International Journal of Social Science (IJSS)
Vol.2 Issue.1 June 2022, pp: 1125-1132
ISSN: 2798-3463 (Printed) | 2798-4079 (Online)
DOI: https://doi.org/10.53625/ijss.v2i1.2309

DELONE AND MCLEAN ON THE SUCCESS OF LEARNING MANAGEMENT SYSTEMS IN DISTANCE LEARNING

By
Adhi Susano[1], Khasanah[2]
[1]Department of Informatics Engineering, Indraprasta University PGRI, Jakarta, Indonesia
[2]Department of Informatics, Asia Cyber University, Jakarta, Indonesia
Email: [1]adhi.susano@gmail.com

Article Info

Article history:
Received April 04, 2022
Revised April 21, 2022
Accepted May 28, 2022

Keywords:
Learning Management System
Delone and McLean
Quantitative
Distance Learning
E-Learning
Higher Education

ABSTRACT

This study aims to see how the level of success of a learning management system used by a private university that runs the learning process with distance learning, where the method used in this study is a quantitative method using the Delone and McLean approach. system quality has no effect on user intensity with an R square value of 2.6%, system quality affects user satisfaction with an R square value of 19.3%, information quality does not affect user intensity with an R square value of 0.1%, Information quality affects user satisfaction with an R square value of 28.6%, service quality does not affect user intensity with an R square value of 0.4%, service quality affects user satisfaction with an R square value of 49.8%. usage satisfaction has no effect on user intensity with an R square value of 0%, use satisfaction affects benefits with an R square value of 53.6%, use affects user satisfaction with an R square value of 16.9%, use affects benefits with an R square value of 20.6%. benefits affect use with an R square value of 20.6%, benefits affect use satisfaction with an R square value of 53.6%.

Corresponding Author:
Adhi Susano,
Department of Informatics Engineering,
Indraprasta University PGRI, Jakarta, Indonesia
Email: adhi.susano@gmail.com

1. INTRODUCTION

The presence of the COVID-19 phenomenon has forced the world of education to be able to adapt to increasing technological advances. The increasing covid 19 virus is one of the causes of the difficulty of the face-to-face learning process. Lecturers and students are the most important part in a learning that must be protected both physically and mentally. Keeping each other at a distance and not communicating with each other directly face to face is one of the ways that the 19 virus is infected, so the government implements a long-distance learning system. Where in the distance learning system there is still a relationship between lecturers and students so that learning continues even though it cannot be done face to face in the classroom. The use of the learning material system is one of the mainstays in the distance learning process that continues, where in the learning material system there are already learning materials prepared by the lecturer in accordance with the learning design that has been determined by the lecturer at the beginning of the lecture contract, there is a video explaining the material that has been prepared by the lecturer so that students still feel they get an explanation from the lecturer, in the learning management system there are also quizzes or tools available if students want to ask questions so that the interaction between lecturers and students continues even though the lecturers and students are in their respective places.

With regard to learning management systems in the world of learning, several experts have also studied many experts, including N. N. M. Kasim, F. Khalid in their research revealing that open source platforms are the choice for every institution, because they are useful for users in allowing the platform to be modified according to user needs. , and because of the low cost of getting better service, compared to commercial platforms which require a fee per user license, with additional subscription and maintenance fees to ensure the LMS is always up to date.(N. N. M. Kasim, 2016).

International Journal of Social Science (IJSS)
Vol.2 Issue.1 June 2022, pp: 1125-1132
ISSN: 2798-3463 (Printed) | 2798-4079 (Online)

Nor Azura Adzharuddin and Lee Hwei Ling in their research stated that Learning Management Systems (LMS) have been established in a number of universities around the world to help connect students and lecturers without traditional class boundaries. It is a digital software environment designed to manage user learning interventions as well as deliver learning content and resources to students. Since the LMS System has been implemented and has also required lecturers to apply it in the daily life of college, it is very important to identify feedback from students as LMS users. Previous research has shown various findings regarding the impact of using LMS in higher learning environments in universities around the world. Therefore, this paper will provide some insight into the LMS phenomenon (Adzharuddin & Ling, 2018). Research conducted by N H S Simanullang and J Rajagukguk stated that the Learning Management System (LMS) is an application software used to assist in the online learning process. Moodle is one of the most popular LMS applications and is perfect for online learning. Moodle has various features that can support student activities online (Gurtubay & Manan, 2020). Research conducted by Budiyono Saputro and Andriani Tri Susilowati that the results of the Implementation of Scientific-Based LMS in SPADA in the Field can show the characteristics of learning that are practical, effective, and simple, in implementation. (Saputro & Susilowati, 2019). Based on research conducted by Khadijah Abdul Rahman, Siti Aswani Mohd Ghazali, Dr Mohd Nasir Ismail that the Learning Management System (LMS) provides an integrated platform for content, delivery and management of learning as well as accessibility by various users which may include students, content creators, and administrator (Rahman et al., 2010). Jason Rhode et al stated that the learning management system (LMS) has become an important tool for almost all higher education educational institutions, and a driving force in online learning.(Rhode et al., n.d.). Syed A. Raza, et al based on their research suggest that students will be willing to use LMS to successfully complete their courses because of their perception of the benefits provided by e-learning systems, during social distancing.(Raza et al., 2021). Abbas Abdoli Sejzi, et al found that virtual universities using a Learning Management System (LMS) and a Learning Content Management System (LCMS) provide opportunities to manage learning, administration, tracking, and reporting functions. Virtual universities by implementing LMS and LCMS have various applications available to manage course and student administration, content, and key organizational information. In virtual universities, LMS can connect students and content in a standardized way. Also virtual universities by implementing LCMS can create, store, reuse, manage, and deliver digital learning content. LCMS allows students and managers to manage content related to the training function. LMS emphasizes on managing learners, managing instructor-led sessions, course catalogs, enrollment systems, competency management, launching and tracking e-learning, searchable libraries of reusable content, and integration with human resource applications.(Sejzi & Aris, 2013)Thaer Issa Tawalbeh based on his research, it was revealed that 75% of the instructors had not used Blackboard before coming to university, which would affect their perception of the system. It was also evident that most of the instructors were unfamiliar with the features and functions of Blackboard. This may be due to the fact that they have not received enough training to help them handle the various features and functions of the system with ease.(Tawalbeh, 2018). Based on previous studies, the researcher conducted an analysis related to the success of the learning management system used by a private university in South Jakarta, Indonesia which was born during the covid 19 pandemic with a distance learning system so that every teaching and learning activity can be carried out properly without there is a limitation of face-to-face time in class. With adequate learning management system facilities and equipped with features that can help the distance learning process but still supported by training in the use of the learning management system so that lecturers and students do not experience problems during the distance learning process.

The presence of a learning management system feature that is equipped with facilities that are tools so that lecturers can prepare learning materials to be distributed and video recordings of explanations regarding the material discussed and task features that can be accessed in 1 week for 1 learning material can make it easier for students to undergo the distance learning process. far, equipped with discussion features so that constructive discussions can occur between students and lecturers, making students and lecturers feel close and not far apart. Then the connection of the learning material system with online meeting rooms every week makes one of its own facilities at this university which can bring together lecturers and students at a predetermined time so that virtual face-to-face learning interactions can be established like face-to-face learning in class, students can see how the lecturer is and can directly ask the lecturer if there is a problem or learning that he does not understand, as well as the lecturer can explain directly about the material and tasks discussed.

2. RESEARCH METHOD

DeLone and McLean is a measurement of the effectiveness or success of information systems is very important for our understanding of the value and strength of information systems management policies/actions and investments. The effectiveness of information systems can be measured based on the factors that influence the system.

Vol.2 Issue.1 June 2022, pp: 1125-1132
ISSN: 2798-3463 (Printed) | 2798-4079 (Online)
DOI: https://doi.org/10.53625/ijss.v2i1.2309

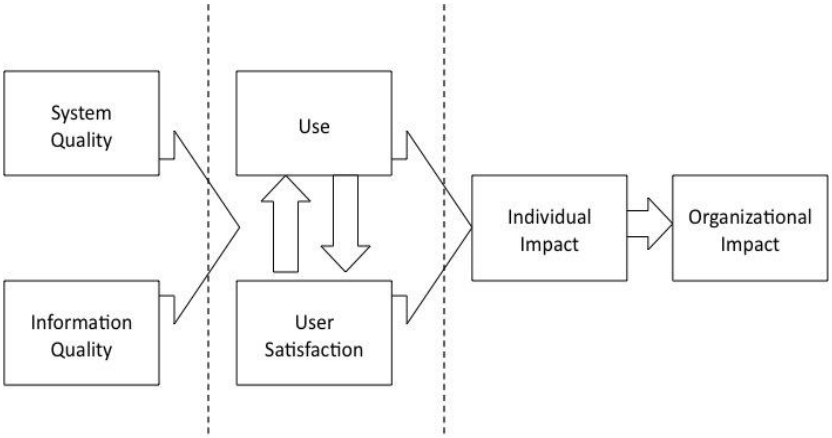

Figure 1 DeLone & McLean Model (DELONE WH and MCLEAN ER 1992)

Figure 1 depicts that in 1992, DeLone and McLean identified six variables that can be used as measurements of information systems success models, namely system quality, information quality, use, user satisfaction, individual impact, and organizational impact. William H. DeLone and Ephraim R. McLean Model (2003), suggests measuring the success of information systems, known as the "D&M Is Success Model".

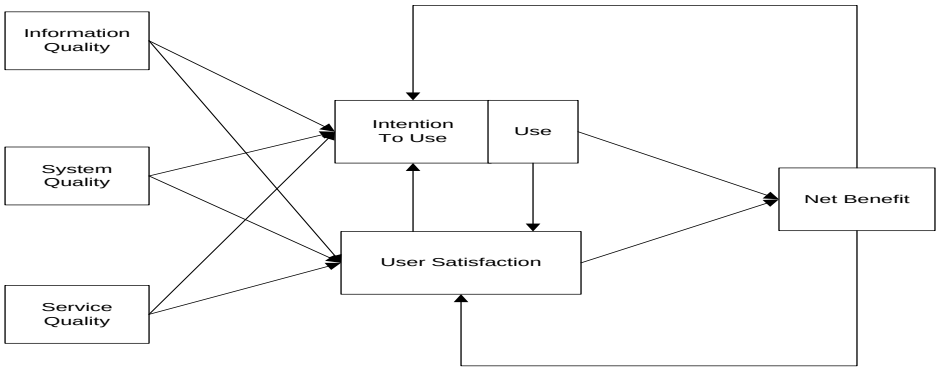

Figure 2 DeLone and McLean Update Model (DELONE WH and MCLEAN ER 2003)

Based on Figure 2, there are seven constructs used by the DeLone and McLean Model as follows :

a) Information Quality, related to the output of information systems.
b) System Quality, relating to the evaluation of data processing systems (information).
c) Quality of Service, focusing on efforts to fulfill customer needs and desires, as well as the accuracy of delivery to balance customer expectations.
d) User intensity, is the attitude of the user
e) User, show behavior
f) User Satisfaction, expansion of user confidence in the system that can meet information needs.
g) Benefits, all benefits into a single benefit (system success).

Based on the above methodology, the hypotheses designed in this study are as follows:

H_1: Does the quality of information have a positive effect on intention to use?
H_2: Does the quality of information have a positive effect on user satisfaction?
H_3: Does the quality of the system have a positive effect on the intention to use?
H_4: Does the quality of the system have a positive effect on user satisfaction?
H_5: Does service quality have a positive effect on intention to use?
H_6: Does service quality have a positive effect on user satisfaction?
H_7: Does user satisfaction have a positive effect on intention to use?
H_8: Does usage have a positive effect on user satisfaction?
H_9: does user satisfaction have a positive effect on net benefits?

International Journal of Social Science (IJSS)
Vol.2 Issue.1 June 2022, pp: 1125-1132
ISSN: 2798-3463 (Printed) | 2798-4079 (Online)

H_{10}: does intention to use and use have a positive effect on net benefits?
H_{11}: do net benefits have a positive effect on intention to use?
H_{12}: do net benefits have a positive effect on user satisfaction?

3. RESULTS AND ANALYSIS

In the calculation of statistical analysis, validity and reliability tests are carried out using the help of statistical data processing in the SPSS program, the following results can be obtained:

Tabel 3 Validity and Reliability Test

Variable	Indicator	Validity Test Results			Reliability Test Results	
		r count	condition r count > r table Df = n-2	Results	Cronbach's Alpha Value	Information
System Quality	SyQ1	0,712	0,279	*Valid*	0,750	Reliable
	SyQ2	0,813	0,279	*Valid*		
	SyQ3	0,743	0,279	*Valid*		
	SyQ4	0,758	0,279	*Valid*		
Information Quality	IQ1	0,662	0,279	*Valid*	0,714	Reliable
	IQ2	0,710	0,279	*Valid*		
	IQ3	0,626	0,279	*Valid*		
	IQ4	0,675	0,279	*Valid*		
	IQ5	0,755	0,279	*Valid*		
Service Quality	SQ1	0,773	0,279	*Valid*	0,660	Reliable
	SQ2	0,826	0,279	*Valid*		
	SQ3	0,715	0,279	*Valid*		
User Intensity	ITU1	0,612	0,279	*Valid*	0,249	Unreliable
	ITU2	0,575	0,279	*Valid*		
	ITU3	0,699	0,279	*Valid*		
User Satisfaction	US1	0,915	0,279	*Valid*	0,866	Reliable
	US2	0,842	0,279	*Valid*		
	US3	0,928	0,279	*Valid*		
User	U1	0,844	0,279	*Valid*	0,601	Reliable
	U2	0,846	0,279	*Valid*		
Benefits	NB1	0,723	0,279	*Valid*	0,762	Reliable
	NB2	0,779	0,279	*Valid*		
	NB3	0,809	0,279	*Valid*		
	NB4	0,752	0,279	*Valid*		

Instrument reliability describes the stability of the measuring instrument used. A measuring instrument is said to have high reliability if the measuring instrument is stable. Based on calculations from SPSS, the results of the reliability test can be seen in table 3 above with the conclusion that system quality, information quality, service quality, user satisfaction, users and benefits are said to be reliable or consistent. While the user intensity is said to be unreliable or inconsistent because the value is smaller than the Cronbach alpha requirement, namely 0.60.

Model Fit Test

The model suitability test was conducted by means of a correlation test and a partial test with the aim of knowing the direction and strength of the relationship between two or more variables.

Table 2 Model Conformity Test Results

Variable X	Variable Y	Correlation Test Results		Partial Test Results	
		Correlation Test	Significant Value	Significant Test Results	Significant Value

Vol.2 Issue.1 June 2022, pp: 1125-1132
ISSN: 2798-3463 (Printed) | 2798-4079 (Online)
DOI: https://doi.org/10.53625/ijss.v2i1.2309

		Results			
System Quality	User Intensity	-0,161	0,264	0,264	0,05
System Quality	User Satisfaction	0,439	0,001	0,001	0,05
Information Quality	User Intensity	-0,028	0,847	0,847	0,05
Information Quality	User Satisfaction	0,535	0,000	0,000	0,05
Service Quality	User Intensity	0,065	0,652	0,652	0,05
Service Quality	User Satisfaction	0,705	0,000	0,000	0,05
User Satisfaction	User Intensity	0,016	0,910	0,910	0,05
User Satisfaction	Benefits	0,732	0,000	0,000	0,05
User	User Satisfaction	0,411	0,003	0,003	0,05
User	Benefits	0,454	0,001	0,001	0,05
Benefits	User	0,454	0,001	0,001	0,05
Benefits	User Satisfaction	0,732	0,000	0,000	0,05

Based on the table above, the results of the partial test in this study can be explained as follows:

1. The hypothesis of the system quality variable on the user intensity variable. With a significant level of 0.05 the significance number obtained in this test is 0.264>0.05. On the basis of this comparison, H_o is accepted and H_a is rejected or it means that the system quality variable does not have a partially significant effect on the user intensity variable.
2. The hypothesis of the system quality variable on the use satisfaction variable. With a significant level of 0.053 the significance number obtained in this test is 0.001 <0.05. On the basis of this comparison, H_o is accepted and H_a is rejected or it means that the system quality variable has a partial influence on the user satisfaction variable.
3. The hypothesis of the information quality variable on the user intensity variable. With a significant level of 0.05 the significance number obtained in this test is 0.847 > 0.05. On the basis of this comparison, H_o is accepted and H_a is rejected or means that the information quality variable does not have a partially significant effect on the user intensity variable.
4. The hypothesis of the information quality variable on the use satisfaction variable. With a significant level of 0.05 the significance number obtained in this test is 0.000 <0.05. On the basis of this comparison, H_o is rejected and H_a is accepted or it means that the information quality variable has a partially significant influence on the use satisfaction variable.
5. Hypothesis of service quality variable on user intensity variable. With a significant level of 0.05 the significance number obtained in this test is 0.652 > 0.05. On the basis of this comparison, H_o is rejected and H_a is accepted or it means that the service quality variable does not have a partially significant effect on the user intensity variable.
6. The hypothesis of the service quality variable on the use satisfaction variable. With a significant level of 0.05 the significance number obtained in this test is 0.000 <0.05. On the basis of this comparison, H_o is rejected and H_a is accepted or it means that the service quality variable has a partially significant influence on the use satisfaction variable.
7. The hypothesis of the use satisfaction variable on the user intensity variable. With a significant level of 0.05 the significance number obtained in this test is 0.910 > 0.05. On the basis of this comparison, H_o is rejected and H_a is accepted or it means that the use satisfaction variable does not have a partially significant effect on the user intensity variable.
8. The hypothesis of the use satisfaction variable on the benefits variable. With a significant level of 0.05 the significance number obtained in this test is 0.000 <0.05. On the basis of this comparison, H_o is rejected and H_a is accepted or it means that the use satisfaction variable has a partially significant effect on the benefits variable.
9. The hypothesis of the use of variables on the use satisfaction variable. With a significant level of 0.05 the significance number obtained in this test is 0.003 < 0.05. On the basis of this comparison, H_o is rejected and H_a is accepted or means that the use variable has a partially significant effect on the use satisfaction variable.
10. The hypothesis of the use of variables on the variables of benefits. With a significant level of 0.05 the significance number obtained in this test is 0.001 < 0.05. On the basis of this comparison, H_o is rejected and H_a is accepted or means that the use variable has a partially significant effect on the benefits variable.

International Journal of Social Science (IJSS)
Vol.2 Issue.1 June 2022, pp: 1125-1132
ISSN: 2798-3463 (Printed) | 2798-4079 (Online)

11. Hypothesis of the variables of benefits on the variable of use. With a significant level of 0.05 the significance number obtained in this test is 0.001 < 0.05. On the basis of this comparison, H_o is rejected and H_a is accepted or means that the benefits variable has a partially significant effect on the use variable.
12. Hypothesis of the benefits variable on the use satisfaction variable. With a significant level of 0.05 the significance number obtained in this test is 0.000 <0.05. On the basis of this comparison, H_o is rejected and H_a is accepted or it means that the benefits variable has a partially significant effect on the use satisfaction variable.

Interpretation of Research Results

1. H_{1a}: the quality of the system affects the intensity of users on the use of the learning management system is not proven. This can be indicated by a significant value of 0.264 > 0.05 and an R square value of 2.6%. It can be concluded that the quality of the system has no effect on the intensity of users.
2. H_{1b}: the quality of the system has an effect on user satisfaction in the use of the learning management system is not proven. This can be indicated by a significant value of 0.001 < 0.05 and an R square value of 19.3%. It can be concluded that the quality of the system has an effect on user satisfaction.
3. H_{2a}: the quality of information affects the intensity of users on the use of learning management systems is not proven. This can be indicated by a significant value of 0.847 > 0.05 and an R square value of 0.1%. It can be concluded that the quality of information has no effect on the intensity of users.
4. H_{2b}: the quality of information has an effect on user satisfaction in the use of a proven learning management system. This can be indicated by a significant value of 0.000 <0.05 and an R square value of 28.6%. It can be concluded that the quality of information has an effect on user satisfaction.
5. H_{3a}: service quality has an effect on user intensity on the use of proven learning management systems. This can be indicated by a significant value of 0.652 > 0.05 and an R square value of 0.4%. It can be concluded that service quality has no effect on user intensity.
6. H_{3b}: service quality has an effect on user satisfaction in the use of proven learning management systems. This can be indicated by a significant value of 0.000 <0.05 and an R square value of 49.8%. It can be concluded that service quality has an effect on user satisfaction.
7. H_{4a}: user satisfaction has an effect on user intensity on the use of a proven learning management system. This can be indicated by a significant value of 0.910 > 0.05 and an R square value of 0%. It can be concluded that user satisfaction has no effect on user intensity.
8. H_{4b}: user satisfaction has an effect on the benefits of using a proven learning management system. This can be indicated by a significant value of 0.000 <0.05 and an R square value of 53.6%. It can be concluded that usage satisfaction has an effect on benefits.
9. H_{5a}: usage has an effect on user satisfaction on the use of a proven learning management system. This can be indicated by a significant value of 0.003 <0.05 and an R square value of 16.9%. It can be concluded that usage has an effect on user satisfaction.
10. H_{5b}: use has an effect on the benefits of using a proven learning management system. This can be indicated by a significant value of 0.001 <0.05 and an R square value of 20.6%. It can be concluded that the use affects the benefits.
11. H_{6a}: the benefits affect the intensity of use in the use of proven learning management systems. This can be indicated by a significant value of 0.001 <0.05 and an R square value of 20.6%. It can be concluded that the benefits affect the use.
12. H_{6b}: the benefits have an effect on user satisfaction in the use of a proven learning management system. This can be indicated by a significant value of 0.000 <0.05 and an R square value of 53.6%. It can be concluded that the benefits affect the satisfaction of use.

4. CONCLUSION

Based on the research that has been done, it can be concluded that the quality of the system has no effect on user intensity with an R square value of 2.6%, system quality affects user satisfaction with an R square value of 19.3%, information quality does not affect user intensity with R square value is 0.1%, information quality has an effect on user satisfaction with an R square value of 28.6%, service quality has no effect on user intensity with an R square value of 0.4%, service quality affects user satisfaction with a value of R square of 49.8%. usage satisfaction has no effect on user intensity with an R square value of 0%, use satisfaction affects benefits with an R square value of 53.6%, use affects user satisfaction with an R square value of 16.9%, use affects benefits with an R square value

Vol.2 Issue.1 June 2022, pp: 1125-1132
ISSN: 2798-3463 (Printed) | 2798-4079 (Online)
DOI: https://doi.org/10.53625/ijss.v2i1.2309

of 20.6%. Benefits affect use with an R square value of 20.6%, benefits affect use satisfaction with an R square value of 53.6%.

RECOMMENDED RESEARCH RESULTS

Based on the results of the research described above, the authors recommend the following:

a) After this research was conducted using the DeLone & McLean model approach. So it is necessary to do further research with other methods to determine the effectiveness of the learning management system so that it can be demonstrated and proven from a different point of view.
b) So that the learning management system used today can continue to be used and if difficulties are found in its use, the authors recommend upgrading the system application to the learning management system feature so that it can be easier and less confusing when used.

DECLARATION OF CONFLICTING INTERESTS

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

FUNDING

The authors received no financial support for the research, authorship, and/or publication of this article.

ORCID iD

Adhi Susano https://orcid.org/0000-0002-3282-9222
Khasanah https://orcid.org/0000-0002-2336-9658

REFERENCES

[1] Adzharuddin, N. A., & Ling, L. H., "Learning Management System (LMS) among University Students : Does It Work ?" *International Journal of E-Education, e-Business, e-Management and e-Learning*, *Vol. 3*, *No*(January 2013), 248–253. https://doi.org/10.7763/IJEEEE.2013.V3. pp.233
[2] DELONE WH and MCLEAN ER "Information systems success: the quest for the dependent variable". Information Systems Research 3(1), 1992, pp. 60–95
[3] DELONE WH and MCLEAN ER"The DeLone and McLean model of information systems success: a ten-year update". Journal of Management Information Systems 19(4), 2003, pp. 9–30.
[4] Gurtubay, I. G., & Manan, N. A. (2020). "Learning Management System (LMS) Based On Moodle To Improve Students Learning Activity Learning Management System (LMS) Based On Moodle To Improve Students Learning Activity". *Journal of Physics: Conference Series*. https://doi.org/10.1088/1742-6596/1462/1/012067, 2020
[5] N. N. M. Kasim, F. K. (2016). "Choosing the Right Learning Management System (LMS) for the Higher Education Institution Context : A Systematic Review". *IJET – Volume 11, Issue 6, 2016*, *Volume 11*(July), https://doi.org/10.3991/ijet.v11i06.5644, 2016, pp. 55-61
[6] Rahman, K. A., Aswani, S., Ghazali, M., & Ismail, M. N. "The Effectiveness of Learning Management System (LMS) Case Study at Open University Malaysia (OUM), Kota Bharu Campus". *Journal of Emerging Trends in Computing and Information Sciences*, *2*(2), 2010, pp. 73–79.
[7] Raza, S. A., Qazi, W., Akram, K., & Salam, J. "Social Isolation and Acceptance of the Learning Management System (LMS) in the time of COVID-19 Pandemic : An Expansion of the UTAUT Model". *Journal of Educational Computing Research*, *Vol. 59(2)*, 2021, pp. 183–208. https://doi.org/10.1177/0735633120960421
[8] Rhode, J., Richter, S., Gowen, P., Miller, T., & Wills, C. (n.d.). "Understanding Faculty Use of the Learning Management System. *Understanding Faculty Use of the Learning Management System"*, pp. 68–86. https://doi.org/10.24059/olj.v
[9] Saputro, B., & Susilowati, A. T. R. I. "Effectiveness of Learning Management System (LMS) on In-Network Learning System (SPADA) Based on Scientific". *Journal for the Education of Gifted Young Scientists*, *7*(September), 2019, pp. 481–498.\
[10] Sejzi, A. A., & Aris, B."Learning Management System (LMS) and Learning Content Management System (LCMS) at Virtual University". *2 Nd International Seminar on Quality and Affordable Education (ISQAE 2013)Nd International Seminar on Quality and Affordable Education (ISQAE 2013)*, pp. 216–220.
[11] Tawalbeh, T. I. "EFL Instructors ' Perceptions of Blackboard Learning Management System (LMS) at University Level. *English Language Teaching";*, *11*(1), 2018, pp. 1–9. https://doi.org/10.5539/elt.v11n1p1

International Journal of Social Science (IJSS)
Vol.2 Issue.1 June 2022, pp: 1125-1132
ISSN: 2798-3463 (Printed) | 2798-4079 (Online)

THIS PAGE HAS INTENTIONALLY BEEN LEFT BLANK