Perception Of Learning Management System Among Distance Learners In Saudi Universities

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Abstract: Continuous formal education is critical for distant learners to maintain and enhance their knowledge along with learning experience in order to meet the demands of today's world. This research examines the key variables that influence the usage of Learning Management System (LMS) and assesses the model's suitability for application in the area of DL (Distance Learning), notably in higher education.The study was conducted among higher education students who were given DL guidelines.This study has used a questionnaire that was adapted based on the literature to examine 3groups of dimensions;Systemdesign (service quality, system quality, usefulness information quality, and ease of use), system usage(system use, user satisfaction andbehavioural intention to use) and System Outcome (net benefit).Using reviewdata from DL students (N=200), the route

analysis found that the system's design has a substantial impact on user intention and satisfaction to utilize the LMS, which impacts the system's utilization. As a result, the satisfaction of the user and the system being used have a significant influence on the netgain.

1. INTRODUCTION

One significant innovative technology to expand teaching and learning in the 21st century mostly in Distance Education is e-learning. E-learning involves the delivery of information through the internet (Santy & Smith, 2007). It entails studying with the assistance of ICT technology, although it is not yet a complete replacement for traditional learning methods (Behera, 2013).In this 21st century, e-learning has experienced monumental growth as some institutions have separate online campuses in addition to the existing face-to-face campus. The use of software,CD-ROMs, the internet, online learning, or any other electronic or interactive media to transmit information is referred to as e-learning (Nagarajan & Jiji, 2010). Students and teachers from all over the world could add to and participate in the learning activities, and a wide range of educational possibilities could be shared and retrieved at any time.Through e-learning, both lecturers and students benefit from a streamlined learning process using Open-Source Learning Management System (LMS) because of its low cost of the application with many features and attainment (Indonesia, 2014; Ololube, 2014).

Course management systems, e-learning courseware, and virtual learning environments are all terms used in the literature to describe LMS (Moore, Dickson-Deane, & Galyen, 2011).The LMS helps students and lecturers by facilitating an alternative way to learn, communicate and save time as well as making e-learning content easier to be accessed,(Ajijola, Ogunlade, Aladesusi, & Olumorin, 2021). LMS is an online digital environment that lets tutors and students communicate information while also offering access to content and administrative capabilities for individual courses in a unified environment (White & Larusson, 2010). LMS is a complete system that simplifies an organization's needs for both clients and employees (Obadara, 2014). Organizations that use LMS, according to Obadara, have a central location to keep course material online for access by specific users.LMS usage serves as a medium to stimulate the pedagogical process by blending traditional learning practice and online learning environments (Alghamdi & Bayaga, 2016).

Course management tools, online group discussion as well as conversation, assignment collecting and grading, documentation, course assessment tracking, and reporting of classroom or course occurrences are some of the tools and functions used by LMS.Moodle is an example of such LMSs. MOODLE, that is Modular Object-Oriented Dynamic Learning Environment was established at Curtin University in Western Australia by Martin Dougiamas(Kennedy, 2005; Singh, Mangalaraj, &

Taneja, 2010; Smart & Cappel, 2006). Moodle comprises features that can be understood from the six classified main factors, they are Course and Curriculum Design, Administrator Tools, and Instructor Tools(Momani, 2010). However, it is obvious that the expectation of distance learners towards the use of LMS has now increased anxieties for such concern in certain parts of the country for example, in South-west, Nigeria. For the relevance of LMS within an education context, undergraduates' apparent utility, perceived simplicity of use, attitude, and utilization of LMS must be investigated. When compared to someone who does not find a technology beneficial, the person who finds it useful will utilize it more(Ibrahim, Noraidah, & Mustasem, 2011).

Universities in Saudi Arabia have joined the growing trend of utilizing DL (Aljaber, 2018). Unfortunately, present DL systems still have a lot of flaws and could use some improvements. One of the key benefits of employing DL education in "Saudi Arabian" institutions is that it allows females to participate effectively in the higher education system (Aljabre, 2012). The author in (Alsmadi, 2020) investigated the elements that influence the adoption of LMS and assessed the model's suitability for use in the area of DL, notably in higher education.

For a variety of reasons, it is important to upgrade Saudi Arabia's current DL systems. The most important cause is the rising enrollment in various educational programs, particularly among women (Aljabre, 2012). Of course, both traditional education systems and the DL approach should be used. Al-Sultan conducted a study that revealed rising student enrollment and the number of students who refused higher education. According to the report, when 70000 students graduated in 1993, 2000 students were actually not able to continue their education. Thoughit was more than 200000 students, who were graduated in 2003, and about 12000 students were incapable to continue their studies(Altowajry, 2005). As a consequence of the study's findings, it was determined that the relation of higher education graduates to high school graduates is increasing, implying that the problem requires more attention (Altowajry, 2005).

King Faisal University in Al-Hasaa, King Abdulaziz University (KAU) in Jeddah,and "King Saud University" (KSU) in Riyadh are a few instances of universities in Saudi that have used the DL strategy (KFU). The DL systems used to be based on hardcopied materials. The students received these documents with the help of standard mail methods. The goal of the DL programs at the 3 universities is to use, integrate, and teach students as well as staff in the new DL technologies (Aljabre, 2012; Behera, 2013). Deanships of DL and E-learning were set up in each of the three institutions to support DL's principal purpose and mission. KAU created the deanship in 2006, while KSU and KFU founded their deanships in 2010. According to the three universities' websites, the DL program is in charge of providing pupils with online training materials and resources. The notion of virtual classrooms was implemented in their curriculum. The IAU "(Imam Abdulrahman Bin Faisal University")") established its own DL and e-learning deanship in 2012 and launched its first curricula in the sector (Aljabre, 2012; Alsmadi, 2020).

Our goal with this project is to create an efficient LMS for remote learning teaching that may be used by administrators, professors, and students. Creating a good LMS is pointless when the technology's adoption is still limited and the success elements remain unknown. Before this, the success criteria and acceptance of LMS use among stakeholders were investigated, which led to the development of an ETM ("Educational Technology Model"). As a result, the goal of this project is to create and test the validity of an ETM that may be usedto evaluate or construct an LMS.

2. Construction of Educational Technology Model (ETM)

The research model was developed by comparing the DL and ML IS success model with the TAM model. The TAM approach determines the genuine use of a system by assessing user behavior utilizing statedusefulness and simplicity of use as major factors in the dimension.

This study demonstrates the importance of analyzing the performance of DL&MS from the perspective of information systems in general as well as the perspective of educational technology particularly. Many studiesconcludedthat ETM(figure 1) is the most effective modelin predicting the acceptance of technology(I. A. Almarashdeh, Sahari, Zin, & Alsmadi, 2010; Alsmadi, 2020).
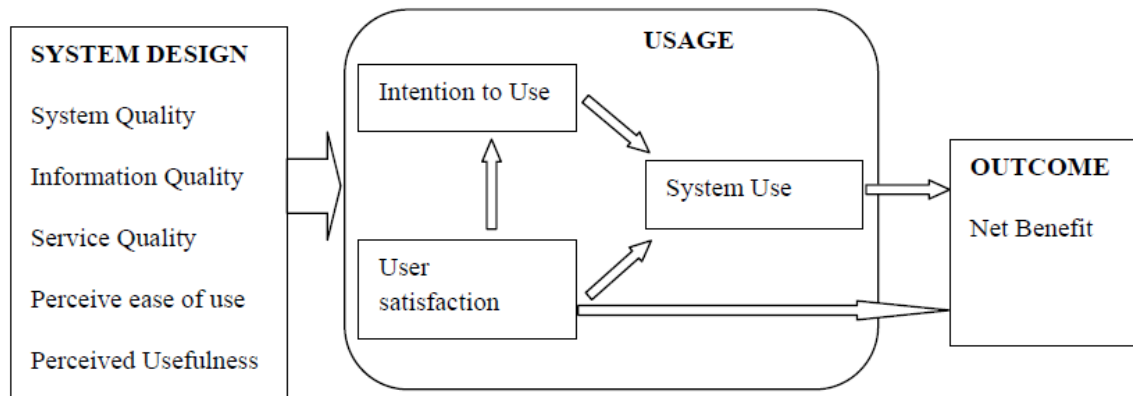

Figure 1: The primary elements of the proposed ETM(I. A. Almarashdeh et al., 2010; Alsmadi, 2020).

3. Research Methodology

The study's goal is to validate the exceptedeffectiveness of ETM by looking at how successful Saudi students are at using LMS. Saudi Electronic University Arab Open University, King Abdulaziz University, "University of Imam Muhammad bin Saud", King Faisal University, and the Imam Abdulrahman Bin Faisal University conducted a study on 200 students from six Saudi universities who utilize the LMS platform and are enrolled in the DL program. The researchers employed a survey technique, and feedback questionnaires were distributed to all students enrolled in the DL part at those six Saudi universities. The feedback form is on the basis ofqueries raised by previous studiesand investigators, as well as points raised in the literature about

ETM dimensions. The investigator sought to go with specific items with LMS worries to determine if the result of this investigation is consistentwith previous literature. Things are graded on a five-point Likert scale from strongly agree to disagree. The questionnaire was completed in roughly 15 minutes by the respondents. Respondents were ensuredthat their answers might be kept private. The investigatorsused SPSS ("Statistical Package for the Social Sciences") 17.0 to examine the data and evaluate theories using AMOS 18, as well as to determine model match using the SEM ("Structural Equation Model").

Questionnaire amendment, pre-testing, and content validity were all used to determine the instrument's validity. Two critics even weighed in on the questionnaire's design and content. Professors from the University of Imam Muhammad bin Saud,Saudi Electronic University Arab open university, King Abdulaziz University, King Faisal University as well asthe "Imam Abdulrahman Bin Faisal University"are among the detractors. The researchers next conduct a consistency test for each concept to assess the measures' usefulness as well asreliability. Table 1 shows highreliability of each construct as mentioned by (Sekaran & Bougie, 2016).

Table 1: Cronbach's Alpha.

Item Reliability	Item Reliability
Perceived usefulness	0.901
Service quality	0.887
Perceived ease of use	0.881
System quality	0.922
User satisfaction	0.856
System use	0.971
Intention to use	0.842
Information quality	0.901
Net benefit	0.812

4. DEMOGRAPHIC INFORMATION

The background information is summarized in Table 2. It's worth noting that 51% of the participants are female, while 49% are male. The majority of the responders were between the ages of twenty and forty. Approximately 19% of those polled have used a computer over ten years, with the majority having used one for more than a year. LMS has been used by majorityof them for over a year.

Table 2: Demographic Information.

Gender	Frequency	Percent

Male	98	49
Female	102	51
Age	**Frequency**	**Percent**
20-24	110	55
25-29	42	21
30-40	36	18
41-50	10	5
Over 50	2	1
Computer Usage	**Frequency**	**Percent**
less than 1 year	20	10
1-3 year	50	25
3-7 years	45	22.5
7-10 years	47	23.5
more than 10 years	38	19
LMS Usage	**Frequency**	**Percent**
less than 1 year	62	31
1-3 year	71	35.5
3-7 years	55	27.5
7-10 years	9	4.5
more than 10 years	3	1.5
Total	**200**	**100**

5. MEASURE OF FIT

The IS success model as well as the attributes of the technology acceptance model are included in the proposed research model. The model has four endogenous variables (NB,BI, SAT, andUSE) and five external or detectedvariables (SVQ, PU, PEU, SYQ, INQ). Throughout the rest of this study, the model is referred to as the ETM after it has been modified and tested.Table 3 reveals the measures of fit.

Table 3: The used Fit Measures

Fit Measures	Standards Fit	Model Fit
CMIN/Df	A value close to 1 and not exceeding 3 indicates a good fit.	2.770
P Value	A P value greater than 0.05 indicates an acceptable fit.	0.025
RMSEA	A value should not greater than 0.1	0.510
TLI	A value close to 1 indicates a very good fit.	0.990
CFI	A value close to 1 indicates a very good fit.	0.991

GFI	A value always less than or equal to 1 indicates a perfect fit.	0.982
AGFI	A value always less than or equal to1 indicates a perfect fit.	0.958
RMR	RMR of less than .05 indicates a perfect fit.	0.019
IFI	IFI values close to 1 indicate a very good fit.	0.991
RFI	RFI values close to 1 indicate a very good fit.	0.981
NFI	TLI values close to 1 indicate a very good fit.	0.989

The CFA is carried out with the help of the AMOS 18 SEM tool. The CFA's goal is to create a structural model that organizes the tested measures into separate builds by restricting every measure'sinconsistency to the hidden build itshould depict. Furthermore,the CFA also analyses the split of constructs by examining the appropriateness in the overall model to estimate the extent to which each measure contributes to its dormant concept.

6. HYPOTHESES TESTING

Structural equation modeling is well suitablefor testing many hypotheses simultaneously in the form of a model with a significant level of 0.05. It is, nonetheless, beneficial to display these hypotheses and reflect on each one independently.

The hypotheses that describe the relationship between the dependent variable (SAT, BI,) and the independent variables (SyQ, PEU, InQ, SvQ, PU) are relevant, ignoring the relationship between BI and InQ, as shown in Table 4. It shows that PEU, SvQ, InQ, PU, SyQ, and PEU, SvQ, SyQ, have a significant impact on SAT, PU, and PEU, SyQ, SvQ, have a little impact on BI. It even demonstrates that the SAT is linked to NB, USE, and BI in a significant way. However, BI has a strong link to USE, and USE has a significant impact on NB. In the model, there is sufficient confirmation of a causal connectionbetween dependent & independent variables, which aids the endeavor to understand the dynamics between the constructs. PEU &PU areassociated, as anticipatedin the hypothetical task, according to the studies.

Table 4: Hypotheses of the ETM

No.	**Hypotheses**		**Reference**	**Effect**	**β**	Sig
1	PU	SAT	Matti,2009; Alhelalat et al. 2008	Supported	0.253	***
2	SvQ	SAT	DeLone& McLean, 2003	Supported	0.253	***

3	InQ	SAT	DeLone& McLean, 2003	Supported	0.237	***
4	SyQ	SAT	DeLone& McLean, 2003	Supported	0.254	***
5	PEU	SAT	Matti,2009; Alhelalat et al. 2008	Supported	0.082	.033
6	PEU	BI	Davis, 1989;	Supported	0.123	.022
7	PU	BI	Davis, 1989;	Supported	0.384	***
8	SvQ	BI	DeLone& McLean, 2003	Supported	0.121	.007
9	InQ	BI	DeLone& McLean, 2003	Not Supported	-0.167	***
10	SyQ	BI	DeLone& McLean, 2003	Supported	0.151	***
11	SAT	BI	DeLone& McLean, 2003	Supported	0.343	***
12	BI	USE	Davis, 1989; DeLone& McLean, 2003	Supported	0.143	.043
13	SAT	USE	DeLone& McLean, 2003	Supported	0.143	.043
14	SAT	NB	DeLone& McLean, 2003	Supported	0.481	***
15	USE	NB	DeLone& McLean, 2003	Supported	0.37	.004

Because of the higher implementation phase and ongoing use of knowledge, the foundation for such a connection in the associations is achievable. As a result, the "AMOS Modification" Indexes 18 recommends that the independent variables be associated; the independent variables correlation result is shown in Table 5. The TAM independent variables as well as the ML &DL quality dimensions have a strong substantial association, according to this study. This conclusion is supported byrecommendation of(Sharkey, Scott, & Acton, 2010)to seeinto the interdependency of the variables of success &quality,as well as the relationshipsbetween them. A correlation study of the independent variables in Table 5 demonstrates a positive relationship in ETM (such as system quality, service quality, information quality, perceivedutility, andperceived simplicity of usage). All construct exhibits more diversity with their own set of indications than with constructions that represent a wide range of indications.

Table 5: Associations between IndependentVariables.

	Estimate
SvQ<-->SyQ	0.710
PU <-->SvQ	0.636
InQ<--> PEU	0.475
SyQ<--> PEU	0.494
PU <-->InQ	0.596
SvQ<--> PEU	0.561
SvQ<-->InQ	0.759
PU <--> PEU	0.793
PU <-->SyQ	0.549
InQ<-->SyQ	0.627

7. Discussion

The evaluation of the LMS (Learning Management System) is necessary to ensure that it is being used effectively and has a beneficial impact on the dissemination of DLs. Many institutes recognize how simple it is to get started with a commercial LMS, but they run into numerouschallenges, such as suitability for pricing, target users, linguistics, and assessment tools. A review of the LMS evaluationstudy revealed that the current system needs to be upgraded. To meet this need, the most recent framework for assessing IS in educational settings has been launched. After analyzing the present outcomes of acceptance surveys and IS success, the proposed ETM framework with three elements was created. The ETM is based on previous IS evaluation models, particularly the IS Achievement model as well as TAM. The authors combine the initiative of fit between the quality of technology design, use, and net gain (system outcome).

The approach of the review technique is summarized in this study utilizing data from distance learners 200 (N=200)and SEM ("Structural Equation Modeling") analysis. The study's major conclusionsare the detectionof the elements that influence the success and utilization of educational technology systems. We create a measurement model based on these factors to validate the relationships between TAM and IS success factors.

The user requirements have evolved as a result of technological advancements. As a result, more LMS modifications and improvements are required from time to time (I. Almarashdeh, Elias, Sahari, & Zain, 2013) to match the requirements and

needs of users. The suggested prototype system was created in response to the needs of administrators, instructors, and students at the proposed LMS (DL institutions). This project added 12 capabilities to the existing LMS that were requested by proposed LMS users. The prototyping system focused on the valuable and essential attributes by distance learners like:

1. Statistical report
2. Matrials-sharing system
3. Chat room
4. Discussion forum
5. Plagiarism detection
6. Experience-sharing system
7. Online surveys.
8. Templates (such asLabs and Graduation project templates)
9. Social networks.
10. System appointment
11. Tools for publishing learners
12. Video conversation.

Depending on the requirement of DL users, these features were integrated into the current LMS.These features will be considered in the future deployment of LMS in KSA. Future research may take into account other factors such as user preference, perceived risk, and perceived trust to measurer the success of LMS in the Saudi context or a different country.

8. Conclusion

This study validated and developed a model for instructional technology success. We develop three measures in system utilization, five measures in system design quality as well as a net gain in system outcome as instructional technological success factors using LMS as a hypothetical background. The paradigm is well supported by the experiential outcome. Almost all theorized associationswere observed to besubstantial. To influence the net gain, the present LMS study considers success aspects such as behavioral intent to use, information quality, system information service, usefulness and convenience of use, system utilization, and user contentment. As a result, the developed ETM takes into account causal effects as well as the interrelationships between the measure's three main components: system design, system usageas well assystem outcome (net profits). All other components of system design except for information quality havea direct effect on the usage's behavioral intent.

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