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Authentic assessment for multimedia-centric e-business

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This is the third evolutionary development of the unit. The revised design criteria for the unit outline now reflect the pedagogy needed to satisfy the changing requirements demanded by multimedia-centric e-business, as promoted by industry and government.

Keywords: Electronic Commerce, Authentic Assessment, Higher Education

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INTRODUCTION

“As we enter the third millennium we experience one of the most important changes in our lives – the move to an Internet-based society. Almost everything will be changed at home, in school, at work, in the government-even in our leisure activities. Some changes are already here and they are spreading around the globe. Others are just beginning. One of the most significant changes is in the manner we conduct business especially in how we manage the marketplace and commerce.”

As reflected by Turban et al. (2000), the exponential increase of Internet usage is demanding that businesses update their skills and re-engineer their products and services to meet new competitive demands in both local and global markets. Training is needed to support these changes that require equipping a wide range of business operators with new skills in business planning and information literacy. However, these demands are raising critical issues for educators. What disciplines should offer these courses – computer science, multimedia, business, engineering, others? What teaching and learning strategies should be used to motivate students to learn content which is “outside” their discipline area eg computer science students learning about business planning? How can tertiary institutions keep these courses up-to-date with technology and business needs?

In Australia, the government is actively trying to promote the uptake of E-commerce business planning. The Department of Communications, Information Technology and Arts (1999) has identified that the Federal government must target existing barriers for the development of E-commerce and promote the integration of E-commerce into business. Otherwise, business and the economy at large will suffer long-term consequences. This is supported by the Department of Industry and Tourism (1998), who contend that E-commerce has the potential to transform the economy more rapidly than the industrial revolution! These predictions and impending changes have serious training ramifications. How can large numbers of business operators be quickly trained in on-line technology? How can E-commerce strategies be quickly implemented by business to take advantage of this new revolution?

In order to meet these changes in a *timely* manner, training and skilling of both the existing work force, and of new students entering the business environment is required. University courses spanning over three years duration will not provide the body of knowledge or skills needed by Australian business to compete in this rapidly changing marketplace. Graduating students need timely courses to bring them up-to-date with changes in technology and provide them with skills to manage electronic commerce, business practices and online marketing processes. Training and development courses also need to provide ongoing collaboration and mentoring with industry to ensure the knowledge acquired is current and relevant (Mitchell, 2000).

CONTEXT & BACKGROUND

The unit IMM 3329/4329 “Multimedia Business Solutions” is a final year, final semester unit taken by both under and post-graduate students in the Multimedia course at Edith Cowan University. The unit is intended to develop student expertise and knowledge about E-commerce business planning, and how students can effectively use this knowledge to create more business centred web sites.

In September 1999, a group of ninety, second year multimedia degree students from Edith Cowan University completed a two-week intensive E-commerce business-planning course. They had no previous instruction in business planning and minimal understanding of E-commerce issues. Participants were required to develop an E-commerce business plan, which could be sustained economically by a business to sell products in an on-line environment. The course was subsidised by the Office of Information and Communications (OIC), which is part of the Department of Commerce of Trade, a Government department in Western Australia. Dow Digital (an E-commerce and on-line services consultancy and development company) developed the course and was subsidised to run it at Edith Cowan with a view of evaluating its effectiveness for university graduates in Australia, as well as how it could be implemented in third world countries. A questionnaire was designed to elicit student and industry views on the value of the course. From feedback gained, a number of conclusions were made:

- a two week intensive course was too short;
- the course is better suited to final year, final semester students;
- teams should be involved in developing more authentic business plans;
- team size should be no greater than four; and
- students needed more help on creating budgets using spreadsheets.

On the basis of this feedback, a full semester course was developed and implemented for final year, final semester multimedia students. At the end of this course (Semester 2, 2000), students were interviewed and questionnaires given to all participants in an attempt to evaluate the course. There was unanimous agreement that the course provided information and ideas that would help them gain employment, and also generate ideas for their own businesses. The main criticism of course was focused on the lack of support for business-planning and accounting concepts coached in authentic or “real” activities.

AUTHENTIC ASSESSMENT

Authentic activities based on constructivist principles are essentially real contexts and situations that promote problem solving and higher order thinking skills. Authentic activities are real world tasks that provide students with opportunities to develop the knowledge and skills needed for specific contexts, even specific jobs and roles (Barab, Squire & Dueber, 2000). Land & Hannafin (2000, p. 13) explain that "...learning occurs naturally as a consequence of the learner recognizing knowledge's practical utility as well as the need to use it in an attempt to interpret, analyze, and solve real-world problems."

Immersing students in real world contexts such as authentic tasks promotes the development of work place readiness skills. Students expect more from their university courses than in the past. These expectations include developing real skills and knowledge that can help them gain employment in the industry of their choice. The course they choose at university is essentially the vehicle that will enable them to gain employment. Students also expect that what they actually learn at university reflects the real world. The real world being the knowledge and skills gained at university reflects the expectations of employers and provides students with highly specific industry skills. Truly authentic activities enable students to gain the necessary employable attributes and the ability to transfer their learning to real world problems. Traditional pedagogy generally only provides students with isolated concepts delivered by didactic teaching practices. In traditional pedagogy, learning activities are not based on immersing the content into an authentic real world context, but relies upon direct delivery methods such as lectures to impart content knowledge, which is generally isolated from reality.

What may be an authentic activity to one student may not necessarily be authentic to another. Petraglia (1998) explains that "the task of balancing a cheque book, for instance, may be an authentic task from the perspective of a 21-year-old but we would question its authenticity from the perspective of a 5-year-old. But more to the point, even among 21-year-olds, for whom we believe the task should be authentic, there are some who will find any given lesson in personal finance irrelevant, inaccurate, or otherwise inappropriate."

The effectiveness of authentic activities, whether they are learning designs such as problem-based learning, case-based learning, inquiry-based learning or project-based learning environments depends upon the motivation, student engagement in the activity and successful delivery. Teachers may consider just the use of any of the above learning designs as essentially authentic but the context and relevance of the activity, especially to the students, determines its authenticity. The teacher's perception of authenticity may not be necessarily perceived in the same way by the student and what the student perceives to be authentic may not be authentic to the teacher (Petraglia, 1998, Barab & Duffy, 2000).

Barab, Squire and Dueber (2000) support this by explaining that authenticity relies on learners' perceptions of the practicality of the learning environment they are immersed in and their perceived value of these activities relative to their goals and the real-world. Learner's perceptions of the real world are crucial in determining the relevance and therefore the authenticity of the learning task. Authenticity is then reliant on the dynamic interactions among the various components of learning environment – the task, the learner and the expert.

For students to be able to cope with authentic activities it is necessary that they have developed essential knowledge and skills that they can apply to the activity and which forms a basis upon which they can build additional higher order skills whilst immersed in a real life context. Perreault (1999) explains that novices can still be given authentic activities but the activities can be limited to exercises and discussions that used realistic examples. Using realistic examples during student's development of basic essential knowledge and skills helps them become aware of realistic applications of their knowledge. Petraglia (1998) believes that the essential element for the success of authentic activities is the relevance to the learner. Engaging and stimulating student interest is essentially the importance and attractiveness of the motivational strength of authentic activities. Authentic activities are only a

powerful engager if students deem that the activity holds relevance and provides knowledge and transferable skills to help in the pursuit of employment and career opportunities.

If students are motivated to gain as many employable skills and the knowledge to be competitive in the job market then authentic activities would be an effective pedagogy to be adopted for this particular university unit - IMM 3329/4329 Multimedia Business Solutions. The focus of the unit is to provide students with real life opportunities to develop expertise and knowledge in e-commerce business planning to effectively produce functional business web-sites for real clients.

In design learning activities for the unit a fundamental question was asked - How and what types of learning activities do we create that will motivate students who are not really interested in business and accounting type concepts? Essentially students enrolled in this unit are multimedia majors who are mainly interested in creating effective multimedia, as individuals and in cooperative and collaborative teams. Business and accounting concepts were generally not considered by students as part of the knowledge and skills they would need to find employment in multimedia. Providing students with authentic activity that immerses them in designing e-commerce web sites and developing effective business plans within a project-based learning design was seen as solution. Teaching students costing concepts and how to prepare a business plan were seen as the necessary scaffolding they would need to effectively immerse them in the project and to help them see the relevance of these concepts to the real world of e-commerce. Teaching of these concepts and skills, in the context of an authentic project would provide a real context to the concepts, which generally are taught using traditional didactic pedagogy. Students would then be able to see the relevant of these costing concepts and business planning, in meeting the needs of their real clients.

Essentially we felt project-based learning would provide an environment that would engage students in the process of designing and creating e-commerce business plans to meet client needs. Project-based learning lends itself to cooperative learning, enabling students to discuss, explore and test ideas/concepts supported by a team environment. Project-based learning environments are considered authentic in nature and provide a learning environment that stimulates and encourages students to construct their own knowledge and pursue their own interests resulting in the creation of realistic products (Moursand, 1998).

Characteristics of project-based learning include (<http://guzdial.cc.gatech.edu/repp/draft.html>):

- Integrative - project-based learning draws upon a variety of knowledge and skills and does not necessarily focus solely on a particular limited piece of content.
- Authentic - project-based learning is an authentic activity that can relate to a real context and in this case real clients.
- Product and Process - project-based learning requires students to apply their own investigative, planning, designing, evaluation and production strategies to successfully satisfy their interests and create a real product.
- Collaborative and co-operative – students work in teams calling on a number of skills including negotiation, communication and social skills.

Using an authentic activity such as project-based learning enables us to incorporate all of the essential components of an integrated, real life client focussed task.

COURSE DESIGN OVERVIEW

How best to implement courses like these to promote motivation for students who are not really interested in business and accounting type concepts, is not an unusual question to ask in the changing world of multi-skilling and cross-skilling needed today. This generic problem of an educational need that does not "fit in the box" requires four important facets to be addressed by the university teaching and learning planners, when looking at Multimedia e-Business Solutions:

- A pedagogical framework and learning design that achieves a high level of motivation of the students.
- An authentic assessment using real-life examples and assignments, and dynamic interaction with industry practitioners.
- An emphasis on digging for good feedback and solid facts derived from quantitative web metrics.
- An understanding of the need for integration of the front-end web design with, for example, ERPs and CRMs, and all the other components of e-business.

A good IT project manager, does not need to be a top-gun programmer, but does need to have a respectable overview of the spectrum of disciplines that make up the intellectual horsepower of his IT project team. In the same way, a successful multimedia graduate needs to be not only aware of the changes in multimedia-centric business technology, but also be provided with skills to manage electronic commerce, business practices and online marketing processes, without necessarily being a certified practising accountant. The model we shall be using in semester 2, 2001 is based on the following course design criteria:

- Each weekly lecture includes a real world business case that provides an authentic exemplar of the aspect of e-business covered in the lecture material;
- A discussion session at the end of each lecture reviews whether the relevant e-business issues were resolved in the real world business case presented, and importantly, how those issues were resolved in that business case;
- Each weekly lecture is followed by a 2 hour laboratory tutorial, tutored by full time e-business professionals from industry;
- The laboratory tutorial exercises utilise real world e-business examples specifically selected to illustrate key concepts, and in particular, to illustrate the processes (as per Napier et al, 2001) involved with planning, starting, and marketing a new e-business;
- The weekly lectures include contextual guest lectures from visiting industry professionals;
- The lecture and laboratory series include supplementary and optional case studies to challenge and motivate the students into widening their on-line research activities;
- The learning outcomes include specific goals such as:
 - understanding different e-business models (Kalakota & Robinson, 2001);
 - exploiting e-business opportunities (Plant, 2000);
 - developing an e-business plan (Napier et al, 2001);
 - developing guidelines for an e-business start up (Napier et al, 2001);
 - understanding management issues such as HR, operating and capital costs of the business (Plant, 2000);
 - identifying risk management and security issues in e-business (Kalakota & Robinson, 2001);
 - understanding the importance of web design and the associated costs (Buytendijk & Janowski, 2001); and
 - integrating the web site “front end” to the enterprise “back end” planning eg ERPs, CRMs, purchasing, invoicing, and credit and debit control issues (Napier et al, 2001).
- The students to work in project teams of 4 to produce a real business plan for a real client, as a project for formal presentation to industry in a competitive environment with MIS students and themselves, towards the end of the semester;
- Presentation night will have a few hundred people. This event will be facilitated by a \$10,000 grant from the Department of Commerce of Trade to promote the competition;
- 10 teams will be selected for the final presentations from about 35 teams (20 teams from Multimedia Business Solutions and approximately 15 teams from Management Information Systems);
- Sponsors have been selected to give the project team with the best e-business plan a prize;

This set of course design criteria will provide an authentic assessment environment for e-business planning for a multimedia business solution.

CONCLUSION

The move towards on-line commerce, entertainment and education is spreading rapidly with a decreasing supply of skilled operators who understand the business and technological aspects of this new paradigm. Government, industry and educational institutions must work together to keep up with these changes and add value to courses, in which final year students will be motivated to achieve through authentic learning designs and assessment.

At Edith Cowan University, we have adopted these principles to create an authentic learning environment that meets the needs of students, industry, and government. The unit outline developed includes learning outcomes that reflect this strategy by incorporating real world activities with an e-business planning focus. A successful multimedia graduate will be not only be aware of the changes in multimedia-centric business technology, but also be provided with skills to manage electronic commerce, business practices and online marketing processes, without necessarily being a certified practising accountant.

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