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Factors Affecting University Lecturers' Adoption of Learning Management System (LMS) in Kurdistan Region of Iraq: A Conceptual Framework

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Abstract--- *Purpose of the study: This paper presents a conceptual framework underlying research on factors affecting LMS adoption in the Kurdistan Region universities. Although LMS has been widely adopted in universities worldwide, unfortunately, the adoption is still low in the Kurdistan Region universities. Methodology: This paper reviewed relevant literature related to the subject to determine the most significant factors influencing the LMS adoption. More specifically, four factors (organizational, social, individual, and technological) selected that might be valid for the study context. This study used Technology Accepting Model as the primary theory with the combination of the IS Success Model. Main Findings: This conceptual paper provides insights of variables related to factors affecting on LMS adoption. The main finding of the study show that organizational factors (facilitating condition, top management support, and top management policy), social factor (only subjective norm), individual factors (resistance to change and self-efficiency) and technological factors (service quality and system quality) might have significant link with preserve of use, preserve of usefulness and actual use of learning management system. Another finding of this study predicted that the actual use of LMS might significantly affect the net benefit (improving lecturers' and universities' performance). Applications of this study: This study proposed a conceptual research framework expected to guide KRI university leaders in understanding the most significant factors that must be addressed to adopt LMS among lecturers. Furthermore, understanding those factors might be useful for decision-makers in the Ministry of Higher Education in KRI to achieve Ministry's pedagogical strategy, modifying from lecturer-centered to student-centered pedagogy. Novelty/Originality of this study: No study has done before on the lecturer's influence in LMS adoption in higher education in the Kurdistan Region of Iraq.*

Keywords: *Lecturer's adoption; Learning Management system; DeLone& McLean IS Success Model; Technology Accepting Model; Kurdistan Region of Iraq.*

I. INTRODUCTION

Learning Management System is an application that provides an extensive set of tools for faculty members to manage the learning process outside and inside the lecture hall. In the LMS, some vital facilities such as wiki, chat,

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forum, downloading, and uploading documents, e-portfolio, and teamwork have been employed [29]. LMS has masses of remarkable features such as quizzes, online video tutorials, plagiarism checking, interim assessments, and group discussions.LMS is provided beneficial in an organizational setting, with many educational institutions are taking the opportunity to increase the usage of LMS [37]. Most of the universities around the world deployed LMS [2]. The purpose behind deploying LMS is enabling the student to access learning content and to promote student's engagement. Almost all the universities in the United States of America, Canada, and the United Kingdom utilizing the Learning Management System. According to the report by EDUCAUSE, 99% of universities in the USA have adopted LMS as well as the same rate exists in the universities in the United Kingdom[23]. According to the Canadian technical report, 97% of universities in Canada are using LMS in their provided courses[28]. In most of the Arab Gulf countries, LMS is typical among lecturers and students [64]. Almost all of the universities in Saudi Arabia are adopting Blackboard [62, 63], While universities in Kuwait and Bahrain are adopting Moodle as a course management system [14,6].

LMS, a valuable educational technology system, is partially utilized in almost all universities in Kurdistan Region [31]. Radif (2016) investigates that the Lecturer's adoption on LMS is still low, and unfortunately, many lecturers have not been using LMS until now due to political, socio-economical, and financial reasons. For instance, most universities of the Kurdistan Region steal follow the traditional face-to-face teaching style [12].Specifically, no research has been done before about LMS adoption among lecturers, particularly in Kurdistan Region. This paper is the first conceptual paper addressing the factors influencing LMS adoption among lecturers in KRI universities.

II. PROBLEM STATEMENTS

Nowadays, students in universities in Kurdistan Region have changed radically. Even from the global perspective, students are no longer like the teaching method designed for their academicians to teach [8]. The majority of students today are 'digital natives' [48], an adverse range of digital devices are readily available to them, and they have a high reliance on them. Therefore, using technology in teaching has become a student's demand rather than an option. To enhance this demand, universities in KRI should adopt LMS and used it in their teaching method.

The printed lecturers' notes and textbook is no longer the single learning tool available in modern learning environments [8]. While, in the Kurdistan region, the printed textbook and lecturers' notes are using by the students as the main learning tool until now [4]. A vast amount of money spent on printing papers and lecturers' notebooks; however, it also hurts the environment. Today, LMS is said to be an alternative to the traditional teaching methods. LMS is seen as one of the initiatives of improvement and strengthens of the education system [55].

Many universities in Iraq and Kurdistan region, in particular, failed in adopting LMS [52]. The main reason for the implementing failure was the lack of assessment of university readiness for LMS [4]. Universities should evaluate their readiness for adopting LMS to detect any weaknesses that could be enhanced by the users. The assessment process should be initiated at the outset of the project to avoid potential risks in the latter stages, hopefully. Appropriate questions should be asked to measure and examine the preparedness of the university before

forcing academicians to adopt LMS [4]. To sum up, without proper readiness, the project would be more likely to fail or face intensive challenges.

The success of an LMS implementation and adoption in any organization or business depends on commitment from their human capital [55]. If the lecturers do not take the time to upload the learning contents and using LMS actively, the students will most likely avoid using it as well [48]. Besides, getting teachers to commit to changing the way they teach in order to incorporate an LMS into their courses takes time [20]. Nasser et al., (2011) suggests that academician commitment is driving forces behind LMS use, if the LMS is available, but does not identify how academicians are motivated to use LMSs, it can be considered as a barrier of LMS usage.

III. LITERATURE REVIEW

A. Learning Management System

Before defining LMS, firstly, it is better to know what eLearning is. The term eLearning refers to technological systems that provide individual access to education via the internet [37]. The term eLearning system is comprehensive; for that reason, it may cover any software program that provides education through the utilization of the internet, such as a learning management system (Martin-Blas et al., 2009). For instance, LMS can be defined as a software program that is composed of various features, allowing the faculty members to create, manage, and organize course content [20].Hussein (2011) [34], described LMS as software intended to manage education processes and activities. LMS is a collection of many useful characteristics that facilitate faculty member's jobs to meet their teaching objectives [15]. According to Kabassi et al. (2016), LMS consist of three useful tools:

- Communication tools: those tools enhance lecturers and students to discuss academic issues online, such as announcements and discussion boards.
- Content tools: LMS can manage, store, and modifying learning content such as uploading files, links to other sources, and learning objects.
- Assessment tools: those tools help lectures in their jobs such as tests, quizzes assignment submission, exams, and grading.

Nowadays, there are many types of LMS used by universities for educational purposes. Most of the universities choose an LMS based on their budget [3, 21]. Generally, there are two common types of LMSs, which are open sources and commercials. Because of financial limitations, most of the universities in developing countries, especially in Iraq, choose open sources, to avoid the cost of LMS [8,39]. Moodle is the famous example of open-source LMS that is free of charge [30. 42]. On the other hand, commercial LMS is more expensive than open sources, as well as, and commercial LMS provides better technical support than open-source LMS [19]. Commercial LMS requires the purchase of a license for each user annually [39]. Blackboard, Desire2learn, Caves, and Success Factors are the most popular commercial LMSs around the world. It has been empirically investigated by [23] that LMSs are usefulness. One of the best actual advantages is that LMS enhances students to overcome the physical and time obstacles of traditional learning [43, 59].Studies of [20, 38,10,56] addressed various advantages of LMS:

- LMS provides all the learning items centralized in one drive.

- LMS support pedagogical and instructional strategy such as student-centered approach.
- LMS are useful in storing and archiving academic material
- LMS assists the faculty members in assessing student's performance.

B. Lecturers' Adoption of LMS in the Kurdistan Region

The essential factor of successfully adopting LMS in the universities is the lecturer's acceptance as they are considered as the primary stakeholder [14]. If lecturers are not willing to use LMS directly, it will affect the student's use. Lecturers in the Kurdistan Region have to change their classical method of teaching in order to adapt and use a creative educational technology system [36]. It has been stated by Al-alak and Alnaws (2011) [7] that lecturers should undertake skills and train well so as to accept the use of LMS. Firstly, lecturers have to be aware of the complexity of the system by training them well. Sometimes, lecturers may reject to adopt the use of the new technology system. Then factors hindering lecturers' use and acceptance of LMS must be clarified and exposed in order to be sure about the excellent performance and result of implementing LMS as an instructional education in higher education [22].

The Higher Education policy makers in KRI struggles to modify the current classical pedagogy to modern world pedagogy. This change requires support from using educational technology to achieve this strategy, such as LMS, to implement targeted pedagogy. It has been emphasized by Motschnig-Pitrik and Holzinger (2002) [47] that technology systems such as learning management systems are appropriate for a student-centered approach. Therefore, the first step to achieving this strategy is to use the technique of LMS. As mentioned before, LMS has features such as board discussion in which students can participate their idea with each other [19].

C. Technology Acceptance Model (TAM)

This theory proposed by Davis (1989) [24] established on the theory of Reasoned Action (TRA), has been described as a credible model for assisting the evaluation of various technology systems. It has been considered as the critical model for knowing about the predictors of human behavior toward technology adoption. In eLearning adoption literature, TAM is the furthermost common ground theory. The study of Mokhtar (2018) recommended farther research on external variables affecting the perceived usefulness and perceived ease of use. It argued by studies [54] that it is insufficient to use the only TAM by itself to explain all relationship between technology system and adoption behaviors of its user meanwhile, TAM only consists of explanatory factors of perceived usefulness and perceived ease of use [32]. However, the two main variables of TAM do not fully reflect factors that able to encourage people's adoption of a technology system. Therefore, to develop a conceptual framework model, many researchers combine TAM with the other models, such as DeLone& McLean IS Success Model.

D. Delone& McLean IS Success Model

Delone and McLean (1992) [25] introduced the information system success model, which involved six information system success magnitudes. Those dimensions are "an organizational impact, user satisfaction, individual impact, system use, information quality, and system quality" [26]. All of these sets of the model are not considered as independent variables, but generally, they are dependent variables [26]. DeLone and McLean, after ten

years, extended the Model again by involving intention to use, service quality, and net benefit as new attributes [23]. It has been introduced by DeLone and McLean (2003) that net benefit is referred to as the profit acquired form a particular technology system adoption. The model verbalizes basic interdependencies among the variables, as well as, the model grants a structure for assigning the sum of Information system success factors into a category that has been mentioned in the previous study [1].

E. Proposed Research Conceptual Model

Many scholars used a variety of theories and models to examine LMS adoption [5,18]. They expose empirical support for studies on educational technology adoption. The proposed conceptual model of this paper depends on the TAM, and DeLone& McLean IS Success Model, as revealed in Figure 1. This conceptual paper grouped variety constructs into main dimensions. In the first dimension, the user believes mainly developed based on the TAM consists of three factors; perceived usefulness, perceived ease of use, and actual use. The next dimension consists of organizational, social, individual, and technological factors. Organization factors consist of facilitating condition, top management support, and top management policy beside that social factors includes only subject norm. Individual factors include resistance to change and computer knowledge. Technology factors adopted from Delone& McLean IS Success Model includes system quality and service quality. All of these factors formulated to be external factors for TAM. The net Benefit of the actual use of LMS is the last dimension took from Delone& McLean IS Success Model. The purpose behind using those collections of factors is to gather factors that present a significant impression on the LMS intention use, through perceive of use and perceive usefulness in the previous literature.

It has been emphasized that those factors have significantly related to the lecturer's intention to use LMS. Lecturers have deferent personality traits, and each university has its own organizational and social context, which is different from the others. Therefore, a variety of theories and models integrated to formulate a model to fit within the specific context. This study applies the most important factors confirmed in the related studies that might fit in the framework of higher education of KRI. It has been recognized that in developing countries, most of the researches are concentrates on an individual's behavior [57].

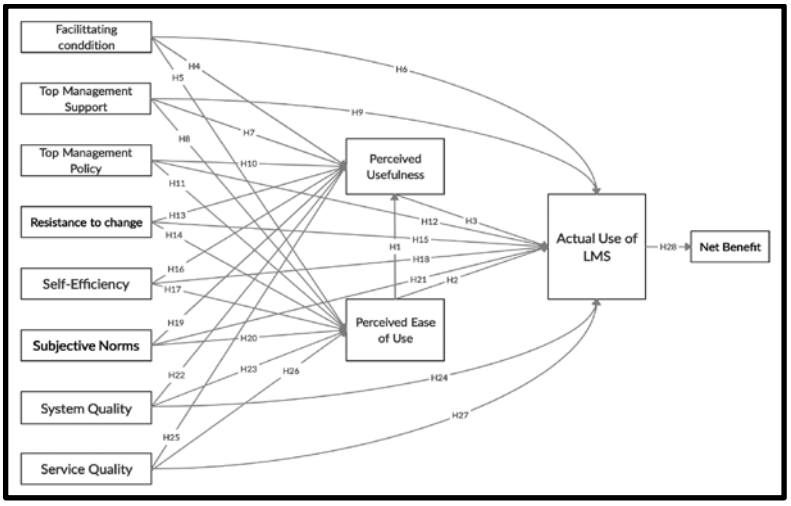

Figure 1: Proposed conceptual framework model

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IV. FACTORS OF LMS ADOPTION

A. User Believe Factors

The main dimension stares at the emotional observation of the person regarding system performance and individual trust that LMS usage will have future job benefits [22]. This dimension, created on the TAM, contains of perceive usefulness (PU), perceive ease of use (PEOU), and actual use. The study proposed that PU have a positive direct impact on the actual use as lecturers will be gland to use LMS if they believe that the system is useful. Many researchers provided evidence that PEOU has a direct influence on the actual use. Perceived usefulness from the lecturer's perspectives possibly will affect their action on the road to adopting LMS [11]. It has been stated that users may reject learning new technology systems because of the difficulty of the new system [51]. As a result, PEOU in LMS might influence the intention of lecturers in KRI to accept LMS. Hence, the following hypothesizes formulated:

- *H1: Perceive ease of use has a positive influence on the perceive usefulness of LMS among university lecturers in KRI*
- *H2: Perceive ease of use has a positive influence on the actual use of LMS among university lecturers in KRI*
- *H3: Perceive usefulness has a positive influence on the actual use of LMS among university lecturers in KRI*

B. Organizational factors

Facilitating conditions

It has been defined by [68] that facilitating condition is the degree to which lecturer considers that university and technical staff exists to sustenance the use of the system. Shihi and Al-Busaidiproposed that facilitating conditions have a direct relation with PEOU and PU of LMS, as same as with the actual use [9]. So the following hypothesis projected:

- *H4: Facilitating conditions have a positive impression on the PU of LMS among university lecturers in KRI*
- *H5: Facilitating conditions have a positive impression on PEOU of LMS among university lecturers in KRI*
- *H6: Facilitating conditions have a positive impression on the actual use of LMS among university lecturers in KRI*

Top Management Support

Top management able to motivate and help lecturers to accept the technology system implemented in the university [27]. Venkatesh and Bala state that when employees expect that there is an existence of organizational support, they are expected to accept the new technology provided by the organization [60]. Li et al. (2019) stated that PU and PEOU linked with management support. LMS can be accepted by lecturers who consider that they have support from top management. That means it will positively affect the adoption of LMS [53]. Therefore, the following hypothesis formulated:

- *H7: Top Management support has a positive impact on the PU of LMS among university lecturers in KRI*
- *H8: Top Management support has a positive impact on the PEOU of LMS among university lecturers in KRI*
- *H9: Top Management support has a positive impact on the actual use of LMS among university lecturers in KRI*

Top Management Policy

Top management policy in this paperstates to the degree to which lecturers believe that the policy of technology practice transmitted by the organization leader is useful [67]. Some studies examine the effect of a policy that leads to technology utilization. Gurbaxani et al. (1990) [33] founded that coordinating roles and regulations regarding information technology development drove organizations in Singapore the adoption of technology utilization among employees. Some programs organized by Austria to provide the teacher with courses tin computer adoption to increase the skills [53]. It has been verified by Zain et al. (2005) that top management policy has a significant effect on the individual's technology adoption in the organization. It exposed that the top management policy had special effects on PU and PEOU. Therefore, this research proposed that Top management policy directly affected PEOU, PU, and Actual use of LMS.

- *H11: Top Management policy has a positive impact on the PU of LMS among university lecturers in KRI*
- *H12: Top Management policy has a positive impact on the PEOU of LMS among university lecturers in KRI*
- *H13: Top Management policy has a positive impact on the actual use of LMS among university lecturers in KRI*

C. Individual Factors

Resistance to change

It has been considered that the main factor that inhibits institutions from totally understanding the benefits of LMS is the user's resistance to change attitude. It is obvious that users might reject a new technology as the organization should be aware of it. Bovey and Hede (2001) [17] mentioned that as a result of employees' rejection to change, many technology projects have failed to progress. It has been founded that instructor's resistance appears to build a negative performance to their adoption of LMS [16]. As a result, the study hypothesized:

- *H14: Lecturers resistance to change have a negative influence on the PU of LMS in universities in KRI*
- *H15: Lecturers resistance to change have a negative influence on the PEOU of LMS in universities in KRI*
- *H16: Lecturers' resistance to change have a negative influence on the actual use of LMS university lecturers in KRI*

Self-efficiency

Compean and Higgins (1995) define Self-efficiency as "The belief that one has the capability to perform a particular behavior" [43, 59]. In the higher education context, it seen lecturers with a lack of knowledge and skills in using the eLearning system would be willing to reject it [44]. The previous study has confirmed the important role of computer Self-efficiency in understanding the lecturer's behavior toward educational technology [40]. It has been proved by Teo (2009) [58] that Self-efficiency has a positive impact on PEOU of LMS. On the other side, Coskuncay (2013) found that PU and anxiety are negatively related. It can be believed that anxiety has a negative influence on the actual use of LMS. That is lead to the study to hypothesize that:

- H17: Self-efficiency has a positive influence on the PU of LMS among university lecturers in KRI
- H18: Self-efficiency has a positive influence on the PEOU of LMS among university lecturers in KRI
- H19: Self-efficiency has a positive influence on the actual use of LMS among university lecturers in KRI

D. Social Factors

Subjective Norms

Subject norm is the only social factor selected in this conceptual paper to assess the influence of others' opinions on the lecturer's decision on the LMS use. It has been concluded by Wang and Wang (2009) [61] that subjective norm is an important factor in LMS acceptance among lecturers. Many studies present that subjective norms have a direct effect link with both PU and Actual system use [40]. It has been examined by Park (2009) [50] that subjective norm has a direct effect on PEOU. Therefore the paper hypothesized that:

- *H20: Subject norm has a positive influence on PU of LMS among university lecturers in KRI*
- *H21: Subject norm has a positive influence on PEOU of LMS among university lecturers in KRI*
- *H22: Subject norm has a positive influence on Actual use of LMS among university lecturers in KRI*

E. Technology Factors

System Quality

System quality defined as “the extent to which their functions help lecturers to conduct teaching activity and facilitate learning”[25]. The good quality system of LMS will create a suitable condition for using it in teaching [45]. It has been proved by Kim (2008) that system quality has a positive influence on the adoption of LMS. Clearly, eLearning systems with higher quality used more than those systems with low quality [35]. According to the finding of Igbaria (1995), that system quality directly affects PU and PEOU of computer usage. So, this research hypothesized that:

- *H23: System quality has a positive influence on the PU of LMS among university lecturers in KRI*
- *H24: System quality has a positive influence on the PEOU of LM among university lecturers in KRI S*
- *H25: System quality has a positive influence on the actual use of LMS among university lecturers in KRI*

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Service Quality

This factor referred to as the existence of channels that help lecturers is in solving LMS problems. Empirical research like [40,49,66] found that technical staff inside the department is important to the adoption of technology systems. This paper indicates technical support as the main indicator of service quality. The studies of Motaghian et al. (2013) [46] states that service quality has a direct influence on PU, PEOU, and Actual use of LMS. So the study hypothesized that:

- *H26: Service quality has a positive influence on the PU of LMS among university lecturers in KRI*
- *H27: Service quality has a positive influence on the PEOU of LMS among university lecturers in KRI*
- *H28: Service quality has a positive influence on the Actual use of LMS among university lecturers in KRI*

Net Benefit

The impact of education technology on university performance has become a vital factor in determining the value of LMS. LMS adoption has recognized by previous literature that the actual adoption of LMS has a significant influence on educational productivity efficiency and effectiveness [1]. The study Alkhateeb (2018) [13] exposed that LMS could save time, improve the lecturer's output, and increase access to information. Learning management system adoption at the university level could improve the teaching quality and lead to university competitive advantage [41]. It has been indicated that LMS usage and adoption in the university will lead to university performance improvement and lecturer's enhancement [65]. Trinided (2019) states that the benefit of the actual use of LMS among lecturers will lead to modify from teacher-centered pedagogy to student-centered pedagogy. So this paper assumed that:

- *H29: Adoption of Learning Management System positively influenced on university performance (Net benefit)in KRI*

V. CONCLUSION

This study proposes a conceptual framework that observes the key factors that have a significant influence on the lecturer's enthusiasm to adopt LMS in the universities in Kurdistan Region. The study proposed an integrated model by joining theories of TAM and D&M IS Success model. The study introduces a multidimensional study constructed on significant factors that proved by previous studies. These factors are believed factors (includes; perceive of use and perceive usefulness) Organizational factors (includes; facilitating condition, Top management), social factors only include subject norms, technology factors (includes; system quality and service quality), lecturer' factors (includes; resistance to change and anxiety) and net benefit. This study recommended a conceptual structure that may deliver useful information for university administrators and policymakers. This research is still in progress; therefore, an practical analysis will be accompanied in the next phase to validate the effect of all related factors, and qualitative examination will also be accompanied to verify the proposed model.

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