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NURSING STUDENTS UTILIZATION OF LEARNING MANAGEMENT SYSTEMS (LMSs) TOWARDS AN EFFECTIVE LMS UTILIZATION MODEL

*Emy D. Delgado

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Corresponding Author: Emy D. Delgado; Email: edelgado@feu.edu.ph; doi:10.46360/cosmos.ahe.520211003

Abstract

Background and objective: Although LMS is not a completely new concept in the world, it received quick acceptance and has gone through rapid evolution. LMS is the set-up that enables the delivery and management of instructional content, identifying and assessing individual and organizational learning or training goals to track progress towards the meeting of such goals, and also collecting and presenting data for supervising the learning process of an organization as a whole.

Methods and Findings: This study through purposive sampling included the undergraduate nursing students in three selected nursing schools who were enrolled between second semester and summer from 2018 to 2019 and were taking up nursing management courses. This study presents the conceptualized LMS Utilization Model that will cater to the learning needs of both the faculty and nursing students as end-users of LMS, especially CANVAS and MOODLE. This Model includes the areas, gaps, and challenges that need to be addressed.

Conclusion: A structured learning scaffold offers essential support and development to participants at each stage as they build up expertise in learning online and eventually creating higher levels of acceptance and satisfaction on the utilization of learning management systems.

Key Words: LMS Utilization Model, Online Socialization, Ems Five Point Model.

Introduction

Although LMS is not a completely new concept in the world, it received quick acceptance and has gone through rapid evolution. This evolution started with the introduction of the computer and the internet in the late 20th Century (Oxagile, 2016) [4]. An LMS has different components which are well-integrated to provide the structure that handles all aspects of the learning process (Watson & Watson, 2007 in Oxagile, 2016) [4]. LMS is the set-up that enables the delivery and management of instructional content, identifying and assessing individual and organizational learning or training goals to track progress towards the meeting of such goals, and also collecting and presenting data for supervising the learning process of an organization as a whole.

The utilization of LMS has become an epidemic. It spreads continuously throughout the nursing profession, especially in the undergraduate nursing programs. Comparing to a communicable disease, it has spread its viruses across the nursing academe. But, unlike a communicable disease where those affected are not happy in contracting it, the spread of LMS is highly welcomed by the academe. Internationally, several schools of nursing have been adopting LMS for years since the time it started in early 2000s. Locally, there were quite a lot of schools which have been utilizing it also, but not extensively. Since its adoption, few researches were also made and most of these are contained to the usability, teacher satisfaction and LMS experience.

LMS is one of the most rapidly pedagogical areas of teaching in education where the online curriculum is delivered in digital pedagogical method different from the traditional approach but whose major factor of success depends upon the lecturer's technical competency. Moreover, the application of e-learning has significant impacts on higher education. In this era, learners can flexibly choose the most appropriate learning mode in accordance with their preferences or commitments, or both. A research conducted within the sub-Saharan Africa has also documented these LMS adoption patterns. For some countries like in the Middle East region there was an obvious delay in e-learning adoption within most educational systems. Online learning has become a prevalent medium for collaboration between people and social networks. Indeed, it provides study activities which use social networks and relate these concrete experiences amongst faculty and students which contribute to improving teaching and learning within a university environment.

A study by Hunker et al. (2018) [1] focused on the teachers' utilization of an LMS to create a nursing leadership site for future nurse leaders. The study was made to keep track with school offering a Bachelor of Science in Nursing (BSN) to Doctor of Nursing Practice (DNP) track, to meet the demands of complex health systems by preparing nurses to lead change. Curriculums developed for the adult learner benefitted from adding supplemental resources to prepare nurses with limited leadership experience for their future

*Assistant Professor, Institute of Nursing, Far Eastern University, Manila, Philippines.

roles. Practice competencies described by professional organizations were used as the framework for identifying best practice resources. Results revealed that a supplemental site serving as a repository of information for students was successfully developed and nursing students were encouraged to access the site to augment their learning on professional competencies. It furthered that faculty teaching in streamlined academic programs can provide additional content based on professional standards to students using innovative and interactive methods (Hunker et al., 2018) [1]. The difference in achievement between the distance students and a comparable cohort of hybrid students were examined. Participants of the study included all undergraduate nursing students who were enrolled in a distance and a hybrid section of a communication skills course offered at a school of nursing. The distance course was created using Blackboard and Tegrity learning management systems. The design and delivery processes of the distance course incorporated three pedagogical principles that enhance: (a) course access and navigation; (b) communication and interaction; and (c) active and collaborative learning experiences. Results revealed significant associations between total satisfaction score and achievement in the distance course, grade expected in the course, and frequency of accessing the course materials. All distance students, including students with limited technological resources available at home, managed to successfully complete the course. Major concerns reported by distance students were related to lack of time management skills and negative attitudes toward group assignments. The use of effective instructional strategies resulted in delivering successful distance learning, even for students with limited resources. This study gives an avenue to the universities to examine, assess, and evaluate the implementation of the program as a teaching-learning pedagogy and to be able to provide quality and effective programs for efficient and effective delivery of academic service.

Research Methodology

1. Research Design

The researchers employed descriptive-correlational research design in gathering the necessary information in the study. This is utilized to identify the relationship between two variables namely acceptance of students and their level of satisfaction in the utilization of Learning Management Systems.

2. Respondents of the Study

The sample in this study included the undergraduate nursing students in three selected nursing schools who were enrolled between second semester and summer from 2018 to 2019 and were taking up nursing management courses. The participating schools were those who have been consistently utilizing learning management systems for at least three consecutive years.

3. Research Instrument

This study utilized a survey questionnaire adapted from the study of Eom (2015) and were modified to a higher extent to tailor-fit the learning variables as practiced in undergraduate nursing schools. An original plan was to provide both face-to-face survey questionnaire and online survey. It should be noted that the researcher had difficulty communicating with the students because of their absence (and lack thereof) of google accounts and difficulty in meeting up with their academic schedules. Hence, this study contented to using a survey questionnaire instead.

4. Statistical Treatment of Data

Mean and Frequency Distribution were utilized in getting the number of participants as respondents and according to their demographic profiles. To gauge respondents' percentage distribution according to socio-demographic profiles percentage was utilized. Rate and Ranking tools were utilized to determine the most common issues, concerns, and challenges that the student face alongside LMS utilization. Analysis of Variance was employed to gauge the significant differences of the learning variables when grouped according to demographic profile. T-Test was the inferential statistics used to determine the significant difference between two variables. In this study, t-test was used to determine significant difference between Learning Variable: Specific Platforms used. Pearson R Correlation was employed to test the relationship of participants' level of acceptance and level of satisfaction on the utilization of LMS.

5. Ethical Consideration

Ethical guidelines were followed for the whole research period. The researcher submitted the study for review and approval of the Ethics Review Board of the university. It followed the National Ethical Guidelines for Health and Health-Related Research 2017 prepared by the Philippine Health Research Ethics Board.

Results

This study presents the conceptualized LMS Utilization Model that will cater to the learning needs of both the faculty and nursing students as end-users of LMS, especially CANVAS and MOODLE. This Model includes the areas, gaps, and challenges that need to be addressed. The study revealed that poor internet access continued to pose as a challenge as it ranked first among the problems encountered by nursing students. This was followed by poor management of courses and poor

time management by instructors. Consequently, poor IT infrastructure remained as another concern which needed another intervention by university management. Likewise, problems on instructor's feedback mechanism will be addressed in the Model.

The Model is patterned after two models, namely Merril's First Principles Model and Salmon's E-moderating model, integrating important aspects to address the results of this study, especially on behavioral aspects, thus incorporating the associative perspective.

The Model is called "EM's Five-point Model, which means **E**ducating Users and **M**anaging LMS towards an Extensive, Quality and Satisfying Faculty-Student Learning Experience.

"EM's Five-point Model Educating Users and **M**anaging LMS towards an Extensive, Quality and Satisfying Faculty-Student Learning Experience.**"**

The utilization of Learning Management Systems as adjunct to teaching and learning is ubiquitous. Not only does it create an environment of technological innovation among higher education institutions, it also promotes professional growth and development among educators. The technological advancement on learning management systems software will further improve the learning process among students of today's millennial generation.

Pedagogical models are cognitive models or theoretical constructs derived from learning theory that enable the implementation of specific instructional and learning strategies (Mitchell, et, al, 2017). There are various pedagogical models on learning management systems by several proponents to explore. Merril's 5-First principles and Salmon's 5-Stage E-Moderating Model are deemed to fit as constructs to address the key points of the study.

Merrill (2002, in Jalilehvand, 2016) [2] in an article entitled 'First principles of instruction 'articulated principles that underpin effective learning. He has studied varied models and experiences in order to extract these principles. Merrill's first principles of instruction is one of the theories that Merrill believes it can be used in instructional design model to design educational environments (Merrill, 2013).

First-principles of instruction includes 5 important educational principles that by using them, meaningful learning can occur, and learners become more active in the learning process (Merrill, 2006). These 5 First principles of instruction are as follows: 1) The demonstration principle: Learning is promoted when learners observe a demonstration. 2) The application principle: Learning is promoted when learners apply the new knowledge. 3) The problem-centered principle: Learning is promoted when learners engage in a task-centered instructional strategy. 4) The activation principle: Learning is promoted when learners activate relevant prior knowledge or experience. 5) The integration principle: Learning is promoted when learners integrate their new knowledge into their everyday world. Merril's 5-first principles model suggests that the most effective learning environment are those which are problem-based, where the students are involved in four distinct stages: activation of prior knowledge, demonstration of skills, application of skills and integration into real-world activities. Furthermore, there are six contextual criteria relating to effective implementation in specific educational technology environment: supervisor support, technology support, reuse, differentiation, collaboration, and learning from others (interaction). Likewise, this model addresses the associative perspective of creating learning as an activity. The associative perspective focuses on behavior modification via a stimulator-response pairs, trial and error learning, learning through association and reinforcement and observable outcomes. According to Merril, the five principles are:

1. Demonstration Principle, wherein learning is promoted when learners observe a demonstration
2. Application principle, wherein learning is promoted when learners apply the new knowledge
3. Task-centered principle, wherein learning is promoted when learners engage in a task-centered instructional strategy
4. Activation principle, wherein learning is promoted when learners activate relevant prior knowledge or experience, and
5. Integration principle, wherein learning is promoted when learners integrate their new knowledge into their everyday world.

Meanwhile, Salmon's e-moderating model was developed from experiences of facilitating online networking and group working. Its principle purpose is to provide a model for e-moderators to support student engagement and learning online, employing constructivist pedagogic theory (Salmon, 2003, in Moule, 2016) [3]. E-tivities are defined as "frameworks for enabling active and participative online learning by individuals and groups" (Salmon, 2013) and are utilized in online learning to create a clear structured opportunity for learners to participate and interact collaboratively with the content, peers and the e-moderator. Utilized as a means of seeking and acquiring a

deeper understanding and connection to the content of the learning. The foundations of e-tivities include constructivism, situated learning and social learning theories (Salmon, 2002, 2013), which are integral components in "well-rehearsed, principles and pedagogies for learning" (Salmon, 2013, in Wright, 2015) [5].

Salmon developed this model of structured e-learning activities which have the purpose of creating greater interaction and participation between participants in e-learning courses. Salmon's Five-stage Model suggests that for online learning to be successful and happy, participants need to be supported through a structured developmental process. The five-stage model also provides a scaffold for structured and paced program of e-activities. The five-stage model offers essential support and development to participants at each stage as they build up expertise in learning online.

Figure 1 below illustrates the scaffolding of the learning structure as presented in a ladder-like diagram. Based on the model, the E-moderator, here represented by the nursing faculty who will engage students in LMS utilization, has an important role to play in the successful implementation of the five-stage model of learning:

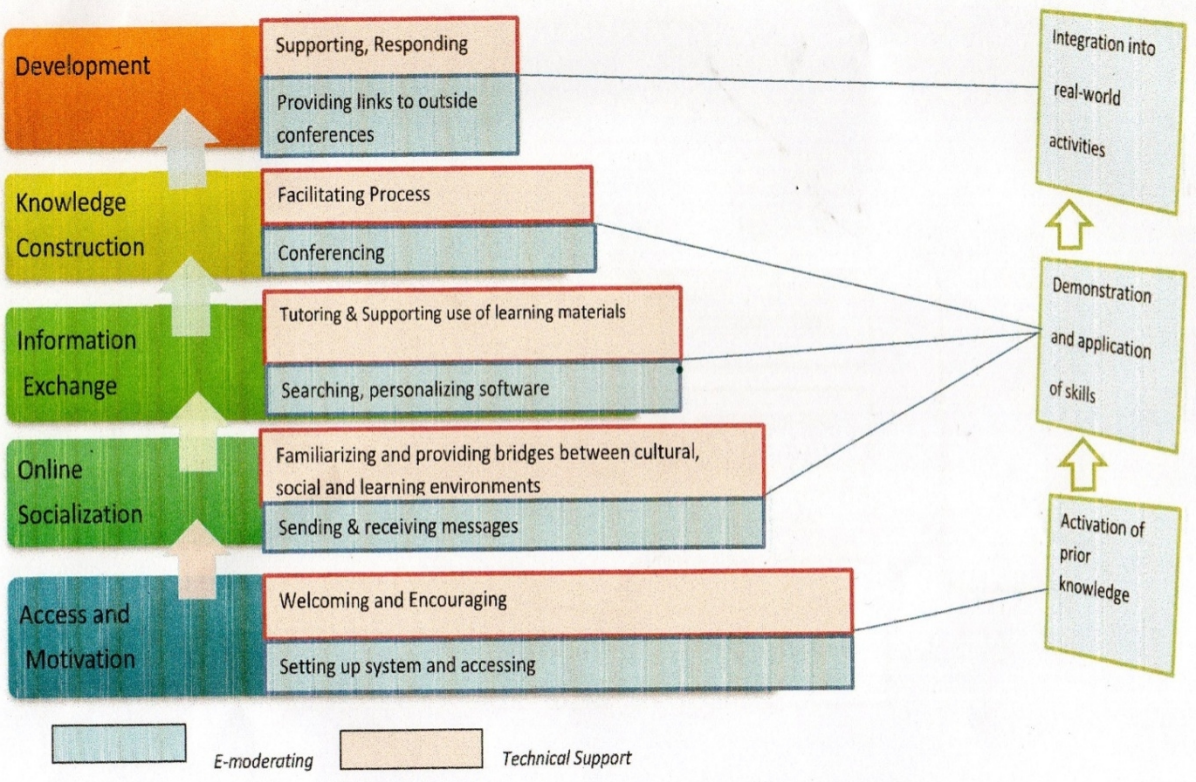

Figure 1: Effective Learning Management Utilization Model

1. **Stage 1- Access and Motivation -** The E-moderator's role is to welcome and encourage participants to interact. The nursing students as participants should be equipped with a prior knowledge on LMS utilization. This may include intensive orientation on LMS Program of the university, hence, the nursing department to be conducted by qualified experts in information technology. The IT department ensures that all enrolled students are properly oriented and trained on the usability of the LMS features, its interface and management of the LMs platform. Likewise, nursing faculty, who were already trained with the LMS should consistently update this knowledge to fully maximize the utilization of LMS, especially on LMS features that they are not familiar with. Having this information and skills on knowing the variety of features of their specific platforms will address the gaps that this study revealed. Note that the features on video conferencing and audio presentation were not utilized fully as evidently presented in the results of this study. In this stage, those problems may be addressed through intensive training. Therefore, the activation of prior knowledge is maximized, which will eventually make the experience welcoming and encouraging.
2. **Stage 2 - Online Socialization -** This is familiarizing and providing bridges between cultural, social and learning environments.

3. **Stage 3 - Information Exchange -** This is facilitating tasks and supporting the use of learning materials.
4. **Stage 4 - Knowledge Instruction -** This is facilitating process
5. **Stage 5 - Development -** This is supporting and responding.

Integrating both models into one pedagogical model means creating a holistic, comprehensive, collaborative, technology-secured and learner-centered approach.

The figure shows the interrelationship between two models representing the constructivist design and associative perspective, respectively as they expand the holistic approach to learner-centered model. In stage one of Salmon's Five Stage Model, Access and Motivation, the learning environment should be welcoming and encouraging wherein learners feel they are going to embark on a new journey of exploring online social media. However, prior to this online activity, student learners should undergo orientation and training as part of the curriculum program to ensure that they are equipped with prior knowledge on the usability of learning management systems. Nordhoff (2002, in Jalilehvand, 2016) suggested that the activation of students' prior knowledge is the most important factor in the success of Merrill's theory and using this theory has precious outcomes (Fardanesh, 2011). Activation can be explained by different methods such as, using preorganization, talking and discussion on the topic, schemas, conceptual or mental map. On the other hand, motivation becomes a positive behavior when student learners gain a positive experience during orientation and training process. Accessibility to online activity, as part of a positive experience should also be dealt with utmost technical support.

On the other hand, the second stage- online socialization in millennial learners is an understatement. They know what this means, as they are exposed to it daily. In fact, it consumes 80 percent of their daily activities; at least, informally. However, in a formal setting like a teaching-learning environment using LMS, this second stage means familiarizing the features and characteristics of the learning management system that their school is adapting to be able to utilize it to the fullest. In the second step, instructor represents information, giving information does not summarize in just verbal expression. According to Merrill's theory, information should be indicated along with proper media and learners should be guided very well. Online interaction with their facilitators, and fellow learners may be enhanced to its fullest usability. Interacting actively with the facilitator and fellow learners bridges the gap between cultural, social and learning environments. In the same manner, learners begin to demonstrate their soft skills they learned from training by engaging into online socialization.

In the third stage information Exchange, the online moderator, or the instructor, does the tutoring and supporting the use of learning materials. This is the stage wherein instructors demonstrate and apply their skills in utilization of key features of learning management systems to be able to elicit a harmonious exchange of ideas between and among the student learners. In this stage, the application of knowledge or skills, is taken into account. First, teachers help learners to apply their learning and then they gradually reduce the amount of their help till to reach to the point learners could apply their learning independently and without any help. It should work alongside Knowledge construction wherein the accurate facilitating process is actively engaged. Student learners need to be given feedback on their learning outputs, using the LMS features.

Discussion

As learners begin to work with ease and fast internet speed and access, they will enjoy the experience and will always forward to having the same experience every time. Educators, or facilitators, should have the same experience as those of students to be able to ensure a regular usability of learning management systems. Instructors undergo advance training on all features of the LMS to be able to fully utilize them for pedagogical teaching and learning.

At the end, learners should be able to use the knowledge in the real situations (integration stage) that causes the contents to be considered as the practical issues in the real world and thus, students' creativity will increase. It can be said that students will show more curiosity, creativity, and Innovation when they face with problems in order to deal with the issue effectively and efficiently (Lee, 2005, in Moule 2016) [3]. Moreover, by using these principles, challenging and problem-based environments are constituted which enforce learners to be more critical, creative and also encourage them to think more and in different ways that all help to raise the creativity.

Conclusion

The model is a "scaffolding" model. Scaffolding means gradually building on participant's previous experience. A structured learning scaffold offers essential support and development to participants at each stage as they *build up* expertise in learning online and eventually creating higher levels of acceptance and satisfaction on the utilization of learning management systems.

Conflict of Interest

The author declares there are no significant competing financial, professional, or personal interests that might have influenced the performance or presentation of the work described in this manuscript.

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