

2009

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Recommended Citation

Fang, Woo and Chan, Yu, "Using Distance Learning in a Security Class" (2009). *2009 Proceedings*. 20.
<http://aisel.aisnet.org/siged2009/20>

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USING DISTANCE LEARNING IN A SECURITY CLASS

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Abstract:

Many courses today employ a method of distance learning. As course content evolve rapidly, business models and managerial challenges are formed, it is relatively difficult to maintain a rigorous and rigid curriculum with effective outcomes in business schools. This paper reports on the work undertaken by a university business school incorporating a distance learning model curriculum. We examine how students were given the opportunity to develop their analytical, decision-making and group work skills in particular class. Our findings indicate that the distance learning trend can yield significant benefits in education and valuable skills and practices for use in the real world.

.Keywords: Learning, Education, Pedagogy.

I. INTRODUCTION

Technology learning is an innovative method that uses technology to enhance learning. It is usually being used remotely where the learner and the instructor are not present at the same place (Verduin & Clark, 1991). Many studies tried to examine the effects of technology learning. Those effects take place in universities; naturally, they impact the students who take the course or courses using technology learning; technology learning also impact the instruction method, as the students are not present in a classroom, the instruction method must be modified. The reader is referred to several review papers that were published in this area. For example, see Schlosser and Anderson (1994), Moore and Thompson (1997) and Lesh and Rampp (2000). Some studies show that students consider the technology learning method as superior to the traditional teaching methods and therefore, it bears several benefits for the students as it enhances the learning experience (for example, see Boucher et al., 1999).

One important factor that makes technology learning so unique is that it allows learning to be an individual matter. That is, the learner learns in his or her own time, in his or her own pace, rather than following the instructor's dictated pace (Kosmahl, 1994; Stephens & Doherty, 1992). As stated earlier, studies that explored technology learning show that this method is considered better than traditional methods because of the flexibility it allows to the learners. This outcome comes at lower costs to the students (all they need to have is a computer and a headset) and the institutions using the method, as they do not need to supply the students with campus services, such as classrooms (Russell, 1999; Clark, 1999).

This paper discusses a model of technology-driven course curriculum and reports on its effectiveness. The first part of the paper gives a detailed review of the literature and provides a

background to the development initiatives from a business school perspective. It then describes a specific course, namely, a simulation game course, and its features, and presents a summary of the approach adopted in evaluating this method. The final section presents an analysis and findings of the empirical study and discusses its implications. We examine the application of technology in a game environment. We specifically interested in examining the technological issues related to the learning experience. Our focus is technology in the game and the learning experience. Organized in six sections, the next section explores technology education and games. Then we present different learning models we follow in this paper. Next, we state the methodology. We then present our results. Finally, we discuss the results, draw some conclusions and suggest recommendations for future study.

II. LITERATURE REVIEW

An investigation of the literature reveals that over flexibility may deter students from learning. Studies show that students tend to postpone their assignments and sometimes, they can go through an entire course without learning and completing their assignment only toward the end. Unlike traditional teaching methods, the instructor usually cannot follow student participation in virtual classes, as those can be easily manipulated using the available technology (Webster & Hackley, 1997). Griffin et al. (1999) states that sometimes one may even find negative reaction to this method. This usually happens when the students are not technology savvy and have hard time operating in a virtual class.

In addition, in today's environment it is only natural that we desire to see our students becoming more ethical. Many argue that higher education institutions should increase their emphasis on ethics (e.g., Bennis and O'Toole, 2005). However, usually educators fail to help students thoughtfully assess what goals are worthy of professional (and personal) aspirations, and aid and abet physical, psychological, spiritual pain for our students, the organizations they work for, and the society at large (Giacalone, 2004). Koehn (2005) agrees that we are failing as professionals. He argues that what is needed is a radical change in peoples' self conceptions and that it is our duty as teachers to bring about a positive change in our students.

The argument to increase pedagogical emphasis on Business Ethics is supported by the observation that young people are susceptible to attitude change (Ricci and Markulis, 1992). Kohlberg (1984) suggests that young adults are more open to learning and better deal with ethical issues. In further support of the idea are studies showing that ethical attitudes change with academic exposure or training (e.g., Acevedo, 2001).

In addition, studies also show that some decision makers are unaware of the implications of their decisions and others seem to believe that other concerns, such as beliefs, should not even be applied to their decisions (Teach et al., 2005; Ben-Zvi, 2006). This means that business decision makers are either unaware or unwilling to believe that that business decisions have ethical consequences, that ethical issues should not be considered in their decisions, and college students as future decision makers are open to and capable of learning to incorporate ethics into their decision making . So it is fairly easy to argue that we ought to try to teach business ethics.

When considering distance learning, DL can be defined as a formal approach to learning during which the majority of instruction occurs while the learner and the educator are at a distance from each other (Verduin & Clark, 1991). A large number of studies have examined the effects of DL on students, instructors and their institutions. The conclusions of these studies have been summarized in several review papers, such as Schlosser and Anderson (1994), Moore and Thompson (1997) and Lesh and Rampp (2000). Studies found that when contrasted with traditionally-taught classes, for certain student populations, DL may appear as a superior course delivery method (Boucher et al., 1999).

DL allows learning to be self-paced rather than instructor-paced (Kosmahl, 1994; Stephens & Doherty, 1992). Usually, studies that explored DL showed that DL does not produce inferior learning outcomes compare to traditional methods, and usually these outcomes come at lower costs to both the students and the institutions using the method (Russell, 1999; Clark, 1999). However, other studies found that DL gave the students a sense of empowerment but the remote

environments were judged "less rich" than those experienced by those taught in locally-controlled environments (Webster & Hackley, 1997). Griffin et al. (1999) noted that sometimes students presented negative attitudes toward DL; this was associated with the technology being used and the students' inability to deal with it.

DL also presents an experiential learning experience (see, for example, Asakawa, 2003; Ben-Zvi and Carton, 2008). Although published more than 20 years ago, Kolb's theory (1984) on experiential learning is still considered a central theory in education (This theory was later extended, see Kolb and Fry, 1985). Kolb's model emphasizes the interaction between experience and learning by exploiting the subjective nature of the learning process and creating a transformation of experience that engenders knowledge (Mainemelis et al., 2002). DL relates to experiential learning as they present a method that epitomizes experiential learning over the web. The DL experience presents a practical method for exploring the interplay between teaching, learning and assessment. Thus, we discuss the learning experience using a specific DL class.

III. THE CURRICULUM: LEARNING AND EXPERIENCE

Despite the crash of high tech companies in the beginning of the decade and the financial crisis we are currently experiencing, learning with distance learning tools in business schools is still popular with students. Today, most university degrees in business or commerce address distance learning in some way or other in their curricula. Given the dynamic nature of the content, continuously evolving business models and applications, technological and managerial challenges in distance learning transformation, ever-expanding knowledge in the interacting disciplines and, importantly, its multi-disciplinary focus, it is a challenge for business schools to design and redesign e-commerce courses that are relevant, 'current' and pedagogically effective. This section discusses a model distance learning curriculum and reports on its effectiveness. We first give a detailed review of what models are currently used; in addition, we provide some background to the distance learning curriculum development initiatives from a business school perspective. We then describe a specific distance learning experience from a course we conducted. We show its features, and present a summary of the approach adopted in evaluating this method. Then finally we present an analysis and findings of the empirical study and discuss its implications.

We note that despite the recent crisis and the economic downturn in 2001, the number and value of electronic transactions between businesses, government and customers is steadily increasing, and both business-to-customer and business-to-business electronic commerce transactions have continued to expand. Regardless of the dot com crash in 2001, many organizations are still aware of the need for effective e-commerce strategies and applications. The number of business organizations conducting business using the Internet has exceeded market projections and expectations. Today, large-, small- and medium-sized enterprises are all using the Internet to communicate with their business partners, to connect with back-end information systems, and to carry out financial and other commercial transactions with suppliers, customers and other partners in business. Governments have also recognized the advantages and several government to consumer (G2C), consumer to government (C2G), and business to government (B2G) sites have become operational at federal, state and local government levels. Universities and their business schools have responded to this phenomenon with the introduction of several new courses and degrees that address the needs of e-commerce.

E-commerce is the process of trading goods, information or services via computer networks, including newer technologies that emerged over time. The term 'e-business' is a much broader concept that includes any business operation conducted through information networks such as knowledge sharing and customer services, and includes other applications, systems and technology to support commerce and improve business performance, even though the terms 'e-commerce' and 'e-business' when they refer to distance learning in the broad sense are sometimes used interchangeably in the literature. The e-business discipline plays the role of a

'catalyst' for change, driving the need to redefine the sets of capabilities relevant to information technology and business, and to redesign the related curricula.

In this section we evaluate the effectiveness of one such curriculum design and delivery strategy. Taking a business perspective and focusing on bridging the gap between technology and business, this e-commerce course is offered by a business school in a university and contributes to the knowledge on e-commerce curriculum development. The objective of this study, therefore, is to analyze the design and instructional strategies employed in the delivery of an e-commerce unit in general, and the e-commerce group project as a case study and to provide guidance to other business schools. Thus, an in-depth case study approach that incorporates a questionnaire survey data collection method consistent with the case study methodology considering a security class that employed a distance learning method was employed.

IV. METHODOLOGY

E-business is truly an inter-disciplinary topic and must be of interest to professionals and managers in any functional area of the business world. It requires an understanding of the basic concepts derived from accounting, finance, information systems, marketing, management and operations/logistics management disciplines. The proposed structure of the curriculum takes this into consideration to maximize value to students, and draws the expertise available within the School of Business. Accordingly, it is taught in three different disciplines in the business school with each discipline focusing on one particular aspect of e-business. For example, the discipline of marketing has an e-marketing course that focuses on online marketing and advertising, while the discipline of business law has a course titled 'e-commerce law' which focuses on legal aspects. The discipline of business information systems similarly teaches a course titled 'e-commerce business models', with a focus on internet business models and strategies, and business processes. Within the business school, these three courses are well coordinated ensuring that these courses complement each other with no duplication of the content. In fact, these three courses are a part of an overall requirement to major in business information systems. This paper reports on the evaluation of the e-commerce business models course offered by the discipline of business information systems in general and the pedagogical effectiveness of the e-commerce group project in this course in particular in facilitating the teaching and learning of e-commerce.

The course we used was a security course. It is expected to provide a detailed overview of the concepts and processes used in doing business electronically. The main aim is to provide a strong foundation knowledge for students to work in the new digital economy and e-business era. Importantly, the objective is to provide the critical link between technologies and firms' performances and bridge the gap between technology and business. The emphasis is on the way technologies facilitate the business rather than on the technologies themselves. At the end of this course, students are expected to have a sound knowledge of the concepts and processes for doing business on the Internet, and skills and knowledge for the design, development and evaluation of e-business models and strategies.

This subject is offered as an elective for second/third year students. Most of the students come from both information technology/computer science and business schools. Students are expected to attend a two-hour lecture, a one-hour tutorial and a one-hour computer laboratory workshop every week during the semester (for 13 weeks - total 52 contact hours). The topics covered in the lectures include -- concepts of e-commerce and terminology, digital economy, components of e-business models, various B2C models including e-tailing models, evaluation of business models, website design and evaluation, B2B models, electronic marketplaces, e-auctions, electronic payments, online security, order fulfillment and e-supply chains, integration of backend with e-commerce front end, strategies for implementation of e-commerce, launching an online business, and e-business metrics.

The teaching and learning strategy incorporates classroom lectures interspersed with case studies, small vignettes, group discussions and group activities, tutorials, and one guest lecturer

from the industry. Weekly tutorials, with the help of case studies and discussion questions, are used to reinforce the concepts learnt in the lectures. While the limited number of case studies with Australian content poses a problem, the learning value of case studies is significant, since the issues are the same in the USA and in Australia. In the computer workshops, students are asked to perform certain online tasks and to evaluate websites and e-business models (such as e-tailers, e-services, e-marketplaces, auctions and other companies' websites) and develop an overall understanding of the strengths, weaknesses, processes, and strategies employed by various e-businesses both locally and internationally. In addition, students are given some training in the usage of various web publishing tools such as front page, HTML and others.

Assessment is an integral part of learning and designed to enable students to demonstrate their understanding of the subject in question. It is also used as a means of providing feedback on teaching and learning to students. Considering this objective, appropriate assessment methods are designed and implemented. In addition to these, other principles such as transparency of processes and criteria, and maintaining relevance to the changing subject content are considered while designing the assessment. Accordingly, the assessment tasks in this course comprise examinations, individual assignment, tutorial assignments, and a major group project. While the examinations and tutorial assignments require theoretical knowledge, the individual assignment and group project focus on application and implementation.

V. DATA COLLECTION

The objective of this study is to analyze the curriculum design and delivery of the e-commerce business models unit from a student perspective. Particularly, the objective is to examine student feedback on the effectiveness of the e-commerce group project and its pedagogical benefits. Like other evaluations in the higher education context, this study collects data from students already enrolled in this unit/subject. Considering the low cost, confidentiality and relatively easy administration, there were no sampling problems. A questionnaire survey is the method employed to collect data in this study. In addition to this, regular qualitative feedback provided by the students throughout the semester by emails, comments on the online discussion board, and formal feedback given by student representatives in student-staff meetings organized by the school are considered for analysis. This study is conducted by the author, an academic who is responsible for the design and delivery of the unit. Therefore, there may be some inherent bias in the study which may limit the generalisability of the findings. In addition, general limitations of the case study approach and questionnaire survey also apply to this study.

The questionnaire consisted of some demographic details such as gender, nature of enrolment, course currently enrolled in, number of information technology or information systems related subjects completed so far, and current employment. In the second section, information about the background knowledge of students with reference to various attributes is collected. Some of the aspects include students' understanding of how business works, web tools, project management tools, generic business information systems, business processes, business terminology and information about the industry in which their e-business plan is developed. Similarly, students are asked to rate their previous experience in group work, writing reports, creating websites, e-commerce programming and online buying and selling on a scale of 1 to 7 (1= disagree strongly; 7 = agree strongly).

In the third section, graduates' perception of the group project with respect to several aspects is included. Students are asked to express their agreement or disagreement with the statements that describe how the e-business project helped them in achieving some learning goals. Some of the statements seek students perception on the hands-on experience in the development of an e-business plan, web sites and use of web publishing tools, and generic skills such as project management, group work, report writing, interpersonal, creativity, analysis and information search. In addition, the statements also refer to the perceived understanding of basic discipline specific concepts, inter-relationship between various discipline-based decisions, and skills and knowledge that deal with business integration. In order to measure the perceived learning value,

students are also asked whether this project is more interesting, innovative and exciting than traditional textbook- and lecture-based learning. In addition, students are asked about the general course design and delivery, resources and support offered, and the overall effectiveness of the course and group project. For example, several statements were included that seek students' perceptions on the coverage of e-commerce concepts, various models, case studies discussed in the tutorials, tutorial discussion questions, online discussions, sequence of the topics, currency of the issues discussed, examples in an Australian context, discussion of theoretical issues, computer laboratory usage in class, etc.

The evaluations by students were used to help determine the acceptability of the project in terms of the following criteria: effectiveness of the project-based work in helping to develop skills and knowledge; attitudes towards the project as an assessment component; its contribution to the achievement of main learning outcomes; its ability to reinforce the theoretical concepts and the development of certain generic graduate attributes. The analysis of the data, findings and anecdotal evidence collected is presented in the next section.

VI. RESULTS

The e-Commerce group project is designed as a part of the curriculum to support teaching and learning through the 'learning by doing' approach. The cross-disciplinary focus, an attractive feature of the e-commerce group project, brings salient features of accounting, logistics, marketing, finance, management, production and service operations into the course. Apart from providing an opportunity for students to understand and design an online business plan, it requires students to integrate and utilize what they have learned earlier. Ideally, students must have some basic working knowledge of all functional areas of business. Since the business planning process is time consuming, students are encouraged to form groups in the first/second week of the semester. This creates an opportunity for students to complement the skills drawn from their different disciplinary backgrounds. Apart from helping students to finish the project well during the semester, this project is expected to improve their group working and communication skills, other important graduate attributes prized by employers and industry alike.

Instead of forcing students into pre-determined groups, the course allows students to form groups that are compatible and convenient, consistent with effective group working principles. In order to ensure an appropriate and feasible selection of the product and/or service business, each group is required to submit a draft proposal in the second week of the semester. This is then verified and approved by the academic who gives a green signal to the group to work further. Students will then research more information about the products and services they are intending to sell online, competition in the marketplace, and other business and technical information required to develop a sound business plan. The final project involves development of a comprehensive e-business plan for a new or existing product/service and developing a workable e-commerce website using various web publishing tools. The objective of this applied project is to learn in practice e-business concepts including strategy formulation, designing a business model, and comprehensive e-business planning.

The e-business plan must include an operations plan, a marketing plan, competitors' analysis and a financial plan. It should consist of a detailed description of inputs, processes, procedures and activities required to create products/services the business will sell and deliver, alliances with other business partners and outsourcing, target market, how the organization will position its products/services to fulfill customer needs, revenue and pricing models, demand forecasting, promotion and distribution plans, and competitors' analysis of strengths and weaknesses in the industry. It should also include a brief financial plan that covers revenue sources, projected cost/revenue structure, cash flow and profitability. In addition, the report must describe relevant e-payment facilities, e-business infrastructure required for hosting the website, legal, ethical and taxation environment for the proposed business including potential dispute resolution issues, risk management and exit strategies, and general implementation strategies.

Project management that includes self-management and working in a group with interdependent tasks is another important skill business organizations are looking for in business graduates. In order to help them develop these skills, along with the written report, each group is required to submit a project management report. In this project management report, they are expected to explain how they have planned and controlled the project. This report must include at least two minutes of the group meetings, work allocation amongst members, project plan using a project management tool, periodic progress reports and recognition and documentation of the constraints, problems and their resolution. The objective is to teach team members appropriate project management skills and give them an opportunity to simulate a real-world project environment and the tensions in organizing meetings and arriving at consensus decisions to move forward.

Each group must also develop a website and publish it in the faculty server using MS Front Page and other web publishing tools. The website must contain all relevant information about the company and the products and/or services offered, with appropriate structure and links between various web pages and external websites/links. Students must also design the user interface keeping the quality of the information content, general appearance and ease of interaction/use with the website using java scripts/ or HTML. In addition, students are required to incorporate a shopping cart that has the capability to accept customer orders and other relevant customer information and must be able to demonstrate its workings with some data in the system.

The group should make an oral presentation of their e-business plan to the class and to two academics/tutors summarizing their business. This should include value proposition to the customers, operations/marketing and financial plans, and implementation strategies, as if they were presenting to a team of investors seeking finance. Peer evaluation of the project is also carried out and incorporated into the assessment process.

VII. CONCLUSIONS

The findings of this study show that students do examine and study the method that is being taught. Using distance learning in class helped many students in achieving their learning goals. In addition, this experience contributed to their ability to develop practical skills and use them later on in their job positions. Although the students incurred several technical problems in the process, this study provided examples where those problems mainly relate to internet operating skills that the students need to develop, rather than technical problems associated with the software used for the distance learning class.

Overall, we conclude that using the techniques presented in this study can improve learning. Indeed, the experience was different and therefore requires extensive training of potential instructors and a lot of preparation, including orientation sessions for the students, to teach them how to operate the system and the software, in order to achieve a productive learning environment. We suggest that the next step would be developing a learning model that would be unique to distance learning. Current models can address challenges with the current face-to-face curriculum. New models are warranted as the technology advances and novel approaches are being developed and used.

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