Applying Interactive White Board to Project Management Profession Development in Higher Education Classroom

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Abstract

This paper presents an empirical study of a teaching approach for senior students' course of Project Management in a higher education classroom under a certification activity. The instruction activity is in a blended-learning format: face-to-face lessons, interactive white board (IWB) review activity, and online activities including online discussion, quiz and supplementary learning materials. Focusing on IWB activity, this paper intends to verify whether this interactive activity might improve the students' comprehension of PM profession knowledge and skills. The results reveal that the IWB improve the students' motivation and participation in class and make improvement in their Project Management Assistant (PMA) certification at the end of semester.

Keywords: Project Management (PM), Interactive White Board (IW), Project Management Profession Development

1. Introduction

Important of Project Management in business is growing significantly. Projects play an important role of the development of leadership capacity in modern enterprises. In order to keep competence in the global age, a well-designed management education should keep face with the fast changes. It is school's duty to assist students on PM profession development fitting the business trend and needs, and to develop an appropriate course for cultivating competent project leaders. Epstein (2008) proposed a methodology of the project management education that students can successfully complete the full course of studies based on this methodology. Cobo-Benita et al. (2010) presented a 'learning by doing' approach to a course in the project management of engineering projects. Pant and Baroudi (2008) highlighted the need for a balance between hard and soft skills within project management education in universities. It will conclude that educators within this discipline should recognize the importance of incorporating greater human skills aspects into their educational programs. Thomas and Mengel (2008) argued that distance education seems a very 'natural' way of learning the skills and approaches necessary for modern project management in complex project environments. However, few researches focuses on what do the critical skills necessary for project success, how have those skills developed, and how to teach PM in university based on test-oriented conditions.

In recent years, there has been a growing level of interest in the electronic or interactive whiteboard (IWB), well documented by the educational press. Such technology is generally comprised of a triangulation between data projector, computer and an electronic screen. This allows an individual to interact with software at the front of a class rather than from the computer and one of the major advantages claimed with regard to IWBs as a teaching tool is that they are 'interactive' (Smith et al., 2005). IWB are reported to be an effective way for teachers to interact with and converge digital content and multimedia learning resources in the classroom (Wood and Ashfield, 2008; Murcia and Sheffield, 2010). There is extensive debate about the efficacy of IWB computers in the classroom. Several studies have identified benefits such as help students keep their focus on task and engaged, make the lessons more interesting, motivating and exciting, and support teaching approach (Smith, Hardman and Higgins, 2006; Torff and Tirotta, 2010; Wood and Ashfield, 2008, 94); however, other researches indicate that using IWBs in class can be a disadvantage such as constant disorders in calibration, time-consuming to prepare boards, require ready-to-use materials and 'cost' (Brown, 2003; Slay et al., 2007; Somyurek et al., 2009). Gursul and Tozmaz (2010) examined the advantages and disadvantages of the use of smart-boards from teachers' point of view. Glover and Miller (2007) mentioned that interactive whiteboards do impact changes in the classroom environment, both positively and negatively. Whiteboards allow for increased interactive participation and interest by the students. Research has shown that there is a difference when the technology becomes the focus of teaching and learning and there is a pedagogic shift from the didactic to the experiential (Glover and Miller, 2007). To date, few systematic research of IWB learning behavior has been conducted for formal course in higher education.

Interactive whiteboard (IWB) is used in many elementary schools and some normal university for pre-teacher education in Taiwan, however, few in formal courses of university. Project management comprises a wide range of roles and responsibilities and this must be reflected in educational programs. This paper introduces an innovative way to teach Project Management, while integrates IWB, an internet and communication technology, into Project Management course in high education classroom and get some pilot results.

2. Purpose

This paper considers the ways in which the interactive whiteboard may support and enhance pedagogic practice through class teaching. The purpose of the study is to introduce, develop and evaluate the instruction strategy to improve the effectiveness of using IWB at PM course in higher education classroom. The student who gains an understanding of the PM concepts can take the certification of PMA and then apply those PM skills to all of the disciplines of business.

3. Methodology

An instruction of 21 students in a Project Management course is used to test and verify this pilot model. The project management course is offered by the business school at a technology university in Taiwan. The enrollment is senior students from business administration department. The follows illustrate research and instruction design.

(1) course theme: the core-theme of instruction is 'Project Management'. The main document for the professional PM certification is the Project Management Body of Knowledge (PMBOK). This course follow the PMBOK content thus

sub-themes of instruction are (a) Project initiating 8%; (b) Project planning 25%; (c) Project executing 23%; (d) Project monitoring and controlling 22%; (e) Project closing 7%; (f) Project introduction, Project leadership and Project ethic 15%.

(2) instruction strategy: the first twelve weeks of the semester is face-to-face lecture and online discussion/learning/quiz; the following four weeks is IWB interactive activity (review for the certification) in the classroom; two weeks is for midterm exam and final exam. The IWB material development by research team is shown in Figure 1 and Figure 2.

(3) data analysis: both qualitative and quantitative data analysis are used. An informal survey was developed to gather information since this pilot instruction sample is too few for statistical analysis. The survey was not pretested and initially there was no intention to statistically analyze the results. The intent was to gather information and draw conclusions based on attitudinal and short answer responses as a means to formulate ideas for continuous instructional improvement.

Figure 1. The IWB material of grouping and groups scoring for review activity.

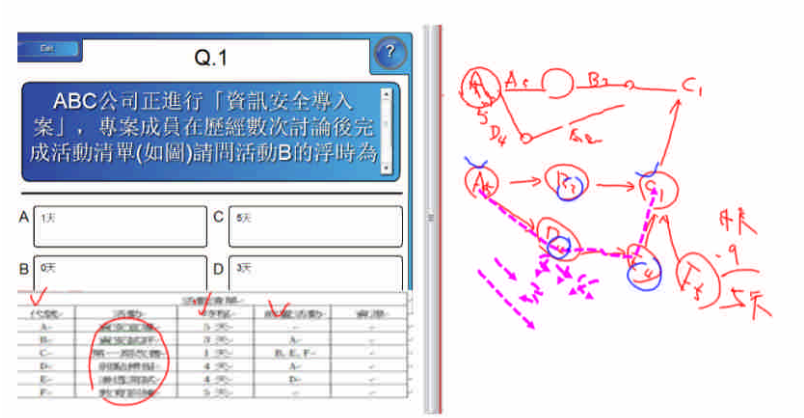

Figure 2. The left-side is IWB material of quiz contest; the right-side is record of student's answer with teacher's interpretation in class.

4. Findings

This study aims to develop a pilot model of Project Management profession development and instruction design. Tested on 21 senior students, the data generated showed acceptable results of IWB usage in higher education classroom.

1. Student attitudes toward using Interactive Whiteboard

"Survey about students' opinions on using Interactive Whiteboard in Project Management course" which modified from the questionnaire of Duan et al.'s research about m-learning (Duan et al., 2010: 241) and Eskil et al.'s research about classroom technology in Science and Technology lessons (Eskil et al., 2010) was

used as data collection tool. This questionnaire consisted of twenty five attitudinal questions is sent to 21 students three months after their certification in order to get more objective responses and 17 valid responses returned. The respondents were asked about their perceptions of the various statements related to their perceived attributes on using IWB as indicated in Table 1. Five-point Likert-type scales, ranging from strongly agree (5), agree (4), neither agree nor disagree (3), disagree (2), to strongly disagree (1), were used.

Table 1. Students' opinions on using Interactive Whiteboard in Project Management course

Construct	Variables	Survey items	Mean
Perceived near-term usefulness	PU1	I think using interactive whiteboard can increase the efficiency of my studies.	4.00
	PU2	Interactive whiteboard is useful for my studies.	3.88
	PU3	I think using interactive whiteboard can increase the effectiveness of my studies.	4.00
Perceived ease of use	PEOU1	I think learning to use interactive whiteboard is very simple.	3.76
	PEOU2	It would be easy for me to become skilful at using interactive whiteboard in classroom.	3.65
Personal innovativeness	PI1	I like to experiment with new information technology.	4.00
	PI2	If I heard about a new information technology, I would look for ways to experiment with it.	3.82
	PI3	I liked the use of blended-learning, including online, interactive whiteboard and face to face.	4.00
Perceived long-term usefulness	PLTU1	Using interactive whiteboard helps me to gain success in the PMA certification.	3.65
	PLTU2	Using interactive whiteboard benefits me in the long run.	3.76
	PLTU3	Learning Project Management helps me to realize my future target.	3.47
	PLTU4	Learning Project Management benefits me in the future.	3.76
Behavioural intention	BI1	I intend to use interactive whiteboard at classroom learning in the future.	3.94
	BI2	I intend to learn more about project management knowledge in the future.	4.18
	BI3	I like to use interactive whiteboard to support learning at classroom.	3.65

	BI4	I think there should be more chapters covered interactive whiteboard at classroom.	3.76
Using of interactive whiteboard in project management course, …	O1	Increase the intelligibility of the subjects.	3.76
	O2	Let me like project management course more.	3.76
	O3	The lessons become more enjoyable	4.24
	O4 (opposite)	Learning the lessons becomes difficult	2.76
	O5 (opposite)	Let me get bored	2.53
	O6	Let me listen lessons carefully	3.82
	O7	Let me participate in lessons more	3.94
	O8	Let me learn the subjects more easily which I have difficulty in learning before	3.88
	O9 (opposite)	I do not understand the lessons when interactive whiteboard is used. For this reason I get bad marks in the exams.	2.59

Feedback from students shows that IWB improves their motivation to participate in class and attitude toward PM learning on test basis. Using IWB increases the intelligibility of the lessons. The students, who review the PM contents meaningful by using IWB, will have positive attitudes to the PM lessons.

2. Student achievement of PMA certification

There are 21 students enrolling in the class and participating in eighteen weeks PM course. At the end of term, 17 students took the PMA certification hold by NPMA and 16 students (76%) passed the certification. Only one student failed the PMA certification and the average certification score of those 16 students is 74.88.

The IWB activities which are used in lessons have been positive effects to gain the skills and knowledge for certification. By using these materials, students can be addressed to the certifications and this helps them to be an individual person who thinks, asks and discovers. These materials have been made to feel positive effects on the success of the students.

3. Student suggestion of using Interactive Whiteboard in classroom

In addition, the extent of intention to use IWB is asked by survey item “Would you recommend using interactive whiteboard in the course again?” , which results as yes (10 responses, 59%), maybe (5 responses, 29%), to no (2 responses,12%). This shows over four-fifths students are positive on intention of using IWB in course. The survey also consisted of three short answers questions including: (1) What did you like about the interactive whiteboard learning modules? (2) What could be improved using the interactive whiteboard modules in the PM course? (3) Do you have any suggestions on improving the use of interactive whiteboard for instruction in other course? Most responses of those short answers show positive for IWB usage, such as : easy, interesting, different way for learning, increase the interactive participation between teacher and students, help to concentrate attention on learning target, change the class lively, attract the attention of students, et al. Here we cite some suggestions from students.

(1).About the IWB hardware: Bigger projection screen, the font showing on the electronic board is not clear enough, sensor pen should be more sensitive, poor stability and lag, too many reposition operation, et al.

(2).About the IWB usage: enhance familiarity with the operation in order to use it effectively.

(3).About the IWB content: not all knowledge conceptions are suitable for IWB; it should be used in the appropriate content and activity.

The results from this study indicated that there are positive perceptions of student's experience of their learning environment in using the IWB in PM and its effects to the learning, getting increased the interest by means of IWB. When the IWB is used in PM lessons, rich stimulations are gained by the students. The more students have faced with the stimulations in the education- instruction atmosphere, the more their learning gets to be easier. In addition, to have enough skill about the IWB usage in terms of benefitting from them effectively can be helpful for students. As a result of this, students can understand the lessons better and they can be more successful at the exams.

5. Conclusion

Based on the results of the survey, we concluded that the review lessons carried out with interactive whiteboard were smoother and subjects could be comprehended in a quicker way. There is growing importance to the suitability and the criticism is not in respect to the technical skills within project management but rather the lack of emphasis on the human side. A more balanced approach between hard and soft concepts would be development in project management education. In the student-centered IWB classroom, interaction and conversation between teacher and students is good for a balance between hard and soft skills in universities.

However, without knowledge and skills of IWB, one would feel uncomfortable, or even feel intimidated by it. Thus, to benefit most from it, the students' attitudes, skills and experiences with new technology should be improved. Teacher should pay some effort on helping students familiar on using IWB in course learning.

Students also suggested more systematic and various IWB material designs. Teachers required developing proficiency with the systems and the revision or development of materials to support pedagogical use of the system. Eskİl et al. (2010) have found that when technologies are thoughtfully integrated with a sound pedagogical vision, students' views of teaching and approaches to learning can be positively affected.

This paper considers the ways in which the interactive whiteboard may support and enhance students' attitude and effectiveness toward PM learning and profession development. Data collected from questionnaire has provided opportunities to consider the potential of such technology to facilitate a more creative approach to higher education teaching. In addition, the study provides an empirical yet valuable step towards an investigation of IWB interactive strategy into management courses. While encouraging, this conclusion indicates that it is important to conduct research on the creative IWB learning material design and on the effectiveness of this teaching model in future.

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