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THE ACTUAL USAGE OF LMS TO ADOPT LMS IN EDUCATIONAL INSTITUTES AND INFLUENCING FACTORS ANALYSIS

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ABSTRACT: *Contemporary methods of teaching used in the context of the sector of education has evolved extensively ever since the introduction of the computers in the late 1970s and early 1980s. Information and Communications Technology (ICT) has been the main driver behind this revolution in the field of e learning in educational sector. The adoption of LMS in educational institutes is largely dependent up on the attitude of students and teachers on their perception and efforts in utilisation of LMS in educational context for learning requirements. For the purpose of evaluating the actual usage of LMS among undergraduate students in SACA, descriptive statistic was adopted. Descriptive statistic tests were conducted to identify frequency, percentage, mean and standard deviation of the factors that affect the adoption of LMS among undergraduate students. The findings identified the highest and the lowest mean and standard deviation for each factor and based on the same, research conclusions were drawn that a high number of undergraduate students adopted LMS in SACA.*

KEYWORDS: Usage of LMS , Educational Institutes Factors Analysis, SACA

INTRODUCTION

IT based solutions for teaching methods have taken place of conventional teaching many modernised educational institutes, universities and professional training facilities all around the world. Modernised learning methods and systems which are based on web based features and internet applications have found extensive application and research conducted to identify their key advantages in the field of education and learning in higher institutes. ICT has enhanced the accessibility of study material from anywhere in the world and eliminated the necessity of a student having to be physically present with an educator to facilitate learning (Detschew, 2007). E learning infrastructure has allowed the students to interact with the educator through web based applications and portals through which the learning process is facilitated. A variety of other fundamental advantages, like enhancements in the quality of learning, increase in technological skills and efficiency and increasing the level and duration of interaction of the student and the teacher has led to the success of this particular aspect of ICT to flourish in the field of education and learning. The success of the technology has been so extensive in the recent past that a new variety concept, products and systems has emerged in the pedagogical field such as e learning, virtual class digital contents, knowledge management and web based learning. The learning management system is one such convenient supplication of ICT based learning technology in educational institutes which have shown promising prospects of significantly enhancing the role of teachers and educators through the adoption of the system (Folden, 2012).

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A number of measurable factors can be identified from existing research of which, most of the factors are focused on the mediating effects of individual difference. The adoption of LMS in educational institutes is largely dependent up on the attitude of students and teachers in shifting from a conventional learning method to ICT based learning methods as there exists many universities where the concepts of LMS or ICT based learning methods are still in their infancy. Since the end users of the system of LMS are the teachers and the students mainly, there should be a positive attitude of both in adopting a new system of learning implications and the attitude to practically implement the system efficiently in order to avail the benefits of LMS in educational context. Actual usage models have been critically analysed in various existing studies to which the background review of this research looks up to which aids in identifying and measuring the actual implementation and adoption of e learning platforms, particularly LMS in educational institutes ((Venkatesh et al., 2003). This study aims to identify the actual usage of LMS among undergraduate students at the SACA in Jeddah, Saudi Arabia and a descriptive statistic approach has been adopted to analyse the data.

Problem Statement

Although various e learning platforms are already available and adopted by educational institutes all over the world, the actual usage of the system by the end users namely the students and the educators is a matter of concern and which reflects through demographic illustration the patterns of usage of LMS in educational institutes like SACA. In the this context of analysis of factors responsible for adoption of LMS, behaviour intention plays a major role and has been selected as the fundamental measurable element to identify its mediating effect up on the various influencing factors like performance Expectancy, Effort Expectancy, Facilitating Conditions, Social Influence and Motivation in the adoption of LMS (Selim, 2007). Since the actual usage of LMS can only be identified through evaluating patterns of usage among students reflecting their actual usage of the system, this study becomes critically important in this context and the identification of the highest and the lowest mean and standard deviation through a descriptive statistic tests becomes imminent to answer the fundamental research question which is as follows.

What is the utilization level of learning management system among the student pursuing undergraduate programs?

Learning Management System

A large number of extensive applications have evolved in multiple directions in the field of e learning. The fundamental features of a Learning Management System (LMS) are witnessed in areas like ease of accessibility of information which can be virtually limitless in quantity, the capacity of the system to allow the users to interact seamlessly through ICT based platform implementing the use of software and web-based applications and computer mediated communication (CMC). Incorporating all these features of e learning in a powerful system of software and web-based infrastructure, e learning in the context of its application in educational institutes and corporate sectors through emerging technologies branded as Learning Management Systems (LMS) in general. The system is available under various commercial names like WebCT, Blackboard, Moodle and Lotus Notes to name a few among the most prominent and conventionally used ones (Asiri, 2012).

These systems of learning are also known by other names and concepts pertaining to different fields of educational and corporate sectors applications like Virtual Learning Environments

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(VLE) or Course Management Systems (CMSs). The adoption of these systems as suitable according to the competitive advantage exhibited by every other commercially available LMS and incorporated in the learning system of many educational institutes around the world. They have been fairly successful to emerge in the recent past as one of the most useful learning solutions for students and teachers alike. A learning management system (LMS) is described as a ICT based application which aids in the process of planning, distribution and assessment of a particular learning process. For this, the database of the LMS, archives specific learning course materials and various other study resources which are directed by the educators for the needs of supporting the learning requirements of the students in a constantly connected virtual interaction platform. Hence, through the adoption of the system, student interaction with instructors and consequently the quality of learning is also enhanced (Alias and Zainuddin, 2005).

Models related to the study

Unified Theory of Acceptance and Use of Technology (UTAUT)

The UTAUT Model incorporates eight models of various theories namely Theory of Reasoned Action (TRA), the Theory of planned behaviour (TPB), the Technology Acceptance model (TAM), the Motivational Model (MM), the Hybrid model combining TAM and TPB (C-TAM-TPB), the Model of PC Utilisation (MPCU), the Innovation Diffusion Theory (IDT), and the Social Cognitive Theory (SCT). In order to identify the patterns in numerical and graphical data to understand the actual usage of LMS, this theory played a critical role. It explored the areas of measurement of Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI) and Facilitating Conditions (FC). A number of variables available in each item of measurement allowed for the devisingof the model in alignment of the requirements of the study (Venkatesh and Zhang, 2010).

Motivation Model – ARCS (Attention- Relevance- Confidence Satisfaction)

The fundamental scope of this model is to develop critical understating into the aspect of gaining and maintaining the continuous attention and positive behavioural intention of the student in the learning process. It comprises the four elements of attention, relevance confidence and satisfaction to the learners the measurement of which facilitates the analyses of the final motivation of the student to sustainably keep using the system of LMS in the research location. It is derived from the expectancy value theory established by Tolman and Lewin which identifies the significance of attention, relevance, confidence and satisfaction of the user to keep them motivated continuously (Keller, 2000).

RESEARCH AIM AND METHODOLOGY

The fundamental aim of this research is to identify the actual usage of LMS among undergraduate SACA students and the patterns of influencing factors and LMS in developing the attitude to adopt LMS in educational institutes. Performance expectancy, effort expectancy, social influence, facilitating conditions and motivation were chosen for measurement of identify the patterns in numerical and graphical data through descriptive statistic testing.

A correlational **research design** aided in the analyses of the relationship behaviour intention and the various measurable factors influencing the adoption of LMS and moulding the attitude

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of students to adopt LMS. Data for correlational design was collected using questionnaire based interviews based on correlational survey technique (Churchill Jr and Peter, 1984).

The **location** of the study was identified to be facilitated within the Saudi Academy of Civil Aviation in Jeddah, Saudi Arabia due to the increasing needs of implementing LMS in the infrastructure of the institute conducted amongst a **population** of 269 students categorised under five different departments namely Air Traffic Controllers, Fire and Rescue, Airport Operation and Safety, Aviation Security and Maintenance of Air Navigation System. The **sample size** was calculated using the Raosoft Software and established at 159 students.

The **instrumentation** was primarily selected to be questionnaire based for the requirements of data collection. To incorporate the quantitative analysis and measurement of the factors influencing the factors that affect the adoption of LMS in educational institutes, the questionnaire was divided into four distinct categories (A, B, C and D). Section A consisted of the demographic information of the respondents, the frequency of using LMS and the devices they use. Section B identified the factors that affect student behaviour intention in the adoption and use of LMS namely Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), Facilitating conditions (FC) and Motivation (M) in adopting LMS. The Section C focused up on the quantitative analysis of Behaviour Intention (BI) having a mediating role in learning system adoption. Section D analysed the intensity and level of adoption and utilisation of LMS in terms of Volume and Frequency respectively.

DATA ANALYSIS

Descriptive Statistics was used for the data analysis with the aim of deriving patterns that are associated with the numerical data. Descriptive statistics are fundamentally the initial tests that are carried out for identification of patterns in numerical or graphical data. Descriptive statistics addressed the demographic data and research questions for this particular study. Descriptive analysis in the context of this study was adopted for identifying the mean and standard deviation to decipher patterns in terms of frequency, percentage, mean and standard deviation. This was based on each scale derived from the final results of the CFA. The final procedure in the study was conducted by performing descriptive tests for the factors that have certain level of impact on the utilisation of learning management system in SACA.

FINDINGS OF THE STUDY

Performance Expectancy (PE) – The average value of performance expectancy was found out to be high in the range of 3.50 exhibiting a standard deviation of 0.60. The other elements used in the calculation also analysed returned results in the direction of feasibility of the student to learn various other subjects with the adoption of LMS. Around half of the sample size voted in favour of this item. However, utilisation of LMS In the context of PE was identified at the lowest at 3.50 with a standard deviation of 0.71. The overall attitude was in favour of adoption of LMS.

Effort Expectancy (EE) –The EE has also been noticeably higher in terms of average quantitative analysis and standard deviation value. The highest value has been obtained by the item of being skilled in the adoption and use of LMS in practice exhibiting a value of 0.51 with

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standard deviation of 0.94. The lowest mean was obtained at 0.47 with a standard deviation of 0.90.

Facilitating Conditions (FC) –The quantitative analysis of the data identified FC to exhibiting a highest mean value of 3.36 with a standard deviation of 0.62. Therefore, FC has been identified as one of them most significantly regarded factors by the responding students in influencing the adoption of LMS. In terms of Facilitating Conditions, highest value was obtained by the item of provision of better infrastructure for LMS implementation by the institute obtaining a favourable percentage of 48%. The lowest mean was exhibited at 3.31 with a standard deviation of 0.80.

Social Influence (SI) –The overall average value for the factor of Social Influence (SI) was identified as moderate in nature compared to other factors exhibiting a highest mean value of 3.18 with a standard deviation of 0.77. This exhibits that for the studied sample of students, social influence has very moderate effects on their attitude and perception of adopting LMS. The lowest mean was obtained at 3.13 with a standard deviation of 0.90.

Behavioural Intention (BI) – The association of the favouring of LMS adoption in educational institutes was identified to be higher overall. The highest value has been obtained by the intention of students to attend the training sessions for learning the utilisation of LMS at 3.59 having a standard deviation of 1.04. Following closely was the intention of the sustainable utilisation of LMS which was also higher exhibiting overall favourable analysis of BI in adoption of LMS. The lowest mean was obtained at 3.62 with a standard deviation of 0.93.

DISCUSSION OF FINDINGS

The descriptive statistics used for the identification of frequency, percentage, emand and standard deviation were used to identify the actual use of LMS. findings of the data analysis related with the usage of learning management system for different purposes on the basis of 6 different categories that have been established from NETS are presented, that are; “i) basic operation, ii) research and information influence, iii) communication and collaboration, iv) digital citizenship, v) critical thinking and problem solving and vi) creativity and innovation”. On the basis of the conclusions that has been obtained from the outcomes of CFA it has been established at the level of utilisation of learning management system technology is high, moderate and low. The research question of the level of utilisation of LMS in SACA undergraduate students were answered through the analysis. The graphical representation shows that almost 59% of the undergraduate students have the perception that the utilisation level of learning management system technology in the university is high. This suggests that maximum number of students have already utilised LMS during their undergraduate program.

Practical implications

A number of practical implications have been identified pertaining to the study. For instance, the identified items in Effort expectancy analysis like the frequency of utilisation of the LMS by the students’ aids in the identification of an overall higher utilisation of LMS in the research location. The findings of the study points in the direction of upgrading the LMS infrastructure of the institute justified the increasing positive attitude of students to adopt and utilise LMS.

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Research Limitations

The fundamental limitation of the study is the gender gap as the population of the study only consists of male candidates. Furthermore, due to the selection of an aviation institute in the context of Saudi Arabia, the limited number of similar institutes makes it a unique study. Moreover, t he quantitative analysis focuses primarily up on t he behaviour intentions of learners as such the behaviour intentions of instructors has been arbitrarily discounted in this study.

CONCLUSION

The degree of successful implementation and adoption of Learning Management System (LMS) in educational institutes is largely dependent upon the actual utilisation of the system by the students. This is largely impacted by behavioural intention of the students, the analysis of which lies beyond the scope of this research. A number of international reports have identified the under utilisation of e learning methods and infrastructure in educational sectors like universities and professional training institutes according to reports by UNESCO (Stantchev et al., 2014). A variety of research efforts and scientific analysis papers has contributed to the development of the background of this study and added to clarification of definitions and concepts related to Learning Management Systems (LMS) in educational institutes. The research identifies that a large number of students, almost 59% among the chosen sample of undergraduate SACA students adopted LMS and extensively used it to bear witness to the benefits if LMS as a popular e learning platform.

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