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Designing a Class Activity to Enhance Business Students' Learning of Management Information Systems

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ABSTRACT

To understand what happened when students were given the power of being able to choose what to learn and how to learn, using a qualitative approach, this paper has evaluated a business classroom activity. Based on the philosophy of learning as a process, we have found that two students team up to work on an IT trend report and presentation is a meaningful learning experience. Students have brought a variety of new IT topics to the classroom that the textbook even does not cover. This exercise also offer three ways of learning, learning individually, learning from others and learning by doing, which support three learning outcomes: interaction, collaboration and critical thinking. The activity is also meaningful in that the process of learning is relevant to students as future managers and business professionals, and that it facilitates critical thinking. We conclude the paper with implications for and recommendations to researchers, educators and students as well as the challenges we, as educators, may face in the future.

INTRODUCTION

The expectations for college graduates from business schools to enter into their professions are increasing. The massive American cooperation layoffs during the last 3 years starting from the year 2000 when the Dotcom fever cooled off have made it more important for university business students to re-chart their plans for a successful career after graduation. Liu et al. (2003) indicate that companies are laying off some workers, but retain and hire others with critical skills. In most cases, employers require new hires at least to be individual problem solvers, positive team players as well as efficient communicators. Yet, most business undergraduate degree programs are driven by requirements of an area of specialties. Skills such as those solicited above by employment agencies are often ignored, or at least have to be decided by individual instructors. One indication that business professors have noticed is that most textbook test banks only contain items that ask specific questions where answers can be obtained directly from the book chapters. Little is known to what extent these systematic test banks for business courses reflect business and industry operation practices. The lack of connection and understanding between business educators and practitioners is evidently there (Liu et al., 2003).

One way to minimize the discrepancy between the business classroom practice and the real industry operational requirements is to design teaching and learning strategies to reflect and enhance these desired qualities for young business students. Creating real life experience in business classrooms should be a major consideration of any business educational programs. The effort toward this direction has witnessed a huge growth in the recent academic development in business education (e.g. Hamilton, Greene, and Wood, 2003; Jih, 2003; Stork, 2003). However, this development is not all equal among different disciplines. Traditional business areas such as accounting (Pollard, 2003), finance (Biktimirov and Nilson, 2003), and management (Eveleth and Baker-Eveleth, 2003; Hamilton, Greene, and Wood, 2003) are well presented in the trend while the curriculum innovation in management information systems (MIS) is not promising. Especially the teaching and learning strategies that target to enhance students' overall understanding of modern information technologies that are being used in the many fields of business practices. There may be three plausible explanations for this phenomenon: (1) information technologies are related to all other business fields where they are regarded as a part of other courses. They are, to put it differently, studied and researched as additions to other fields as part of their core components. For example, Biktimirov and Nilson (2003) use a powerful visual graphic representation of their syllabus to meet the unique challenges of

teaching introductory finance; and The dialogue creation by Eveleth and Baker-Eveleth (2003) to build shared meaning and enhance shared understanding among business management students is based on the online discussion technologies; (2) MIS is a relatively new field in terms of teaching and learning. Therefore there are no all-agreed best ways established to guide the teaching and learning in undergraduate information management classes; (3) MIS is an ever changing field as Liu et al. (2003) point out that the “types of skills needed by companies in the new millennium are expected to change as new technologies in new computing hardware, software, and networks are brought into the market.” Therefore, constant changes in curriculum design for such a changing field are required to keep pace with these changes in the business world.

In an attempt to bridge this gap in business education, particularly in the learning of information management, a class activity called “Information Technology Trend Report” is designed and implemented as part of the class requirement. It takes a learner-centered approach and is used in an introductory information management class which is required for all undergraduate business majors in a California State University. This effort is consistent with the notion advocated by Alavi, Wheeler, and Valacich (1995) who draws much upon industry requirements for its workforce to improve classroom practice. The purpose of this study is then to evaluate the effectiveness of the trend report activity in terms of students’ learning and ability development.

In the next section, an understanding of learning will be presented. It is followed by an illustration of the research methodology and design. After that, data analysis and results will be presented. The paper is to be concluded with implications for businesses education researchers and parishioners.

AN UNDERSTANDING OF LEARNING

Learning is a complex phenomenon. The understanding of it involves a multi-dimensional judgment. One dimension is to understand what learning is. Modern cognitive science believes that learning is a process through which meaning is constructed. Learning has changed from remembering “facts” and “knowledge” to seeking to understand and be critically aware of the things to be studied (Jarvis, Holford, and Griffin, 1999, p.9). Adult education focuses more on meaning construction. Mezirow (1991) indicates, when discussing psychological theories, that a meaning dimension is *meaning* – how it is constructed, validated, and reformulated – and the social conditions that influence the ways in which adults make meaning of their experience (p. xii). Meaning construction in learning is either an individual effort or a group endeavor through collaboration. The process of learning has generally been understood to be the process through which individuals go in acquiring their knowledge, skills, attitudes, values, beliefs, emotions and senses (Jarvis, Holford, and Griffin, 1999, p9). Research on cognitive development also indicates that the study of individuals’ learning has come to be embedded in social and cultural contexts and interactions (Salomon and Perkins, 1998). They also believe that a focus on the individual learning in social and cultural solitude is increasingly being seen as conceptually unsatisfying and ecologically deficient. Thus, it takes learning to a social and group level from an individual perspective.

Built upon the notion of learning as a process, what is learned becomes a second dimension to understand learning. Content should support the learning process. Learning involves an active engagement between the learner and what is being learnt; therefore, the learner, rather than the teacher, determines what is learned (Jarvis, Holford, and Griffin, 1999, p. 142). Mentkowski (2000) who advocates learning that lasts through integration also includes what is learned as a major part of their learning theory. Learning should define contents as meaningful and relevant to the students if learning should last.

Learning as a process also defines its conceptions of learning evaluation as another dimension. According to Jarvis, Holford, and Griffin (1999), we need to be able to assess our own work; assessment is therefore not a task best delegated to a few experts (p. 144). They indicate that self-assessment is an approach to evaluation in which the learner is asked to assess his or her own learning (Jarvis, Holford, and Griffin, 1999, p. 144). They even go further and have discussed some benefits of self-assessment (p. 145). One of them is that involving the students in judging what he or she has learnt encourages a more positive attitude to learning, and increases the degree of students’ awareness of the learning process; another is that students may have learnt a lot which teachers and assessors did not predict. Finally, they conclude that learner should be involved in establishing a ‘learning contract’, and should play a role (usually a large role) in judging whether this contract has been fulfilled.

An effective way to self-assessment is to ask students to reflect. Reflection on content or process may result in the elaboration, creation, or transformation of meaning schemes (Mezirow, 1991, p.6). Since “learning as a process (rather than an end product) focuses on *what happens* when the learning takes place” (Merriam and Caffarella, 1991, p.124), students’ self-reflection of what have taken place while they learn carries much more weight than correctly answering a question raised by an assessor such as a teacher or an expert. Validity is tested through reflection (Mezirow, 1991, p.6). Some theorists think that reflection itself is learning as well as assessment. For example, Mezirow (1991) believes that reflective learning involves assessment or reassessment of assumptions.

Table 1 is a presentation of learning and its practice from the professional literature review with which students’ learning can be understood and evaluated. Learning is regarded as a process in which students decide what to be learned and to construct their own meaning through individual learning, peer collaboration and learning by doing, and in which learners determine if experience is meaningful through reflection and self-assessment.

Table 1: What Is Learning?

Dimension	Conception	Practice
Definition	Learning as a process	<ul style="list-style-type: none"> • Meaningful experience • Individual and group construction of meaning • Learning by doing • Reflective learning
Content	Content should support the learning process	<ul style="list-style-type: none"> • Students determine what should be learned • Students determine the process in which content is learned
Learning Evaluation	Self-assessment	<ul style="list-style-type: none"> • Students determine learning outcome • Students’ reflection

Three specific questions therefore have emerged here: 1) How did students learn when doing the trend reports? 2) Was the learning meaningful? 3) Does learning from doing the trend report bear any implications on current business education practice?

METHODOLOGY

Settings and Sample

The activity was carried out in a MIS class for undergraduate business students. The university adopted a quarter calendar system at the time of the study. The student population in this university was extremely diversified. Forty students were enrolled in the class and no one dropped or added. Of the 40 students, two third were local residents who were native English speakers. Over half of the class held a job either full time or part time as they went to school. About one third of the class were international students who came from several countries using English as their second language. Their background knowledge on information technology was also varied. Some local students were employed as IT professionals who used information systems on a daily basis while quite a few students used computers only for e-mails and the Internet. This posted a big challenge for the instructor to bring the class to the same level of understanding the challenges and benefits of what information systems were and how they should work. This setting, on the other hand, provided a favorable context within which students could bring their knowledge of technology, business practice, and different learning experiences into the class to share with the rest of the students.

The Trend Report Activity

In this information management class, the instructor designed, as part of the curriculum requirements, an activity called trend report in which two students teamed up to do a research and presentation on a new IT or MIS trend. Each team had a maximum of 10 minutes to make the presentation with an extra 5 minutes for class discussion. They were also required to submit a written paper at the end which would outline the new trend and their evaluation.

There was at least one of such presentations at each class session except during examinations, and the introduction session when the students formed teams and picked their own presentation date. The time of the presentation was always at the beginning of the class so that the presenters could come to the class early to set it up in order to make good use of time. In this activity, the instructor only set boundaries for the activity and kept records of presentations and schedules. The students selected the contents and decided how they would carry out the task.

Research Design and Data collection

The design of the study was qualitative in nature, in which the researcher tried to understand the meaning of the activity, the context within which the participants acted, the processes by which events and actions took place (Maxwell, 1996, pp.17-19), as well as the implications of all these on current business education. To ensure reliability, data sources were triangulated with researcher participatory observations, students' learning reflections and students' research essays. The participatory observation was important because researchers are actors who also want to experience what they are studying from the inside (Gummesson, 1991, p.153). Reflection journals provided insights on how learning occurred. Students' essays provided a basis for understanding what content they had brought into the learning process and what was learned. While researcher' observation could only capture the moments of excitement and frustrations during the presentation and class discussions, the learning reflection could retell the stories of what happened to the students in and out of the class during the learning process through which meaningful learning could be interpreted.

Data Analysis

In a qualitative study, a researcher often treats data analysis as part of design, and as something that must itself be designed (e.g. Maxwell, 1991, p.77). To find out how students learned in doing the trend reports, a categorization schema similar to that of grounded theory (e.g. Glaser and Strauss, 1967) was developed. In grounded theory, one generates conceptual categories or their properties from evidence; then the evidence from which the category emerged is used to illustrate the concept (Glaser and Strauss, 1967, p.23). However, the current study did not take a pure grounded theory approach because generating a theory was not a stated purpose of this study. It was rather to understand a series of events and actions and how they were related to students learning as consequences. The review of learning presented earlier could provide an adequate evaluation framework from which content and learning process were selected as initial categories for data coding. If necessary, other categories could emerge.

RESULTS

To understand what happened when students were given the power of being able to choose what to learn and how to learn, this study set out to do an evaluation of how students learned in the context of doing technology trend reports. As contents that they chose and how meanings were constructed while learning would determine much of students' learning, understanding what was learned (content) and how they learned (the meaning construction process) would yield meaningful insights about the effectiveness of the enacted class activity.

Contents Presented In the Technology Trend Report

Forty students completed 20 technology trend reports and presentations which are outlined in Appendix 1.

The contents of the reports and presentations from the class covered a wide range of variety and spawned cross several fields. These reports could be classified into eight categories: medicine, multimedia, wireless technology, security, services, management, automobile industry and data storage. Besides the newly immersed fields of wireless, multimedia and management, students also enacted to talk about how information technologies were being used in the more traditional fields, such as medicine and automobile industry.

How Meaning Was Constructed

Learning as a process also reveals the extent to which how individuals learn by themselves, learn from others as well as learn by doing. An examination of the data fully supported this assertion. Table 2 is a summary of this.

Table 2: Students Learning Process

How to Learn	Related Activities
Individual learning	<ul style="list-style-type: none"> • Reading and researching new material • Writing report • Presenting
Learning from others	<ul style="list-style-type: none"> • Discussion with team member • Listening to presentations • Asking questions • Class Discussion
Learning by doing	<ul style="list-style-type: none"> • Hands-on research and writing • Presenting

Learning to a large extent is an individual effort. It is the individual who brings his or her unique differences into the learning context for meaning construction. Student's reflection journals, written reports and the participatory observations revealed three areas of individual learning evidence. First, students indicated that they learned through reading and researching a new information technology or management system. One student said that the trend report gave everyone in the class an opportunity to research on something new in the field of information technology. Another student said that she was prompted to do research on the web for items that she knew little or nothing about. Yet, another reflected that he spent a lot of time reading and researching through the many options of information technologies, and trying to understand the functions and the benefits of MIS he was reporting. Second, the researcher (also the instructor) noticed, through reading students' written reports, that they had a good understanding of the technology trends they reported. Most of the statements or assertions were well supported by facts from students' research. Finally individual learning was supported through presentations. An international student mentioned that it was his first time to present in front of a group of native English speakers; and after the presentation, the feeling was really good. Another student wrote that he spent a lot of time in preparing the presentation by saying "I spent much more time in this than with final, midterm, and other home work." With a result, he indicated that it helped him a lot because of the trend report, not only in understanding new technology, but also practicing the presentation.

One of the major benefits of social or team learning is to have the opportunity to learn from others (Salomon and Perkins, 1998). The trend report activity also supported this notion. Students' reflections indicated that one way to learn from others was when they had the opportunity to discuss the topic between team members and tried to come up with consensus about how to proceed with the project. Listening to others' presentation was also a major source of learning from others as one student reflected:

"I have a busy family and business schedule; therefore the trend report reminds me of the Larry, Jennings 60-Minutes philosophy. I had the opportunity to learn at the expense of others' hard work."

The presentation was usually highlighted with discussions between the rest of the class and the presenters when the audience asked questions that were related to the topic but not clearly explained in the presentation. This provided another opportunity for students to learn from each other. The most frequently asked questions, as the researcher noted, were those that were related to costs, technical know-how and ethical issues. For example, the report on *Dada Havens* talked about an island that was outside of England and was not governed by any country where someone setup web servers to host illegal Internet contents. Students were shocked when they heard this and immediately raised the questions whether the international community needed to enact international laws to govern the practice of such illegal businesses. Another example was after one team presented the encryption protocols for Wi-Fi Wireless networks, several students from the audience wanted to know how to set them up. When the presenters had trouble to give an answer that would satisfy the hungry audience, one of the class members who happened to be an IT professional from the audience explained how he had done it at his work. Here questioning and class discussions went hand to hand to clarify confusion in concepts and practice, and to reach a level of understating that no one individual could achieve on his or her own.

As a major part of the learning process, learning by doing played an important role in the trend report. All the procedures in the class activity, such as reading and research, writing the report and constructing and doing the presentation, required hands-on practice. Traditional wisdom told us that jumping in the pool is the best way to learn to swim and sitting behind the wheel is the best way to learn to drive.

Emerging Benefits

Because of the rapid changes in IT and the need to make good use of students' time outside of the classroom, one planned goal of this activity which was implicit to students was to broaden students' IT perspective by using little class time to enhance learning. The results presented earlier seemed to have achieved the goal: 1) Students brought a variety of IT topics into the class through research and presentations; 2) It was a classroom activity, but most of the work was accomplished by students outside of the class; 3) Learning using this activity seemed to be meaningful as evidenced by the interaction between the students and the content and among themselves, as well as the ways with which students constructed meaning. However, during the data analysis of the reflections, the memos and research notes of the observation, and written reports, the researcher discovered certain benefits of doing this trend report that deserve mentioning.

Critical Thinking

Critical thinking is a process, not an outcome (Brookfield, 1987, p.6) which this study was examining. The trend report prompted students' critical thinking according to their reflections and observations. Many participants indicated that it was a challenging activity for them. It provided an opportunity for them to understand new technologies that they had not known before. Identifying and challenging assumptions is central to critical thinking (Brookfield, 1987, p.7). Students used the opportunity of trend reports to form, test, retest, accept or reject assumptions, and in some cases explore alternatives about new technology development and applications. Another point that some students made was that during doing the project, they could apply the knowledge and principals learned from the class which created a positive flow of knowledge from the classroom to studies and research outside of the class. According to Halpern (1996), critical thinking is the use of those cognitive skills and strategies that increase the probability of a desired outcome (p.5). Creativity was another way to support critical thinking. Students claimed that doing trend reports gave groups an opportunity to be creative, and that they would be able to present the way they wanted. Some students brought electronic devices to demonstrate the new technologies in class; others used the Internet to access the MIS they were demonstrating thereby creating a very flexible environment and positive context to promote learning.

While students could not change or create the content of learning in this activity (they merely reported it), they could selectively explore it and decide which to research. They could also decide how to carry out the task using their strengths and experience which engaged them in critical thinking.

Real Business World Relevance

Learning reflecting real business world relevance can be illustrated from data under the current study in the following three areas: 1) Meeting students' expectations, 2) Desired business skills, and 3) Understanding the market.

Students all came to the class with different expectations. The most common expectation was to obtain new and up-to-date technology that they could apply to their career as business professionals. The trend reports in this class helped, as many students said, to facilitate learning. Instead of memorizing theoretical definitions and paraphrasing book chapters, students could research on topics that they would value, report on real world business practice relating to technology implementations. "It gives me competitive advantage as an employee by researching and knowing the new technologies," according to one participant.

Business requires its employees to have certain skills. The foreseen ones by the students here were skills of presentation, project management and team collaboration. They believed that they could learn or better these business skills by doing the trend report. Students thought that they must know how to give impressive presentations

because they are the managers, supervisors, and leaders of tomorrow. Trend report was an excellent practice for those individuals who wished to hold prestigious business management positions in their career.

Understanding the market is another business requirement for business students. It gives future business professionals a broad understanding of the business environment. "Understanding the market is important to us;" one student said, "While the class could go without trend reports, they give us extra real world examples so that the students come out of the class more rounded towards technology."

DISCUSSION AND IMPLICATIONS

This study tried to answer three questions: 1) How did students learn when doing the trend report? 2) Was the learning meaningful? 3) Does learning from doing the trend report bear any implications on current business education practice? In this section, we attempt to exam if it indeed answered the questions raised earlier and discuss some of the implications.

First, the trend report activity supported three ways of learning: 1) learning individually; 2) learning from others; and 3) learning by doing. Together, the three ways of learning provided ample space for constant interaction, team collaboration and student's critical thinking. Details of this are presented in Table 3, a learning grid.

Table 3: Learning Grid.

		<u>Learning Outcome</u>		
		<i>Interaction</i>	<i>Collaboration</i>	<i>Critical Thinking</i>
<u>How Students Learned</u>	<i>Learning Individually</i>	<ul style="list-style-type: none"> • Learner and materials • Learner and IT tools, e.g. MS PowerPoint, Internet, etc. • Between learners 	<ul style="list-style-type: none"> • Team members jointly decide on the topic, how to proceed, how to report and presentation 	<ul style="list-style-type: none"> • To identify assumptions • To evaluate alternatives • To make decisions
	<i>Learning From Others</i>	<ul style="list-style-type: none"> • Between learners • Between team and class • Among class 	<ul style="list-style-type: none"> • Work with team member • Class Discussion • Instructor feed back 	<ul style="list-style-type: none"> • To evaluate alternatives • Accept or reject assumption
	<i>Learning By Doing</i>	<ul style="list-style-type: none"> • Learner and materials • Learner and IT tools • Between learners 	<ul style="list-style-type: none"> • Team members jointly decide on the topic, how to proceed, how to report and presentation 	<ul style="list-style-type: none"> • Creativity • Positive outcome

Second, to decide if the learning as witnessed in the trend reports is meaningful, we look into three areas of evidence as verification. To start, students, altogether, brought 20 IT and management topics into the class. Most of them were new to the class. By doing or listening to these reports, students became much more informed with the IT market in general and certain IT topics that interested them in particular. The learning grid in Table 3 presented three areas of learning outcome that were truly meaningful. Interaction ensures an active engagement by the students; ability to collaborate is a desired quality by every employer; and critical thinking makes one more creative and productive. Finally, students' self-reflection of learning to do the trend reports was very positive in many ways. For example, they do not only think that they learned new IT topics and presentation skills, but also learned things that were relevant to them in terms of their work or future career.

The explicit contributions of this study can be illustrated with the implications for business education. On the research side, the study evaluated how a class activity could be structured to enhance learning in an information technology management class and to practice skills that students would need in their career. Even in today's business education, there is still a gap between classrooms and modern businesses where textbooks and education

practice do not reflect enough of what businesses require from their workforce. The current research proved that a carefully designed class activity could be used to improve the situation. Also, this study explored the possibility of examining learning as a process in an empirical effort which could complement the more traditional view of learning as a product where standardized tests would be used for evaluation. For future research, we can investigate factors that will help students learn more relevant contents and skills. Comparative studies between book contents and enacted contents are also meaningful.

The results of this study also have implications for business educators, teaching and learning practice. Textbook publishers and business curriculum experts can work jointly to reflect more business requirements in the learning materials. Business classroom instructors can construct more class activities to benefit their students to meet the needs of the ever changing business environment, especially the changes in the IT field. Students do not have to wait until they become employed to learning certain business skills.

Implicitly, this study prompts educators to think differently about their practice in the changing environment. As Jarvis, Holford, and Griffin (1999) put it,

“Employers now became the clients of educational institutions, since it was often they who were paying for their employees’ continuing vocational education – the students ceased to be the clients! (p.5)”

They also argue that employers have specific demands from their own businesses, and educational institutions are much slower to change. This would challenge the traditional notion of education is for the educated.

One of the most controversial arguments of a qualitative study is the concern of its reliability and validity. In this study, data were triangulated among observations, students’ reflection and students’ written reports with which the interpretation was made. All the three data sources seemed to have revealed that students liked the activity; they learned something; and it was relevant and meaningful. Since results are consistent across all data sources, they are reliable. Validity in a qualitative research refers to the correctness or credibility of a description, conclusion, explanation, interpretation, or other sorts of account (Maxwell, 1996, p. 87). Data collected are lived experience of the participants. The interpretation of facts and relations is based solely on the evidence from the three data sources. After data analysis, the researcher held a discussion session with the students to verify the results. Students all agreed that the interpretation was what they experienced. The interpretation was therefore valid.

CONCLUSION

Using a qualitative approach, this paper has evaluated a business classroom activity. Based on the philosophy of learning as a process, we have found that two students team up to work on an IT trend report and presentation is a meaningful learning experience. Students have brought a variety of new IT topics to the classroom that the textbook even does not cover. This exercise also offer three ways of learning, learning individually, learning from others and learning by doing, which support three learning outcomes: interaction, collaboration and critical thinking. The activity is also meaningful in that the process of learning is relevant to them as future managers and business professionals, and that it facilitates critical thinking. We conclude the paper with implications for and recommendations to researchers, educators and students as well as the challenges we, as educators, may face in the future.

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**APPENDIX
CONTENT OF TECHNOLOGY TREND**

Field	Trend	Description
Medicine	3-D VizDExter <i>Diag-Nose</i> NetVision Phone	A virtual surgery simulation program <i>An electronic device developed to diagnose diseases</i> A mobile device that can be used by doctors, nurses and patients
Multimedia	Blu-ray Disc (BD) <i>VoiceCommand</i> Divx	A newly developed multimedia storage device <i>Voice recognition technology</i> Next generation of video technology
Wireless	AirPort Extreme <i>Bluetooth Wireless Technology</i> Wi-Fi Wireless Technology <i>Wireless Video Camera</i>	Wireless technology developed by Apple Computers <i>A wireless technology developed for use within a short distance</i> Standard 802.11 wireless technology <i>Wireless technology used for monitoring and surveillance</i>
Security	Biometric Security <i>Military Jacket</i>	Using biometric technology for checking identification <i>Technology used in the military field</i>
Services	Call Center Case Study <i>SmartSeat</i> Data Havens	Technology used in CRM <i>Technology used for the disabled</i> Host illegal contents "legally" on the Internet
Management	Telecommuting <i>Web-based Order System Case</i> VirtualWorkers.com	Virtual communication <i>Web technology used for management purposes</i> Virtual office application and practice
Automobile	Automobile Technology	Technology used to improve the performance and safety of autos
Data Storage	SAN	Storage area networks