

The Integrated Approach to E-Commerce Curriculum Success

Jing Zhao

Center for International Cooperation in E-Business

The College of Management, China University of Geosciences

Wuhan 430074, P. R. China. Phone: 0086-27-87482253.

E-mail: yuzp@cug.edu.cn

Abstract

The Internet has the potential to improve teaching and learning processes [1]. Learning and educational effectiveness of the integration of IT into the classroom has become a major issue. The purpose of this paper is to report on insights gained in integrating e-learning and classroom learning into my on-campus e-commerce courses over the last three years, and to explore planned and controlled approach to integrated model success for expected learning outcomes. A framework of the integrated model effectiveness is presented, which frames success dimensions, defines four dimensions of success, and addresses interrelated relationship. A survey study is used to demonstrate the analytic utility of the framework in the context of measurement of student learning experiences.

Keywords: Integrated Learning Model Success, Integrated Mode, Integrated Pedagogy, Student Satisfaction, Individual Impact and Evaluations.

1. Introduction

Recent years have witnessed the rapid expansion of online technology and its use in education and training. The Internet and web technologies are used for courses of study as small as self-paced tutorials and as large as entire degree programs [2]. Many educators intuitively feel that the integration of computing and communication technology into the classroom will enhance learning and the student ability to apply knowledge and skills to problem-solving situations. Despite this belief, pedagogic practice has not yet fully integrated information technology (IT) into the curriculum and classroom

activity, and computers remain greatly under-utilized in this context. [3]. The integration requires a fundamental change in the instructional mode, pedagogy design and learning process. The most critical challenge has been how to find effective approach to the integrated learning model success. The difficulty is to figure out how to perform the integrated strategies well.

Being an early adopter of the Internet in my traditional on-campus courses, I initiated a teaching research project for integrating Internet-based learning and classroom learning in E-Commerce course in 2000. I have reported an integrated learning model that has been used successfully in the course [4]. The objective of this study is to explore planned and controlled approach to integrated learning model success for expected learning outcomes. First, a framework of the integrated model effectiveness is presented, which frames success dimensions, defines four dimensions of success, and addresses interrelated relationship. Following that, a survey study is used to demonstrate the analytic utility of the framework in the context of measurement of student learning experiences. We expect the framework could be developed to serve as the conceptual basis for analysing and comparing education practice in integrating e-learning and classroom for enhancing education quality at university levels.

2. Background

A long practice in integrating e-learning and classroom learning in my traditional on-campus e-commerce courses has been developed since 2000. This year I published a paper to address the integrated mode of learning e-commerce. The integrated way is to create a supportive environment for learner centred learning process, which encompassing multimedia based

instruction teaching, Internet based learning, and teamwork. As Figure 1 illustrates, in each mode we design relevant methods for expected object of pedagogic practice. Grading consists of three portions that are commensurate with the activities existed in the learning process. A total of 930 students took the e-commerce course from 2000 to 2003, and 186 of them are graduate student. An analysis of students' feedback highlights strengths and features of such an approach. Statistical analysis revealed that successful use appears strongly related to the integration of the various course components based on IT, relevant methods fit for student satisfaction with a learning experience in the integrated environments, and the strategic instructional design for quality education.

Modes	Methods	Objects	Grading
Classroom	Multimedia instruction	Introducing foundation of e-commerce	Written examination: 40%
	Case teaching		
Internet-Based learning	Online virtual learning system	Providing a Individual learning in an asynchronou s mode	
	Online shopping	Providing an experience-oriented way to learn e-commerce from real world situation	
	Evaluation of Web sites		
	The virtual e-market operation		
Teamwork	Team project and presentation	Enhancing students' problem-solving skills and Collaborative ability	Project: 40%
	Building Web site		
	Business plans fore-commerce company		

Fig.1 The Integrated mode of learning E-Commerce

3. A Framework for Integrated Learning Model Success

The measurement of the integrated learning model success or effectiveness is critical to our understanding of the value and efficacy of new learning processes. We

attempt to synthesize our previous findings in the integrated mode of learning e-commerce into more coherent body of knowledge and to have an insight into the strategic design of such integration, which may be of benefit for universities with similar objectives. We proposal a taxonomy and an interactive model as framework for conceptualizing and operationalizing the integrated learning model success. The model consists of four interrelated dimensions of success: INTEGRATED MODE, INTEGRATED PEDAGOGY, STUDENT SATISFACTION AND INDIVIDUAL IMPACT.

The resultant integrated learning model success is produced in Figure 2.

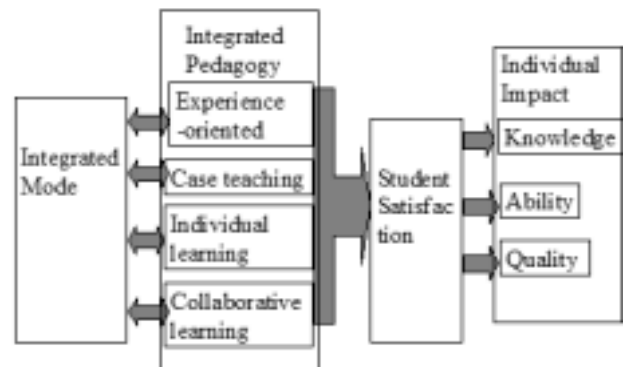


Fig.2 The Integrated learning model success

Four interrelated dimensions of success can be interpreted as follows:

Integrated Mode

It is related to adopted modes in an e-commerce curriculum, such as Classroom, Internet-Based and Teamwork. There are important considerations on what should and shouldn't be placed in Internet-based learning environment and which tools work best to reach instructional goals. Integrating the online and face-to-face mode for different subjects and different courses need a careful analysis and design.

Integrated Pedagogy

Effective use and integration of e-learning and classroom learning in on-campus courses requires development of

the integrated pedagogy for student-centered so that faculty can make correct decisions regarding methods fit for student satisfaction with a learning experience in the integrated environments, course content development and strategic design for each activity in the learning process and so on.

Our research shows four elements exist in integrated learning processes, which are Experience-Oriented learning, Case Teaching, Individual learning through on-line virtual teaching system and Collaborative learning. It is considered to provide appropriate integration of four elements into pedagogic design; effort will have significant impact on education practice. Our finding indicates that relevant method used in integrated learning mode is of critical importance and understanding the way individuals learn is the key to improving the pedagogic practice [4].

Student Satisfaction

The innovative feature of integrated learning model is to transform the learning process from the instructor-centered into student-centered. This learner centered approach are that it is experience-oriented and activity-based, and in the approach students can create their own ideas, both individually and collaboratively. Evaluations of the learning model success will centre on student satisfaction. So strategy design for measurement should systematically combine individual measures from the model success categories to create a comprehensive measurement instrument.

Individual Impact

Student satisfaction and individual impact are closely interrelated. Positive experience with student will lead to greater impact on student's knowledge, ability and quality in a causal sense.

Effective learning is a process of building and transforming mental models. Transformations entail changes in organization and structure of knowledge, development of problem-solving ability and critical thinking ability, and enhancing student quality.

Four interrelated dimensions of success imply a planned and controlled approach in identifying,

integrating and evaluating the different modes, methods and activities in student-centered learning process for the intended education purposes.

4. Data Analysis and Result

In the study, the effects of the integrated learning model was measured in terms of students' evaluation of their learning experience. The subjects in the study were the one-hundred-and-seven student who took the courses in the fall of 2002. There were forty-three undergraduate (42.1%) students and sixty-four graduate (57.9%) students, and sixty male (56.1%) and forty- seven female (43.9%) students in these classes. Students participated all learning activities in the integrated learning model including On-line shopping, the Virtual e-market operation, Case teaching and Team-project. The students may also access, Online Virtual Teaching System at any time and any place. It provides an online learning platform as a supplement to classroom learning. The students learn by themselves in an asynchronous mode. They can view teaching material and use source of e-commerce course at their convenience. This system is mainly made up with six modules: course teaching, case discussion, exercise option, experiment teaching, team activities and BBS.

The 11 items used to measure students' evaluation of their learning experience were included in the post-course questionnaire. Five-point likert-type scales were used to measure all items. The questionnaire also contained two multiple-choice questions eliciting the subjects' comments on learning modes and teaching methods that they liked or disliked.

Participants' final exam scores were also available. The exams consisted of two parts. One was on material covered in the course, a written examination, and another was oral presentation of team project at class. It was impossible to connect questionnaire responses with these test scores because the questionnaires were administered anonymously.

Subjects reported higher levels of satisfaction with the modes and methods in integrated learning process, which are in correspondence with four elements in integrated pedagogy dimensions shown in Fig.2:

Experience-Oriented Learning, Individual learning, Collaborative learning and Case teaching. Mean and Variance for four elements are reported in Table 1. Univariate analysis of variance for the evaluation of four elements in integrated learning model is presented in Table 2.

SUMMARY					
Elements	Variables	Count	Sum	Mean	Variance
Experience-oriented	On-line shopping	107	448	4.186916	0.511903
	The virtual e-market operation	107	430	4.018692	0.754364
Individual learning	On-line virtual teaching system	107	431	4.028037	1.178452
Collaborative	Team-project	107	417	3.897196	0.942162
Case teaching		107	431	4.028037	0.65015

Table 1. Summary: Mean and Variance for four elements of the integrated learning model

Indeed, the medians for all four elements are well above a rating of 3.89, indicating that students rated the integrated model on the positive side. In fact, as demonstrated by the three elements with medians of 4.0, the students found the experience-oriented learning, case teaching and individual learning particularly important and valuable.

Source	SS	df	MS	F	P-value	F crit
Between Groups	4.534579	4	1.133645	1.404058	0.231316	2.388752
Inside Group	427.9252	530	0.807406			
Total	432.4598	534				

Table 2. Univariate Analysis of Variance for the evaluation of four elements in Integrated Learning Model

Students' response to the open-ended question related to learning mode and method are reported in Table 3. This feedback provided further insight into the characteristic of each mode. It was highlighted that especially the Virtual E-Market operation was regarded as an exciting element of this integrated mode. Students

seem to be aware of the increasing importance of this experience-oriented approach. Besides the learning outcome regarding further understanding of real-world e-business process, the developed skills in making exchange and collaboration in the process was very much appreciated by the students. For Online Virtual Teaching system and Teamwork, It had a higher proportion of positive opinions than Classroom teaching, while Case teaching was very much appreciated by the students. The feedback corroborated that Case teaching is a good teaching method in traditional face-to-face learning mode, and students would prefer to be in the classroom with the professor for hands-on enlightening and teaching.

Question	Multiple-choice	Percentage
My most favourite learning mode in this course	Classroom teaching	11.2 %
	The Virtual E-Market operation	49.5%
	Teamwork	41.1%
	Online Virtual Teaching system	44.8%
Which method should be used in the e-commerce learning model	Instruction in basic e-commerce	61.6%
	Case teaching	75.7%
	The chapter exercises	28%
	The Virtual E-Market operation	78.5%
	Class discussion	42.9%
	Teamwork	71%

Table 3. Result of students' response to the open-ended question related to learning mode and method

Data analysis supported the utility of the framework, indicating that overall, students' affective reactions to the integrated learning model and pedagogy were powerful positive. That is, students have experienced integrated learning process in support of their knowledge construction, active learning, cooperation and learning via problem solving, and individual self-efficacy through On-line virtual teaching system.

5. Further Research and Conclusions

Based on previous research we develop a framework of the determinants of the integrated learning model effectiveness and report the results of a survey study to empirically test it. The framework for integrated learning model success seems to be flexible means that are amenable to the implementation of different learning modes, and to be planned and controlled approach to evaluate how learning model, pedagogy, and subject matter interact to produce desired learning outcomes.

These preliminary results have revealed possible topics of research. Our next step will be to improve our survey instrument to better isolate the effect of pedagogy used in right mode for subject satisfaction. It is important to attention to the possible interactions among the success dimensions and the effect of various independent variables on one or more of these dependent success dimensions. Four success dimensions that we identified in our framework also await systematic measurement in the context of empirical investigation.

With our efforts and practice in the project the framework could be developed to serve as the conceptual basis for analysing and comparing education practice in integrating e-learning and classroom for enhancing education quality at university levels.

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