The effectiveness of Learning Management System (LMS): Perceptions towards an innovative initiative

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Abstract
The importance of information technology in education is undeniable. More and more universities are largely focused on technology integrated teaching and learning of which largely are associated with the Learning Management System (LMS). However instructional changes from traditional-conventional classrooms to LMS integrated ones can be both advantageous and frustrating if changes have not been implemented accordingly. To identify perceptions on LMS integrated teaching-learning, this qualitative study investigated three groups: students, lecturers and leaders to gain an in-depth and overall view on *the implementation, utility, effectiveness and sustainability efforts pertaining to the institution's change initiative. Data analysis shows that the integration of Learning Management System (LMS) seems to be a beneficial change for both teaching and learning at the institution of higher learning under study. Since the institution has clearly planned and based their change initiative on Kotter's Eight Step Process for change, the institution under study found change to be accepted well and the sense of ownership was great among all leaders, lecturers and students.*

Keywords: *Learning Management System (LMS), innovative initiative, effectiveness, change*

1.0 INTRODUCTION

In the field of instructional technology, research on new innovation on various areas has paid close attention to both, the diffusion and the adoption process. As academicians in higher educational institutions across the world experiment technology, applying it into their courses, it is important to note that the conventional roles of teachers are now facing changes with the implementation of new technologies. Over the years however, there have been scenarios of non-utilisation of instructional technology among students and educators. Educators especially have been said to have rejected technology and resist change (Kirschner, 2012). In the case of Malaysia itself, many educators have been coerced or even forced into applying instructional technology innovation through directives from Ministry of Education (MOE) or Ministry of Higher Education (MOHE). Research has said that it is crucial to understand both the diffusion and adoption process in order to ensure the success of

implementing any change, in this case the new technology in the educational industry (Surry, 1997).

The importance of information and communication technology (ICT) in Malaysia is undeniable, as it is seen as a key enabler in building a digital economy under the country's Economic Transformation Programme (ETP). The Prime Minister of Malaysia, Datuk Seri Najib Tun Razak has clearly indicated that, "the next wave of economic growth will come from the knowledge-based economy, with digital technologies as a key driver of progress," and the "new world is a digital one". It was further added that in order "to stay competitive and reap its benefits, it is imperative that Malaysia has all the right elements and strategies put in place"(http://www.thesundaily.my/news/183445). With the increasing demands to offer quality courses to meet the needs of the future workforce, instructions are entwined with various technologies, one of which is the use of Learning Management System (LMS). A Learning Management System is a software application currently used by many prestigious universities around the world but however in the context of Malaysia and other less developing and developing countries, it is still a new concept. Typically a LMS provides an instructor with a way to create and deliver content, monitor student participation and assess student performance remotely. For the students, LMS is a platform to get learning materials such as notes, and participate in threaded discussions and forums. A LMS can serve as the "missing link" that will tie together contemporary education reforms with effective and creative uses of technology (Philipo & Krongard, 2012).

Educational improvements therefore involve change but it has been argued that not all change can lead to improvement (Fullan, 2001, 2002). Educational change is ubiquitous (Hargreaves, Lieberman, Fullan, & Hopkins, 2005) and has been not only a policy priority but also major public news everywhere. However Hargreaves (2005) argues that efforts to bring about educational change usually exceeds people's understanding of how to do so effectively. Over the last few decades, educators had to engage with changes in education from one sort to another be it due to economic reasons or most of the time due to political arrangements.Often for a change to be successful, the role of leadership in a change initiative is very crucial.Leadership, which is an important force for change, has to focus on being sustainable and effective (Fullan, Cuttress & Kilcher, 2005; Hargreaves & Fink, 2003).

1.1 Theoretical framework

The innovative change implemented by the higher educational organization in this study had prior applied the 8-Step Process outlined by Kotter (2012), which emphasizes that organizations can avoid failure and become adept at change. By improving their ability to change, Kotter believes that organizations can increase their chances of success, both today and in the future. Without this ability to adapt continuously, organizations cannot thrive. Kotter has proven over his thirty years of research that following the '8-Step Process for Leading Change' will help organizations succeed in an ever-changing world.

Kotter's (2012) approach is to provide a 'roadmap' through change using his eight steps. The focus is about achieving organisational change, whatever the size of the organisation. The model explains how to achieve change by building on each step and by highlighting potential problems along the way and strategies to 'get through' them.

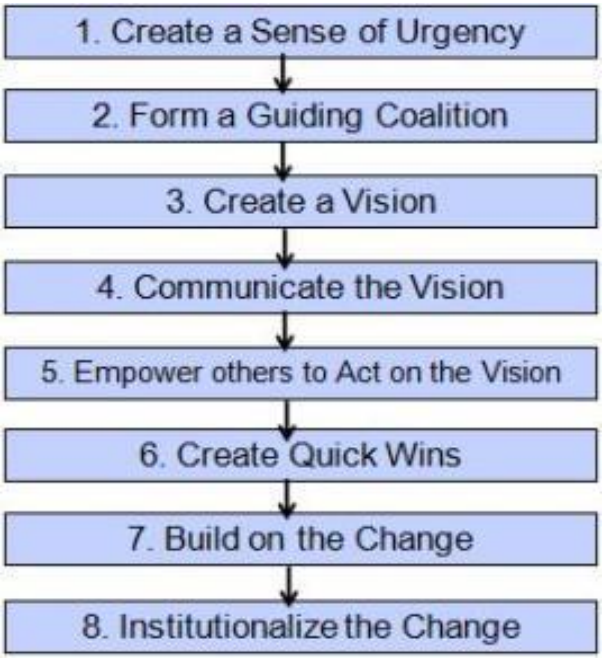

Figure 1 : Kotter's Eight Step Change Model

In brief, the Kotter's '8 Step Change Modal', which was used by the educational institution under study focuses on:

Step 1: Establishing a Sense of Urgency

Help others see the need for change and they will be convinced of the importance of acting immediately.

Step 2: Creating the Guiding Coalition

Assemble a group with enough power to lead the change effort, and encourage the group to work as a team.

Step 3: Developing a Change Vision

Create a vision to help direct the change effort, and develop strategies for achieving that vision.

Step 4: Communicating the Vision for Buy-in

Make sure as many as possible understand and accept the vision and the strategy.

Step 5: Empowering Broad-based Action

Remove obstacles to change, change systems or structures that seriously undermine the vision, and encourage risk-taking and non-traditional ideas, activities, and actions.

Step 6: Generating Short-term Wins

Plan for achievements that can easily be made visible, follow-through with those achievements and recognize and reward employees who were involved.

Step 7: Never Letting Up

Use increased credibility to change systems, structures, and policies that don't fit the vision, also hire, promote, and develop employees who can implement the vision, and finally reinvigorate the process with new projects, themes, and change agents.

Step 8: Incorporating Changes into the Culture

Articulate the connections between the new behaviours and organizational success, and develop the means to ensure leadership development and succession.

(*extracted from Kotter International, 2012*)

1.2 Objective of study

This study therefore aims to evaluate a higher educational institution's innovative initiative of integrating the Learning Management System (LMS) into their daily teaching and learning. It will investigate further on the implementation, utility, effectiveness and sustainability efforts pertaining to the institution's change initiative, in this case the LMS.

It will investigate the perceptions of leaders, lecturers and students about the effectiveness of integrating Learning Management System (LMS) into their conventional instructional methodology.

1.3 Research questions

Moving away from conventional instructions to a more blended instruction by integrating Learning Management System (LMS) into traditional classroom teaching and learning needs careful planning and implementing if the educational organization wants to ensure it is effective to be sustainable. Kotter (2012) strongly stated that seventy percent of all major change efforts in organizations fail because organizations often do not take the holistic approach required to see the change through.

This study is therefore intended to address the following research questions:

1. Why is the Learning Management System (LMS) initiative important to the educational institution?
2. How was the Learning Management System (LMS) initiated/implemented by the educational institution?
3. How is the Learning Management System (LMS) utilised by the leaders, lecturers and students at the educational institution?
4. How effective is the integration of Learning Management System (LMS) into the traditional face-to-face instruction?
5. What are the critical factors for the sustainability of the Learning Management System (LMS) initiative?

1.4 Significance of the study

The findings of this study will assist the case-study higher education institution gauge the progress of the Learning Management System (LMS) and lead the path to further necessary steps towards ensuring the success of LMS. It is also hoped to contribute to the existing literature on change initiatives in higher education, especially pertaining to issues of implementation, utility, effectiveness and sustainability.

2.0 LITERATURE REVIEW

2.1 Introduction

With the increasing demands to offer quality programmes at the higher education, various innovative changes, specifically that concerns technology integration, is observed across the globe. However, planning for innovative teaching and learning technologies incurs more than just budgeting and profit-making. A common mistake made by educational practitioners in planning and implementing new technologies is the lack of emphasis on change knowledge/change process (Fullan, 2007; Hargreaves, 1997).

2.2 Background

Acquiring knowledge through printed materials has been the primary method of learning in all classrooms for centuries, be it in the primary schools, secondary school and higher education institutions. Printed materials, specifically textbooks, have edified, explained, enlightened, and exercised students' minds throughout their education. In the case of Malaysia, printed materials that are often used at the higher education institutions include textbook, lecture notes, powerpoint printouts, research articles and so on which introduce learners to new content by presenting a body of knowledge written by experts in the field of study. Not only are printed materials a major component in both instructor-guided and student self-directed learning, printed materials specifically textbooks offer a logical, linear progression of learning with a graphical layout of text and illustrations providing meaningful and convenient information to learners.

Over the years as conventional teaching methods are going through reforms, there have been enormous advances in the understanding of human learning. There have also been important advances in the understanding of the nature of knowledge and new knowledge creation (Novak, 2003). These advances, when combined with the explosive development of the Internet and other technologies, permit advances in educational practices at least as important as the invention of the printing press in 1460 (Novak). The widespread use of information technology (IT) and, in particular, the mass popularization of the Internet/World Wide Web (www) have meant that opportunities have been identified for developing learning and teaching into a more advanced virtual environment, not just restricted to face to face instructional methods which are usually accompanied by all sorts of printed materials.

It is a well known fact that learners today want to be immersed in a variety of educational experiences, both formal and informal, that extend beyond the classroom. These experiences are global, collaborative, networked, and dynamic and require facilitators to guide students in navigating an increasingly connected world (Philipo & Krongard, 2012). As we know new technologies present unprecedented access to information, content, and data and one particular new technology is the Learning Management System (LMS). A LMS framework can empower educators, parents, and students by means of access to information that can alter and shape a student's learning path (Philipo & Krongard).

However educational organizations have not yet successfully and comprehensively capitalized upon the unique opportunities afforded by technology (Philipo & Krongard, 2012). In the context of Malaysia, indeed educators have continuously used technology to tweak and make small improvements to the current, old and outdated system of teaching and learning but are still far from adequate. One of the biggest challenges faced by many institutions of higher education, with regards to the integration of technology, is the resistance to change.

2.3 Learning Management System (LMS)

A Learning Management System (LMS) according to Philipo and Krongrad (2012) is the 'great enabler' of many current and future education initiatives. A LMS is the missing link that will tie together contemporary education reforms with effective and creative uses of technology. It is also known as the toll that will empower educators to guide and manage student achievement more effectively by contextualizing the learning experience. Experts in the field of technology have indicated that technology alone will not transform educational institutions. Rather, technology must be comprehensively and systematically integrated in order to transform student learning.

An LMS is the infrastructure that delivers and manages instructional content, identifies and assesses individual and organizational learning or training goals, tracks the progress towards meeting those goals, and collects and presents data for supervising the learning process of organization as a whole (Szabo & Flesher, 2002). An LMS delivers content but also handles registering for courses, course administration, skills gap analysis, tracking, and reporting. Most LMSs are Web-based to facilitate access to learning content

and administration. They are also used by educational institutions to enhance and support classroom teaching and offering courses to a larger population of learners (Wikipedia, 2013).

The Learning Management System (LMS) is the infrastructure that delivers and manages instructional content, identifies and assesses individual and organizational learning or training goals, tracks the progress towards meeting those goals, and collects and presents data for supervising the learning process of an organization as a whole (Szabo & Flesher, 2002). LMS allow students to view multimedia lectures, communicate with their teachers and each others in learning communities, download course materials, take online quizzes and submit homework and classwork assignments. In addition, these systems are used for improving the internal faculty organization. The major benefit of using an LMS includes:

- Control over registered users
- Provides a secure environment for learning.
- Learner centric, not only course centric.
- Communities can capture and retain shared knowledge / learning.
- Comprehensive access controls – content can be made as private or as private.
- Provide opportunity for institutions to maintain links with former students and connect with future students

(Pandey & Pandey, 2009)

Philipo and Krongrad (2012) believes that through a LMS, teachers, learning facilitators, instructional specialists, and aides are able to articulate learning goals, align content and assessments, and adhere to standards as they relate to selected curricula and instructional programs. Instructional resources, such as textbooks, podcasts, webbased applications, videos, e-books, manipulatives, and other instructional resources, can be correlated to specific learning activities with a description as to the use of such materials. The learning process is connected and contextual. Teachers can document, record, and electronically share classroom lessons that have been successful in achieving specific student outcomes with unique and diverse student needs. The correlation of measurable results to instructional resources shifts the emphasis away from a curriculum dictated and limited by the textbook to one encouraging inquiry and the development of lifelong learning skills. A LMS provides all members of the learning community with a comprehensive and secure management system that allows the bi-directional flow of information on demand.

Philipo and Krongrad (2012) states that providing access to data and learning information from the home enhances communications between teachers and parents, can increase parental involvement. The exchange of data in real time among the home, classroom, school, state, and federal government will also dramatically improve the reliability and validity of data. This widespread use of a LMS can make parents and community members aware of the value of the technology investments that their school board and administrators are making. It can encourage them to support future initiatives to implement technology in support of education reform, enhanced learning, and increased student achievement. Without a doubt, a Learning Management System must be the electronic/bionic heart of any learner-centred decision support system (Philipo and Krongrad). A Learning Management System can contextualize the educational experience and provide educators with a vehicle to achieve the necessary balance amongst teaching, learning, and growth.

Therefore, real and meaningful change in education through this mission-critical technology application is necessary for educational institutions to be at par with the globalization trends.

2.4 Theory of Change

> *"Having a 'theory in use' is not good enough, of itself. The people involved must also push to the next level, to make their theory of action explicit"*
>
> *'Change knowledge does matter. Ignore it at your peril'*
>
> *(Fullan, 2006)*

In every modern proposal for improving education, technology integration is a crucial component. Both leaders and educators are the catalyst for change in schools (Westfall, 2007). Educators are individual responsible for implementing ideas and changes in curriculum. Westfall summarized from previous reviews that, change does not happen due to the introduction of new curriculum, but happens only when individuals' attitude and beliefs towards that new curriculum changes. Fullan (2006) also indicate that even if research has proven a practice to be effective or a 'good idea' without effective driving by educational leaders and support by teachers it will not take hold and will invariably fail.

2.4.1 Defining change

Shen (2008) states that there are almost as many conceptions of the change process as there are writers on the subject, but despite this there are some broad areas of agreement on it.

Robbins & DeCenzo (2001) defines change as

" Change is an alteration of an organization's environment structure, technology or people."

Carlopio (1998) defines change as

"Change can be described as the adoption of an innovation, where the ultimate goal is to improve outcomes through an

Bell& Ritchie (2002:157) state that change is the way people improve. It is not going to go away nor should it.

Fullan (1992) claims, "Change is a process of learning new ideas and things. It is learning to do and learning to understand something new".

Right (2013) states that "Educational change is a broad term that refers to both shifting paradigms within education and efforts of reform within education. The former is often a part of the latter, since most change within the field of education is initiated for the improvement of the institution. Similarly, shifting perspectives within the field of education are most often a result of an awareness of new ideas and new needs. The efforts taken to adjust to those new ideas and meet those needs can be categorized as educational change".

Shen (2008) indicates change is a complex process of improving a practice. Implementation is the most important procedure in any change process that wants to be effective and sustainable.

2.4.2 Fullan's Change Theory

Fullan (2006) believe that 'having a 'theory in use' is not good enough, of itself. The people involved must also push to the next level, to make their theory of action explicit' (p. 3). Fullan believes that change theory or also known as change knowledge is very powerful towards informing education reforms and getting appropriate results. Previously, in 1991, Fullan (in Fullan & Stiegelbauer, 1991) proposed four interrelated elements that were crucial in the change process (Figure 1).

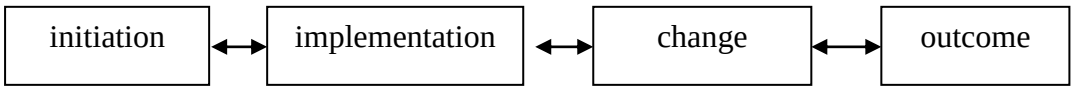

Figure 1 : Fullan's Theory of Change (1991)

The four interrelated elements are further explained below:

Initiation
The factors that affect the initiation phases include:

1. Existence and quality of innovations
2. Access to innovations
3. Advocacy from central administration
4. Teacher advocacy
5. External change agents

Implementation

Fullan and Stigelbauer (1991) identified three areas of the major factors affecting implementation: characteristics of change, local characteristics and external factors. They identified different stakeholders in local, and federal and governmental levels. They also identified characterizations of change to each stakeholder and the issues that each stakeholder should consider before committing a change effort or rejecting it.

Continuation

Continuation is a decision about institutionalization of an innovation based on the reaction to the change, which may be negative or positive. Continuation depends on whether or not:

1. The change gets embedded/built into the structure (through policy/budget/timetable)
2. The change has generated a critical mass of administrators or teachers who are skilled and committed to
3. The change has established procedures for continuing assistance

Outcome

Attention to the following perspectives on the change process may support the achievement of a positive or successful change outcome:

1. Active initiation & participation: change does not end in recognizing or initial context with the innovation, but starts with the contact and evolves along with the continuous interaction with it and the environmental changes that it brings forth
2. Pressure, support and negotiation
3. Changes in skills, thinking, and committed actions
4. Overriding problem of ownership

2.5 The need for change from conventional instruction to a blended instruction

The importance of information and communication technology (ICT) around the globe is undeniable. There has been little research about the uses of blended instruction, LMS integration into conventional instruction. With the ever increasing number of students, the cost of higher education is also skyrocketing, both for the individual and the education institution. Murphy (2003) have indicated that "to have a truly revolutionary effect on instruction in general, however, requires that these innovations be scalable to other instructors and courses, and that they be strategically implemented to meet pedagogical goals" . In order to make such innovations scalable, it is necessary to consider the current and emerging possibilities for applications of technology to course elements.

Marsh, McFadden and Price (2003) state that scalability is the capability to serve a larger number of users without degradation or major changes in existing procedures. Asynchronous delivery seems to be the only viable, scalable method. Synchronous technology cannot reduce costs because it requires the instructor and students to meet at a particular time and location, and it only marginally increases the number of students who may participate. While costs increase because of the need for equipment at all sites, and there are additional charges for uplinking, salaries of non-instructional personnel, and so forth, the major factor is the constrained number of students who can be served in real time. The asynchronous model is potentially more cost effective if it can serve more students. Asynchronous delivery on the WorldWideWeb (WWW) can result in cost savings, depending upon how many students may enrol (Marsh, McFadden & Price).

The more effective the technological delivery, the more likely the lesson will match or surpass traditional lecture. Many applications of technology in lecture classes are add-on slideshows, which often become the basis for online content. As online delivery becomes more intelligent, perhaps with cognitive modelling that personalizes instruction and adjusts automatically to each student's characteristics, online tutorial instruction will become increasingly important.

In conclusion, combination of technology (LMS) and traditional classroom instruction can improve learner outcomes, and save cost, provided it is implemented appropriately and its effectiveness is cyclically sustainable.

3.0 Methodology

3.1 Introduction

The purpose of this study is to collect and report the perceptions on the integration of Learning Management System (LMS), an innovative initiative of one private higher education institution in Perak according to leaders, lecturers and students. Secondly, the study is designed to determine if the integration of Learning Management System (LMS) into the organization's conventional instruction has been sufficiently planned and implemented apart from being effective and sustainable. This study intends to contribute to the higher educational institutions leaders' understanding of successful change, which can lead to an escalated student achievement. Findings from this study may be able to guide responsible authorities by providing valuable information to evaluate and revise their current change initiatives.

3.2 Design of the study

The design chosen for this study is a qualitative method. Focusing on the phenomenological aspect of qualitative research allowed the study to incorporate leaders', lecturers', and students' perceptions, both emotionally and intellectually, about the integration of Learning Management System (LMS). The qualitative method is selected to reveal leaders', lecturers' and students stated perceptions concerning instructional changes. Prior knowledge gained from personal experience and knowledge of various innovative instructional methods as an educator, allowed the researcher to be connected with the phenomena being studied and determine the method for the study. Using the qualitative process gives the study the method by which "thick rich" descriptive interviews could occur. Thick rich description occurred when the reader knew everything in order to understand the findings (Creswell, 2007; Merriem, 2009). This technique allows the reader to conceptualize the data from both an emotional and an intellectual level.

3.3 Development of the Interview Guide

The questions guiding the interview were developed from the review of literature on the innovative change, in this case the Learning Management Systems (LMS) and modified according to the specific context of the study. The interview protocol with the list of questions used in the study was then developed (refer Appendix B). Because I had prior

knowledge and personal experience of the research topic, I selected the interview process to obtain a more comprehensive descriptive understanding of various stakeholders' perceptions of change initiative, the Learning Management System (LMS).

Through the interview process this study provided a wide-range of experiences and knowledge on the change. Broken into various segments, the interviews contained topics concerning the following concepts: importance, implementation, utility, effectiveness and sustainability factors. This research project utilized both the semi-structured and open-ended interview processes. I asked additional questions necessary to obtain specific aspects of a participant's response. Prior to implementing the research several leaders, lecturers and students with various backgrounds and experience levels were provided the interview script to assess the validity of the interview questions. Leaders, lecturers and students were asked to read and evaluate each question to ensure clarity and validity. The individuals who participated in the assessment were not involved in the actual study.

3.4 Population and sample

This study involved the population of leaders, lecturers and students who are currently employed or studying at a private higher education institution in Perak. The sampling technique used in this study was a purposeful sampling technique. The purposeful sampling was applied because it allowed the researcher to select individuals and the site for study because they can purposefully inform an understanding of the research problem and central phenomena of the study (Creswell, 2007).

The General Manager was asked to select the participants from this higher educational institution. To make decisions as to which leaders, lecturers and students would ensure that the variables requested were met in the research; the General Manager was given the access to the interview script. Using this technique helped ascertain that subgroups of stakeholders would be represented. Furthermore it added to the internal validity of the research due to the triangulation of data. The method used in this study is largely focus-groups because it provides a means to collect information individually as well as collectively. In addition, interactions amongst the participants will provide some form of check and balance in order to avoid false or extreme views.

Two focused groups were interviewed in this study- one comprising of three lecturers of the private higher education institution and another with five active students of the higher education institution. The lecturers chosen were representatives of each school: School of Liberal Arts, Languages and Education (LAEL), School of Business, Management and Entrepreneurship (BME) and School of Information, Science and Technology (IST). Whereas the active students represented each diploma program: Diploma in Human Resource Management, Diploma in Early Childhood Education, Diploma in Automotive Management, Diploma in Accountancy and Diploma in Information Technology. As for the leaders, each school's Head (Head of School) was chosen and was interviewed individually.

The three groups were chosen to add validity to the data generated by means of respondent triangulation. Lecturers' and leader's identities are anonymised by referring to lecturer participants as Lecturer A, B, and C, and leader participants as Leader A, B and C. similarly students identities are also anonymised as Student A,B,C,D and E.

3.5 Data collection

Data for this study were collected by means of a one-on-one interview with each leader and focus-group interview with lecturers and students. This method allowed for multiple sources and methods to examine the findings of the interviews on the change initiative. The participants of the study were involved in interviews that occurred during lunch hour.

Permission was sought from the Chief Executive Officer (CEO) of the private education institution before the individual and focus groups were done. Ethical considerations were given the highest importance in that informed consent (Appendix A) was sought from all the samples. However, participants did not permit the interviews to be recorded.

Before an interview began, I informed the interviewees about the selection process and guaranteed confidentiality. These interviews were approximately one hour in length and focused between seven to eight semi- structured open-ended interview questions and three survey questions. At the conclusion of the interviews, member checking was used, hence further enhancing this research's credibility. Creswell (2007) and Merriem (2009) state that using member checking is a crucial technique for establishing credibility and internal

validity. This technique allowed the respondent an opportunity to assess intentions, correct errors, and volunteer additional information.

After the interview recordings were transcribed, I sent interview transcriptions to the participants through email, or in person. When necessary the participants made the appropriate changes to the interview transcripts and initialled the documents to verify their accuracy. I asked additional questions for clarity and accuracy of the responses. At the conclusion of each interview session, I summarized the major focus points covered and provided the respondents ample time to clarify their responses and provide added information as needed. All participants were assured that his or her responses to the interview questions would remain confidential. Because participants did not permit the interviews to be recorded, after each interview the responses were then transcribed into detailed conversations.

3.6 Data analysis

The purpose of the interview data analyses in this study is to draw out the emergent themes and present these in such a manner as to address the research questions. Data will be analysed at two levels. First, data will be transcribed in verbatim.

Memoing will take place after data is transcribed in verbatim. After memoing, data will be stored and organized into the matrix tables and early codes will be derived. To complete data analysis at the first level, the researcher will create hyperlinks between the matrixes, early codes and verbatim transcripts to show the audit trail of data collected. Upon successfully completing level one, researcher will proceed with level two, which is designating a triangulation matrix based on merging themes from the data analysis done at level one. Here again, an audit trail will be created to link data organized between level one and level two.

The data will be presented according to the research questions of the study. As mentioned earlier, categories were then developed to label or categorize the data. This categorizing of the data was essential in determining the correlations between the interviews. This process allowed for further grouping of related information from participants to answer the research questions. After coding the data, I noted particular themes that were emergent from both interviews. Interview results were grouped according to the emergent themes

(Miles & Huberman, 1994). Actual quotes of the interviewees were also used to describe certain points of view, thus providing the data needed to answer the research questions. Upon the completion of data analysis at both levels, peer examination was done to obtain feedback regarding the analysis of data especially on emerging themes deduced from the interviews.

3.7 Trustworthiness

Within this study every effort was used to maintain trustworthiness of the research. Credibility and conformability, internal validity, external validity and reliability were concepts practiced for this qualitative research. In terms of credibility, I employed the technique of member checking after each interview. This method allowed the participant to determine the accuracy of the interviews. Each participant was asked to verify or review his or her statements for accuracy and completeness.

Triangulation, peer examination and member checking was used to heighten internal validity, whereas rich description and the process of comparing and contrasting the results via focus groups and with previous research added the internal and external validity. Throughout this research, my audit trails and data from two interviews (triangulation) increased the reliability.

3.8 Summary

In chapter four, the data are presented in emergent themes from the interviews that attempt to answer the research questions presented in this study. Each research question is addressed using data from the participant's interviews. These data are grouped or categorized into relevant themes that are indicative of the participants' perceptions of the innovative initiated, the Learning Management System (LMS) with regards to importance, implementation, utility, effectiveness and factors contributing to its sustainability.

4.0 Results and Discussion

The qualitative data obtained indicated several successes and challenges on the different phases in the integration of Learning Management System (LMS) into the conventional instructional methods and these will be discussed under seven broad main themes: importance, planning, implementation, utility, adaption to change, effectiveness, and sustainability in the future.

4.1 Importance of integrating Learning Management System (LMS)

While there is variety of digital resources and information and communication technology (ICT) tools to assist learning and teaching, technology is being used for little more than acting as subject matter storehouse or for managerial and clerical function (Console, 2004). As it is already evident, integrating online instruction with the conventional traditional face-to face instructions using a Learning Management System (LMS) is a growing practice at institutions of higher education. Findings from leaders (school heads) seem to suggest that technology is the way forward for any educational organization as the future generations are extremely techno-dependent, as stated by *Leader A*:

"Every child is born with a tech tagline these days. They believe in getting information on a click of their fingertips. Students today are not satisfied with traditional face-to-face instructions and textbook. They crave more. If this institution cannot provide the technology-based learning, we are afraid we might be at the losing end."

Similarly, leader B and C also responded on the importance of integrating LMS into their curriculum and pedagogy, stating that:

"Education delivery methods continue to evolve around the world. Applied instructional theory now sees more and more integration of the tools of information technology and as a result we are seeing challenges to so-called traditional pedagogical approaches. Change was needed as this institution was largely focused on face-to-face instructions and that itself does not comply the Malaysian Qualification Agency (MQA)." *(Leader B)*

"According to the Malaysian Qualifying Agency, one of its learning domains requires integration of technology or the use of ICT. Hence it was important for us to take a step forward and change our traditional approach to teaching and learning in order to be at par with other universities and colleges." *(Leader C)*

Findings also reported that all three leaders agreed that by integrating the Learning Management System (LMS), not only the institutions under study adhered to the Malaysian Qualification Framework (MQF) learning domain which emphasises using ICT in the location and evaluation of information, using information management systems, learning how to learn, being creative and explorative and being inspired to produce new ideas and technologies based on existing skills but LMS also helped in improving all aspects of the quality of education and ensuring excellence of all so that recognized and measurable learning outcomes are achieved.

"It was not only the policy of MQA/MQF that we adhered. When the Head of Academic introduced the integration of LMS for the first time, there and then I knew and I believe the other school leaders and lecturers also did realise that technology plays a large role in many aspects of day-to-day life, and education is no different. Technology is rapidly changing the way students learn and how instructors should teach to accommodate the 21st century education trends." (*Leader A*)

Similarly Bersin, Howard and Leonard (2007) stated that Learning management System (LMS) have become a readily available resource that provides an array of functionalities for content dissemination, student evaluation, and administration, to ensure effective delivery of education.

4.2 Planning on integrating LMS into the conventional instructions

The LMS initiative was planned since November and implemented in the higher education institution under study since December 2012. The LMS was initiated by the organization's Board of Directors and has engaged a private organization, to design, administer and conduct monthly maintenance. The institution acknowledged the private institution's active collaboration in the formulation and implementation of the initiative which was thus documented into a legal agreement.

On the overall planning, the institution under study applied the '8-Step Process' outlined by Kotter (2012), which emphasizes that organizations can avoid failure and become adept at change.

Findings from leaders (school heads) seem to suggest that due to previous failures from change initiatives, the organization's Board of Directors together with the Head of Academic analysed and utilised 'Kotter's 8-Step Process' to introduce the integration of LMS.

"Previously, to adhere to the MQF learning domains, we recommend our lecturers to use internet in the classroom. We wanted lecturers to provide students with real learning via videos. But it was a failure. Firstly many did not see the need to use internet. Lecturers and students were comfortable with the conventional method. Second, there was no vision to help direct the change effort, and develop strategies for achieving that vision. And the worst was, nobody wanted to lead the change. People resisted change without realising how important technology is if we want to be sustainable." (*Leader B*)

Findings from lecturers' focus groups suggest that in planning the change, the Head of Academic enlightened everyone of the route-map of integrating the LMS, which was called as the ***3 Phase Plan for Change***, (based on Kotter, 2012) as shown in Figure 2 below:

Figure 2: 3 Phase Plan for Change

Focus group interviews of both lecturers and students suggested that the integration of LMS, compared to any other initiative done previously was far more different and very systematic.

"Before even the LMS was introduced to all of us, we were given articles to read about the benefits of technology, what is LMS and the process of successful change using Kotter's 8-Step Process. Of course many students didn't bother reading but the next step taken by the Head of Academic was to hold exhibition and compulsory workshops for students on LMS. This somehow made us all more aware and realise the benefits of such technology."

(*Student B*)

"I have been a techno savvy person. However I am also lazy. But attending the workshops about the benefits of LMS, I realise I have more mobility than ever." (*Student D*)

Findings from all leaders indicated that extreme measures were taken in first two phases of the change initiative. This coincide with Kotter's (2012) thirty years of experience and research on change indicating the most general lesson to be learned from the more successful cases is that change process goes through a series of phases, that in total require a considerable amount of time.

" The Head of Academic and CEO consistently helped others see the need for change by conducting workshops, sending lecturers and staff for further professional development on technology in education, ensuring lecturers emphasize the importance of LMS to students in their daily classroom session so that everyone will be convinced of the importance of acting immediately." (*Leader C*)

"There was strong engagement between the school head, lecturers, IT staff and students on the vision of integrating LMS. The Head of Academic trained each Head of School so well that we were able to visualise the benefits of this technology and be ambassadors to convey the vision**,** to help direct the change effort, and develop strategies for achieving that vision at our own school level as we have direct control to both lecturers and students." (*Leader A*)

Focus group findings from lecturers and students also coincide with leaders stating that every step at each phase was taken to empower broad-based action that could have been obstacles to the change initiated.

"Conventional structures that seriously undermine the vision of LMS were removed all together. All lecturers were strictly advised to post all learning materials on LMS, printing was not allowed at all even to the extent that photocopy papers were reduced extensively. All students were informed that they will only be able to get notes, assignments and quizzes directly from LMS. Students were also prior informed that consultations which were previously done face-to-face now were strictly based on on-line forum." (*Lecturer A*)

"Discussion on forum was made as 10% participation marks for almost all courses. We were alss told that even submission of assignments was strictly online. Lecturers informed all of us that they will not entertain us for notes, or other learning materials and we were consistently reminded to utilise LMS for everything related to our courses." (*Student A*)

From the findings, it can be concluded that every stage of the innovative initiative was given given careful planning before implementations which coincides with Collis and Van der Wende (2002) stating that in order to be successful, indeed, the commitment of some dedicated individuals will not suffice; the institution itself must make a commitment and has to develop a targeted implementation strategy.

4.3 Implementation of LMS

In implementing the LMS, findings from lecturers and students focus group indicated that the developer of the technology, Internexia, conducted workshops, trainings and administration at three levels, over the period of one month. These were done both in-house and on-site (in classroom) to convey real-time usage of LMS. Apart from that, students and lecturers were given ownership of accounts on LMS, each having their own login name and password.

"There were 3 groups for the workshops, training and administration of LMS. First the leaders were trained. Our training was slightly different as we needed to more since apart from being the Head of School we are also given the responsibility and power to lead the change effort, and encourage our lecturers to work as a team. The second workshop was for the lecturers and third one was for students. The duration of workshops was one month.

That's how intensive it was. But we benefitted. Apart from workshops and trainings we were given hands-on in real time, as in how to utilise LMS in the classroom as well."

(*Leader B*)

"Since LMS is a new technology, Internexia really trained us well. Some of us who previously were resistance to change now feel otherwise. We were given direct access to the LMS. We have our own login and passwords. We were very clear on the direction of the goal and objectives of such technology integration. In fact some us don't carry big bags these day, We bring along out notebooks or tablets for lectures." (*Student E*)

Focused group findings from lecturers stated that short-term wins are continuously generated throughout the implementation.

"Since the Head of Academic had outlined a plan for achievements that can easily be made visible, lecturers and leaders as a team that follow-through with those achievements were recognized and rewarded, although not monetarily. This further increased every school's intensity to adapt and adopt the change initiative as no one wants to be left behind."

Both lecturers and students were found to be receptive on the use of LMS. Whereas for the leaders, interviews revealed that everything seem to be more synchronised. The organization fully supported the implementation of LMS in teaching and learning as expected by the BOD and Head of Academic as the initiative was based on a thirty year experience for implementing successful change of Kotter.

4.4 Utility of LMS

Throughout the focus group between lecturers and students and individual interviews with leaders, it was found collectively that the LMS is used basically for five specific reasons:

- content publishing and management
- teaching and learning
- user interaction

- assessment and grading
- admistration

However focused group interview with the students indicate that LMS is used largely for learning and user interaction.

"The students usually use the LMS to retrieve notes, tutorials and assignments. Apart from that we also do discussion on forums." (*Student A*)

"Usually we have no choice but to refer to LMS since these days, everything is posted there. Apart from that our participation in LMS is compulsory. I usually do very few discussions and at large I use the LMS to retrieve notes." (*Student C*)

Lecturers and leaders however have a varied purpose of using the LMS.

"Through LMS I can create courses, upload notes or materials, do forum discussion, complete my assessments and grading and son remotely." (Lecturer C)

" For the school head, we have a lot more to do with LMS. Apart from administrating the whole programme is virtually available and active; through LMS we also have an easier access to evaluate lecturers' performance, and students' performance." (*Leader A*)

All the interviewees saw the convenient distribution of documents from lecturers to students as the biggest advantage with a LMS. Students get access to all kinds of documents, texts as well as pictures from lectures and PowerPoint presentations. For the lecturers it is very convenient to have all documents for each course in the same place, it facilitates both planning and the teaching process. However, through the findings it can be concluded that although the LMS has multiple functions and characteristics to offer, only few functions are largely used.

4.5 Adapting to change

Focus group lecturer and student participants clearly recognised the need to adapt to change and expressed willingness to do o, with numerous individual commenting that they see themselves as 'transitioning' to web-based learning, the LMS.

"As students here, we are glad we can embrace this technology as this is important for our future also. We are glad the institution took a leap out of the traditional teaching style. We are adapting to the usage of LMS both during class and outside and over time we will become more familiar and better." (*Student B*)

Several lecturers mentioned that although they have never experience technology during their higher education, LMS presents a learning curve for them that will help them generate quality future workforce. In several cases, this idea of 'rolling with change' was presented hand-in-hand with concern for the loss of print collections. A senior lecturer voiced that:

"There are some things we will start to miss out once all our materials are posted into LMS and we might not realize what we've lost until it's all in the direction of LMS. But I think we have to move forward with the rest of the world, because if not, this institution may eventually evaporate into thin air due to resistance to change." (*Lecturer A)*

Throughout the findings many faculty members and all head of schools equated the move to LMS with their purchase of smart phones and tablets.

"I was quite laid-back with technology actually. But as of the implementation of LMS, I realised that I needed one to keep up with my peers and students." (*Leader A)*

"Initially I didn't see the need for a tablet being necessary. But as more and more students wanted to participate in on-line forums, I had to purchase one. Smart phone are a little too tiny for me. A Samsung 10" made a whole lot of a different and now I do my work remotely, virtually anywhere and anytime of the day." (*Lecturer C*)

Overall there seem to be a common support for embracing LMS, even though individual faculty and students may not have entirely adapted with it yet, findings indicate that because extensive measures were taken by the management and heads in the planning and implementing phases, the change initiatives of integrating LMS has been rather successful, which relates to Collerette, Schneider and Legris (2003) "it is up to the organization's management to provide the necessary means for both line and supervisory staff to adapt to the change it is seeking to introduce" (p.59).

4.6 Effectiveness of LMS

Focus group findings from lecturers have indicated that LMS has been very effective and its integration into the institution's conventional teaching and learning methods has brought about magnificent attitude change among students as well.

"We can shift quickly from large group demonstrations, to small group activities, to individualized practice and assessment. Students move seamlessly from using their devices for some of these activities to closing their computers and participating in discussions. We are fully in control of student activities by making assignments, mentoring individuals, and leading discussions." (*Lecturer B*)

"The LMS is very effective. If previously I had to keep reminding students to bring their text-books or submit their assignments, with LMS, I needn't do that anymore. They just carry along their hi-tech gadget all the time. Teaching is easier now. Furthermore with the advantage of closing date for on-line submission, students are becoming more responsible and independent on their own learning." (*Lecturer A*)

In terms of benefits, it was found through the leader interviews that all members of faculty has found LMS to be very cost-effective and convenient.

"Teachers have showed more positivism than negativism with the usage of LMS. Infact some lecturers are always seen discussing their LMS contents and ways of promoting it further. Lecturers are probably too happy now that they don't have to worry about photocopying and printing materials for students." (*Leader B*)

In addition, it was also revealed in the leader and lecturers' interviews that LMS has been very beneficial to the students at large because it has made lesson different and interesting. Students were also found to perform better at assignments as they could get frequent feedbacks from the lecturers.

"My students were able to do their exercises on-line and receive feedback to me on-line even when they are at home and this subsequently improved their academic performance."

(*Lecturer B)*

Focused group interviews from students indicated that lecturers always made reference to the on-line materials, to complement their traditional instructions.

"The lecturers explained the main points and asked us to refer our LMS in the classroom since many of us have internet-based gadgets. The lecturers always monitored or work virtually." (*Student A*)

"We enjoy the LMS. Infact now we actually study more than ever before. Definitely having on-line forums help us gauge with the content better as we can post questions and received feedback remotely."

However there were several concerns found throughout the interviews. One of it was the frequent breakdowns of ineternet connection. This coincides with Hoon, Loke, Eng, Dzainuddin and Noor's (2012) research on the implementation of e-book where similar concern of internet breakdown was reported to distort the effectiveness of e-books.

"Internet breakdown subsequently interrupts our lessons and we have to turn our lectures back into the traditional mode, immediately seeking administrators to photocopy tutorial questions and so on. It has also hindered our web access to use the materials which we have planned and uploaded in the LMS." (*Lecturer C*)

Another constrain among leaders, teachers and students that was found throughout the interviews is related lack of personal technological gadgets. It was revealed by students especially that not all can afford to own a technological device.

"I am on PTPTN loan. Although I know LMS can be assessed anytime and anywhere I can't do it because I do not own any device and I can't afford it also. I try to use LMS at college provided any computers in the lab are available." (*Student C*)

Interviews with leaders and teachers indicated that all knew the benefits of LMS in teaching and learning, but further action by the institution to provide gadget is needed. As a junior lecturer remarked;

"With LMS, preparation of lesson has become easier as we do not need to worry if our students have all the materials needed to succeed in their subjects. Majorty teachers are now contemplating with the idea of purchasing devices to access LMS. It would have been good if the institution can provide one or even recommend instalment-based purchases for all."

(*Lecturer C)*

The findings also suggest that there have been efforts by each school leaders to develop the personnels for the change initiative which concurs Fullan, Cuttress and Kilcher (2005) and Kotter (2012) indicating the importance of effective leadership for change.

"School leaders were always administrating all lecturers and students at the school level and weekly reports were sent to the Head of Academic. If any problems or resistance was seen, the Head of Academic immediately counselled or counter-attacked the problems."

(*Lecturer A*)

On the whole, throughout various focused groups and individual interviews it can be seen that although the LMS initiative is well received, the concerns were not that of resistance but centres more on the technical applications such as web-based electronic devices and internet access. Overall participants have showed positive attitude about the integration of LMS into their conventional instructions, hence indicates a high likelihood for its sustainability.

4.7 Factors for the sustainability of LMS

Borotis, Zaharias and Poulymenakou (2008) state that LMS attracts considerable interest in contemporary training curricula. As it concerns a considerable investment, organizations that tend to adopt and maintain it effectively and efficiently in the long term need to learn from the pioneers.

Based on focus group interviews and individual leader interviews, four critical success factors were identified, which promise to increase the awareness and adoption towards the change initiative and therefore sustain it. Those critical success factors include

- the alignment of LMS initiative with the institution's vision
- effective leadership
- improved technological infrastructure
- building capacity

4.7.1 The alignment of LMS initiative with the institution's vision

Findings from individual leader interviews indicated that for any innovative initiative to take place, the higher education institution must align it and set it as an institutional priority in order to ameliorate its significance, which concurs to Fullan (2007) and Borotis, Zaharias and

Poulymenakou (2008) stating the importance of institution to align innovative changes into organizational visions.

"Since there was a clear designation of goals to achieve and decisive eagerness to implement LMS in a meaningful way to all stakeholders, the initiative can be seen as sustainable."

(*Leader B*)

4.7.2 Effective leadership

Focus group interviews among teachers and students also concerns the management of the intervention.

One of the senior teachers stated that:

"The LMS initiative will need an effective leader who will set and sustain the vision, a manager who will ensure the implementation of the project based on the plan, and a change management plan which will minimize any resistance phenomena. As of now we have our Head of Academic and Head of Schools fulfilling this but hopefully they will continue in the future to do so."

Students on the other hand indicated that:

"We are currently active in LMS due to our teachers. They are our leaders. If they don't persist and motivate us, then the chances for LMS to be sustainable are nil." (*Student B*)

Throughout the interview findings it is clear that leaders must create and establish a clear and compelling vision to guide the successful adoption of the intervention. This coincides with Yukl (2001) stating that leaders must enhance teamwork, place emphasis on the establishment of a positive training transfer climate, convince all stakeholders about the prospective benefits, obtain upper management support, and lead change efforts.

Similarly Fullan, Cuttress and Kilcher (2005) also indicated that leaders are the key drivers to any change and leaders with great change knowledge can in turn develop leadership in others and hence move any change initiative forward.

4.7.3 Improved technological infrastructure

Focused group interviews found that LMS initiatives are contemporary software and are termed as educational interventions. Existence of the appropriate technological capacity appears to be one of the most critical factors for introducing effective and efficient LMS in educational institutions which correlates to Macpherson, Elliot, Harris, & Homan (2004).

Lecturers were found stating that both internet and technological devices must be made available for a technology-based innovation to be sustainable.

"Access is the key to LMS. Organizations must offer reliable devices and fast enough access to the LMS. Access to LMS must be available to students and educators both in the institution and at home. Hence, without a modern gadget this is impossible."

(*Lecturer C*)

4.7.4 Building capacity

According to Fullan, Cutress and Kilcher (2005) capacity often is the missing link, even when people agree on the need for change. Interviews from focus-groups and leaders found that not only educators and students acquire new skills and understanding, they must integrate technology into curriculum, teaching, learning and assessments.

"Capacity must be evident and must be continuous. Building capacity must involve policies, strategies, and resources all designed to increase everyone's collective power to move the initiative forward." (*Leader C*)

Fullan (2006) has also stated that a system with capacity is able to take charge of change because it is adaptive. Capacity according to Fullan, lies at the root of success.

Overall, the findings from the interviews conclude that sustainable change depends on an on-going process of learning by individuals, singly or collectively. Capacity building enhances learning communities, an element important for the growth and productivity of any institution (Fullan, 2006).

Mitchell and Sackney (2000) have also presented a model that frames an understanding about the ways in which people can construct a learning community and consists of three pivotal capacities, namely personal capacity, interpersonal capacity, and organizational capacity. Mitchell and Sackney believe that these three capacities need to be built if an institution wants to sustain any reforms or innovative initiatives.

5.0 Conclusion

Resistance to change is a typical situation appearing in many cases of technology adoption. The organizational change phenomenon is dynamic by nature and can be recognised as a planned change, a technological imperative, or a situated change (Orlikowski, 1996). Regardless of the type of change and what mobilizes it, managers and leaders must be ready to handle those phenomena, identifying possible barriers to the implementation of the change initiative, mitigating actions, and candidate sources of resistance.

As it is known, Learning Management System (LMS) is recognised as an important means in delivering effective and relevant education. Integrating LMS into the conventional instructions is indeed important if higher education institutions want to be equally relevant to the changes in the educational industry. This study on an innovative initiative in a case-study institution was done to evaluate the importance, planning, implementation, utility, adaption to change, effectiveness, and sustainability in the future. Overall the findings indicate that change is possible when properly planned, adequately and positively accepted by all stakeholders and when leadership is perceived as crucial in the implementation of this change process. Throughout this study, the integration of Learning Management System (LMS) seems to be a beneficial change for both teaching and learning at the institution of higher learning under study. Since the institution has clearly planned and based their change initiative on Kotter's 8 Step Process for change, where it is stated that successful change is 70 to 90 percent leadership and only 10 to 30 percent management, the institution under study found change to be accepted well and the sense of ownership was great among all leaders, lecturers and students. However slight concerns were discovered. These concerns include the frequent disruption of the internet access and lack of personal technology gadgets that may further discourage LMS integrated learning and teaching to be ubiquitous and in future, sustainable.

On the whole, the integration of the Learning Management System (LMS) into the conventional instructions was found to be successful, however the institution needs to further ensure accurate measurements are taken by leaders for it to be sustainable. As previously stated by Fullan, Cuttress and Kilcher (2005) "once people grasp change knowledge and appreciate its centrality to success, we have a chance of developing it further in practice."

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