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Learning Management System Transformation

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ABSTRACT

Since most of the current literature of system development and implementation are focused on large and complex systems in large corporations, there is a need to study smaller scale system implementation, upgrading, and transformation. This study focuses on small scale system transformation, namely transfer learning management system (LMS) from Blackboard to Moodle at a US university, in order find the similarity and differences between large and small scaled system implementation and transformation. The goal is to identify issues specially related to smaller scale LMS upgrades, and provide insight to IT administrators and administrators of educational institutions.

Keywords

Learning management system, critical success factors, system upgrade

BACKGROUND

Organizations rely on systems for their daily operations and decision making. However, information systems are constantly changing and require frequent upgrading. Therefore, the successful transfer from one system to another or upgrading the system is essential for operations to go un-interrupted, decision making to be facilitated, and to meet the strategies of organizations (Umble et al., 2003). Just like other type of companies, for these same reasons, the higher education institutions also need to manage the change to their operating systems they are using. Particularly, at the study site the change in strategy that propelled the transfer from Blackboard (Bb) to Moodle learning management system (LMS) was the ability to enhance the capabilities of delivering on-line courses. These changes could be initiated by the institution using the system or by an outside vendor of the system. At our study site, the change to Moodle was imitated internally partly because of the pressures to lower the IT infrastructure cost.

Bb and Moodle are LMS, they help improve educator efficiency, promote social and mobile learning, and offer integrated digital content. More and more higher education institutions are adapting similar kind of learning and course management systems and improving the delivery of both on-line and on-site courses. Those LMS companies provide customization for their clients to help institutions develop and implement technology, which when adapted to the specifications of the individual schools can help improve many aspect of education. Through innovative technology, services, and expertise, LMS help to provide a better education experience for students (for a review see Adam et al. 2002). However, there are not many case studies of changes and upgrades to LMS hence, given the scarcity of this line of research we propose to undertake a study which compares LMS upgrades to existing studies of implementing ERP system upgrades, which could provide invaluable contribution to the literature in this area (see Xu et al., 2011).

A recent study reviewed the critical success factors (CSFs) for ERP projects, and identified 31 factors. They systematically reviewed articles in five different databases and from several international conference proceedings, 185 papers from current literature that published between 1998 and 2010 were identified to be relevant and used to derive the CSFs. Table 1 shows the complete list of those CSFs (Leyh, and Muschick, 2013).

Rank	Factor	Number of instances
1	Top management support and involvement	128
2	Project management	104
3	User training	99

4	Change management	86
5	Balanced project team	85
6	Clear goals and objectives	83
7	Communication	78
8	Organizational fit of the ERP / IT system	77
8	System configuration	77
10	Business process reengineering	73
11	Involvement of end-users and stakeholders	68
12	External consultants	62
13	Project champion	53
13	IT structure and legacy systems	53
15	Vendor relationship and support	48
16	Skills, knowledge and expertise	47
17	ERP / IT System acceptance / resistance	42
18	Project team leadership / empowered decision makers	41
19	Vendor's tools and implementation performance measurement	39
20	Monitoring and performance measurement	38
21	Data accuracy	34
22	Available resources	33
23	Organizational culture	31
24	System tests	23
25	Trouble shooting	22
26	Environment	21
27	Organizational structure	17
28	Interdepartmental cooperation	16
28	Company's strategy / strategy fit	16
30	Use of a steering committee	15
31	Knowledge management	8

Table 1: IT/ ERP project CSFs in rank order based on frequency of appearance in literature

Although the above table is for ERP system upgrade, we believe it should have applicability for other IT systems upgrades as well for upgrades to LMS. LMS just like ERP system are complex enterprise wide systems, and most of the CSFs for ERP would be investigated for their relevance to upgrading LMS. Hence, we used this list of the factors as the starting points of our study because the in-depth of the literature review conducted is relatively recent and complete in the field of ERP systems research. We used the list of CSFs to help us develop the interview protocol of this study, especially the top 15 factors on the list. We considered the whole list in its integrity, and attempted to put those factors into different categories, and use those categories to guild us in phrasing the interview questions.

Since most of the current literature of system development and implementation are focused on large and complex systems in large corporations, there is a need to study smaller scale system implementation, upgrading, and transformation (Xu et al., 2011). The top management and the literature often overlook smaller systems implementation and upgrading issues, and the lack of attention to the critical success factors (CSF) may be the cause of the greater likelihood of failure in this context. Therefore, this study focuses on small scale system transformation, namely transfer LMS from Bb to Moodle at a US

university, in order find the similarity and differences between large and small scaled system implementation and transformation. The goal is to identify issues specially related to smaller scale LMS upgrades, and provide insight to IT administrators and administrators of educational institutions.

THE CASE: A UNIVERSITY TRANSFER LMS FROM BLACKBOARD TO MOODLE

The mid-sized system update for LMS is common given the natural advance of the technologies and adoption. Many universities are going through the process, or will be so soon, or just finished the process. Thus this research used a case study of a university's LMS transformation to help study the CSFs for mid-sized system upgrade.

The case study is conducted within a US University (referred to as University A). The university has grown rapidly for the number of undergraduate students and currently offers few on-site graduate programs too. Beginning with the graduate programs, the goal is to gradually transition to a significant number of both undergraduate and graduate courses being offered on-line in the next 1-3 years. For a number of years it has used Bb as LMS, and because of cost and other issues related to the Bb, after a comprehensive review of available LMS on the market, it decided to transfer all the courses to Moodle. Before the university decided to move everything to Moodle, it piloted the new Moodle system for one year with selected groups to test using the new system. In addition, after they decided to move to Moodle, it runs both Blackboard and Moodle systems in-parallel for a year for people to have appropriate training and time to make the transition to the new LMS.

The research objectives of this study are:

This research studies the issues related to the transformation process from the old LMS Blackboard to the new LMS Moodle at the case study university. It investigates what are the CSFs for the new system implementation, as well as concerns and problems systems stakeholders have regarding the system transfer process.

METHOD

For this case study's data collection, we interviewed relevant stakeholder groups of the system transformation. They include people from IT department that are working on the project, people provided training to the new system, end users from the teaching side of the LMS, professors who have switched from Bb to Moodle in the last year representing the early adaptor.

Interviewee	Stakeholder group represented
The director of systems and training	IT resource management
Project manager	Project leadership
IT personnel 1	Project implementation / maintenance team
IT personnel 2	New systems training
User: professor A	New systems early adaptor (teaching side)

Table 2: interview design of the study

The interviews protocol is designed to include some standard interview questions, as well as some open and semi-open ended questions. The interview protocol is developed based on the existing literature on system upgrading, new systems implementation, and change management. The standard questions were used to capture the interviewee's perceptions of what are the critical success factors for the systems' transformation process. The open and semi-open ended questions were used to allow interviewees to express any concerns that they have, and the additional comments about the project implementation, as well as for the researchers to discover new and specific insight of the project that are not found from the literature.

The data analysis of the study is based on all the interviews, documents obtained from the project implementation process. Unit of analysis is each of the interviewee. The analysis is focused on the measurement of users' perceptions of the new and old systems, and assess whether the systems' transformation was a success. The research results are to address the research objectives of identifying the CSFs for the system transformation, as well as summarize the concerns and problems we discovered and try to provide some possible recommendations to overcome those problems.

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