the data collection. Undergraduates from all the six faculties of the University have been recruited to conduct the above study. Moreover, a special structured questionnaire related to the effectiveness of Moodle /VLE usage was created by using the google form. Hence, it was sent for three weeks (from April 18 2021) via WhatsApp for the particular undergraduates. Nearly, 5000 students from all the six faculties are doing their higher education. Due to the COVID 19 pandemic in

the country, almost three semesters were conducted through an e - learning platform. Hence, the above particular e-learning platform was; the LMC method called Moodle / VLE; which was introduced and used as the main source. In-order- to accomplish the research, all the students were given 400 questionnaires randomly and received back 330 responses within a period of three weeks. In addition, the data collected through the google form was analysed for descriptive statistics using SPSS. Furthermore, literature reviews were done based on fully published 20 research articles related to E-Learning and VLE in various international conferences and reputed journals. time. In addition to that, our analysis was focused based on the following research questions (RQ) to draw the conclusions,

1. Challenges faced by students studying using MOODLE
2. Evaluate the practicality of MOODLE use and its effectiveness among students.
3. The effectiveness of the MOODLE education system as compared to the traditional education system.

According to the analysis, conclusions, suggestions, limitations, and future works were summarized.

Results and discussion: The details of the students who responded to this study are given below (Table 01). Out of those 74% of the responses were received from women. All of the responses, the highest response received from the Faculty of Islamic Studies and Arabic Languages (26%), with the closest response was from the Faculty of Arts (24%).Among the other faculties, low responses (5%) are shown from the Faculty of Technology. Considering the academic year of the students, out of all the responses, the last year (4%) and the third year (15%) students showed a low response and the second year students have given a higher response of 44%.

TABLE 1. Students' Demographic profile

GENDER	PERCENTAGE%
MALE	26
FEMALE	74
FACULTY	
FAC	24
FAS	21
FE	13
FIA	26
FMC	10
FT	5
ACADEMIC YEAR	
1ST YEAR	38
2ND YEAR	44
3RD YEAR	15
4TH YEAR	4

The details of the devices used by the students for the MOODLE are shown in Figure (a). Regarding the use of mobile phones, laptops and tabs, 80% of the students use the mobile phone to access the Moodle. Figure (b) shows information about the easiest device to access Moodle.
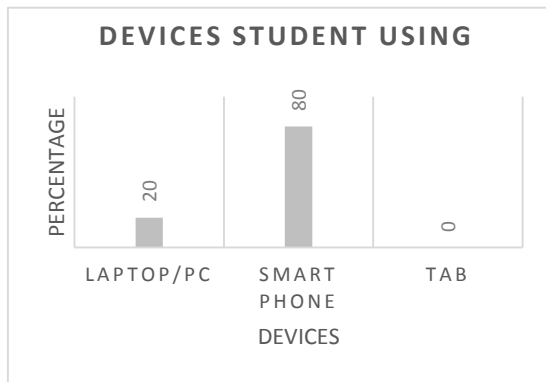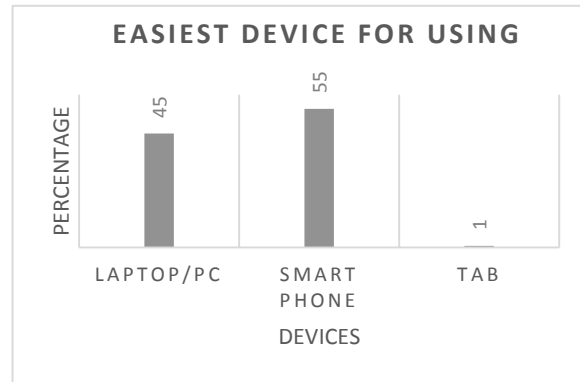

Figure 1: Devices used by students.

Figure 2: Easiest device for use of VLE

Comparing the above information, it is seen that 25% of the students who use mobile phones have responded that it is easy to access Moodle using laptop / computer.

TABLE 2. Percentage of Students' Preferences

Interface user friendly	Percentage
Yes	81
No	19
Sufficient internet speed	
Yes	56
No	44
Using Moodle before university	
Yes	17
No	83
Using Moodle for academic activities	
Difficult	17
Easy	84

According to the data in Table 2, in the question accessing the Moodle has sufficient internet were agreed by 56% of the students and nearly 44% of them rejected it. The table also shows that 83% of all students have never used Moodle before university, but 81% of students respond positively to interfaces being user-friendly. Furthermore, when asked about the ease of using Moodle, it was found that 84% of the students used Moodle in their academic activities.

In addition, 65% of students were able to contact lecturers via Moodle. Just then, nearly, 96% of them have obtained the syllabus required for their education as shown in Figure (3).
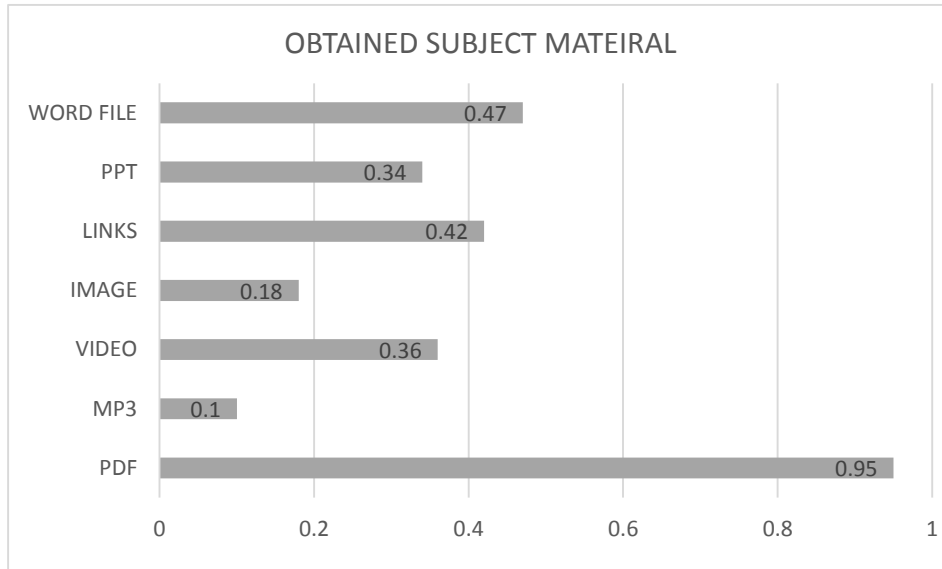
FIGURE 3: Percentage of subject material available format in VLE

And when it comes to Moodle / VLE issues, 79% of students respond positively that the universities have provided immediate solutions. In addition, 73% of South Eastern University students agree that they have received university-related updates on their distance education through Moodle / VLE.44% of the students who could not get such updates stated. Because that the relevant updates have not been published through Moodle / VLE. Some of those students stated that they could not access Moodle / VLE.
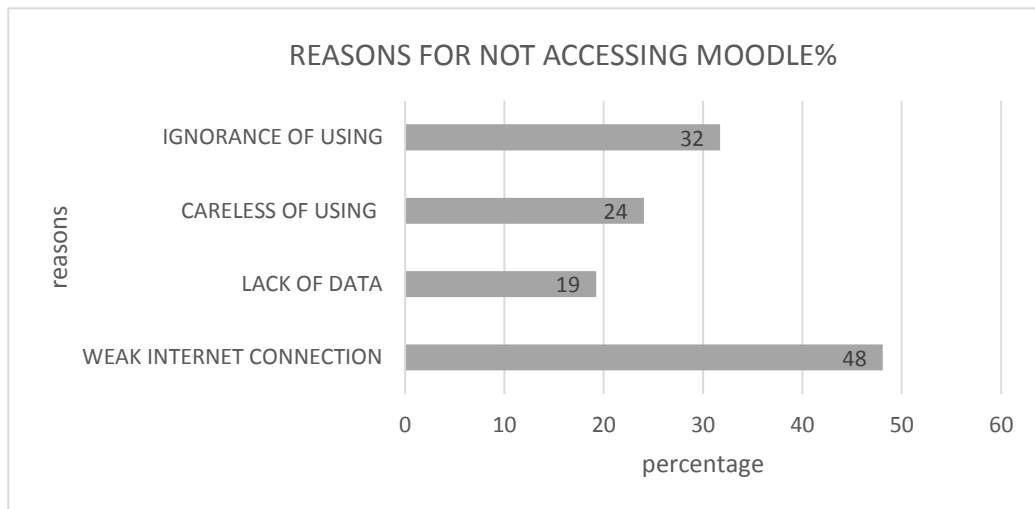

FIGURE 4: Reasons for cannot access VLE/ Moodle

In addition, the students stated in their comments that there was no need for Moodle to get updates due to the updates provided through WhatsApp. Further95% of the respondents confirm that Quiz, Mid exam Assignment etc. have been handed over through Moodle. And 44% of them mention submitting through Moodle/VLE and 27% of them say it is difficult.
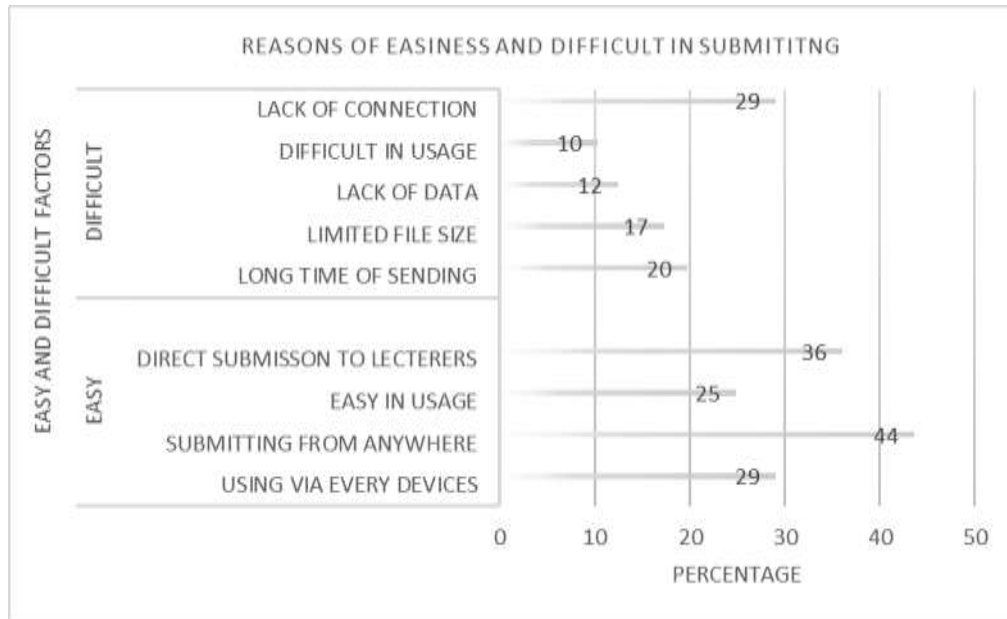
Figure 5: Positive and Negative of VLE in regards of submission

Figure (5) cite the ease and difficulty of delivery via Moodle / VLE, with many stating that delivery via Moodle / VLE makes it easier to deliver from anywhere as soon as possible and directly to the relevant lecturer. . Students also say that it is difficult to transfer through Moodle due to inadequate internet connection / coverage and the time taken to submit the relevant assignments through Moodle is long. Nearly 70% of the students have received feedback through Moodle for their quiz, mid exam, assignment etc.
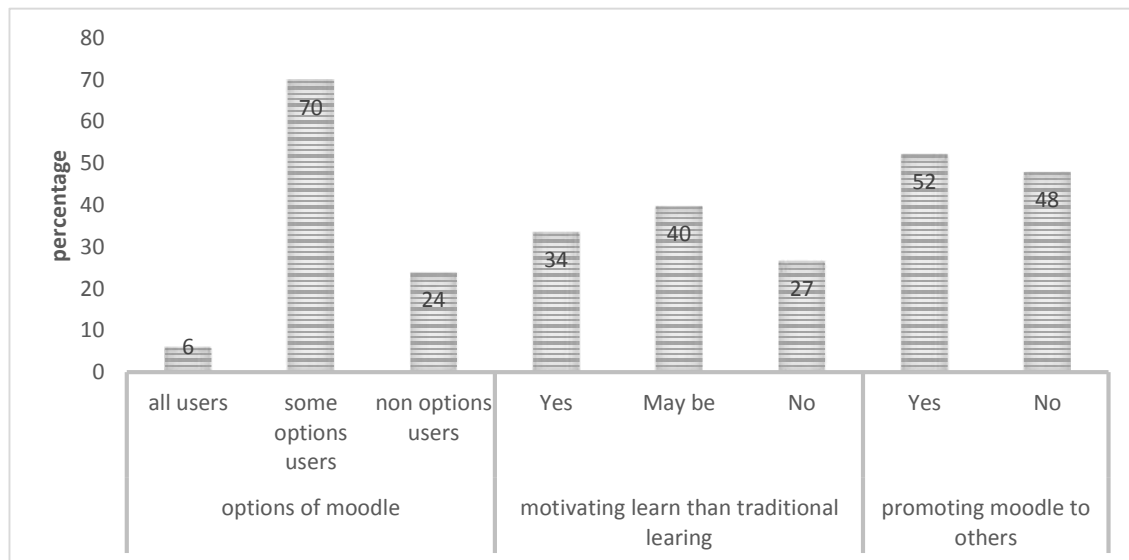

Figure 6: Student selections about Moodle features, Motivation towards E-Learning via Moodle, and Promoting the use of Moodle

When asked about the use of options such as grades, side blog, scan Qr code, help, web and found in Moodle, it was found that 70% of the students used some of its options and 24% did not use any option. Furthermore, Moodle / VLE encourages 34% of respondents to actively participate in learning more than the traditional education system, while 27% of respondents reject it. Also, 52% of the respondents agreed to promote to learn through Moodle / VLE, and a nearly similar percentage of students refused it.

Conclusion: The main objective of this study is to analyse the extent to which Moodle / VLE has become an effective tool in the distance education of students pursuing higher education at the South Eastern University of Sri Lanka. The study was conducted using stratified random sampling and analysed, using both qualitative and quantitative methods. This study reveals that in today's society struggling with COVID-19, Moodle / VLE function as an effective tool for continuing distance education at the South Eastern University of Sri Lanka as VLE provides user-friendliness, swift replies to students' queries & technical supports, and stable internet connectivity in their places, despite the lack of prior experience using VLE. Further, it confirmed that students prefer to use smartphones compared to Laptops while using VLE even many of them have their own laptops.

However, this study suggests that both the government universities and the relevant parties must pay special attention to enhance the facilities required to use this effective tool such as free internet facilities and proper on-time training to the new students, and motive students to use VLE via Laptops rather than a mobile phone as VLE provide a better user experience rather than the mobile phone.

We strongly suggest conducting the same awareness among both the state and private university students since this study only has focused on the undergraduates of the South Eastern University of Sri Lanka. Also, It is suggested to conduct the Staff expectation towards VLE. Further, we have planned to conduct our future studies on the Students' Perception of E-Learning of Undergraduates of State Universities in Sri Lanka.

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