

DESIGNING AN E-COMMERCE COURSE FOR DISTANCE MODE

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ABSTRACT

This paper describes the design of a degree level e-commerce course at the Open Polytechnic of New Zealand. The approach we have adopted uses a mixture of two learning modes: collaborative learning and individual study. It provides a model for virtual, student-centred, problem-based class where students will experience problem-solving, teamwork, reading online resources, writing reports, online market research, e-commerce web site design, multiple presentations of e-business plans, and hands-on experience in maintaining and running an online business.

INTRODUCTION

Increasingly universities and polytechnics are offering undergraduate and postgraduate courses, diplomas and degrees in e-commerce. Many are using Internet technologies to deliver some of the course materials, to assess students or at least to provide student support (either synchronously or asynchronously). Some tertiary institutions have moved completely to online delivery of such courses even though they are a classical, face-to-face institution. The best-known example of such an approach is Rappa's course *Managing the Digital Enterprise* at North Carolina State University, where not even a set text is recommended. All the learning resources are online. Surprisingly, only a few of universities have developed a complete e-commerce course for distance mode.

This paper describes the design of a degree level e-commerce course at the Open Polytechnic of New Zealand, the only specialist in distance education in this part of the world. The approach we have adopted is using a mixture of two learning modes: collaborative learning and individual study. It provides a model for a virtual, student-centred, problem-based class where students will have an experience that combines problem-solving, teamwork, reading online resources, writing reports, online market research, e-commerce web site design, multiple presentations of e-business plans, and hands-on experience in maintaining and running an online business. The general inspiration behind the approach is to put a student into the position of an entrepreneur who is starting an e-commerce venture, i.e. to learn about e-commerce through a set of semi-structured activities which will help them to set up an online business in a simulated e-commerce environment.

The first section briefly discusses the pedagogical approach we have adopted on this course and the implications of the chosen learning modes on the course content, the learning environment design and assessment. The second section describes in details each element of the learning environment (such as course information, course topics,

course information portal and virtual playground) emphasising their roles in the learning and teaching process as well as the role students and tutors take in these processes. Finally some recommendations for further research and improvements of the web-based learning environment are given.

PEDAGOGICAL APPROACH

In an early stage of implementation of online courses, paper-based course material has been taken and converted into online course material, i.e. set of HTML documents. The main “progress” made with such implementation is that the students are now using a mouse to turn the page on the screen instead of turning pages in the printed learning guide. From students perspective this conversion is considered as a shovel ware. Now they have to print the learning guide instead of getting the printed one from the educational institution. New media and technology requires new methods for designing an online environment. Also, an appropriate pedagogy design model based on so-called cybergogy (online pedagogy) should be used and not just a simple adjustment of traditional methods and models.

There are three basic modes of learning:

- Tutor-led learning
- Individual/independent, inquiry-based learning
- Collaborative learning

The tutor-led learning is still dominant and the most popular learning mode among distance educational institutions, but quite often with some elements of inquiry-based and collaborative learning. This learning mode is based mostly on presentations and video-conferencing tools. Although students could use video-conferencing tools basically this mode puts them into the passive position of a listener. Independent or inquiry-based learning put students into the active position of researcher directing them to explore resources or to participate in simulation games activities. However, the third mode, collaborative learning emerges as a learning mode that is the most suitable for a virtual environment using its potentials in full scope and is particularly useful for learning e-commerce. Student as a team member is working on the group project using new technology as a delivery vehicle for asynchronous or synchronous collaborative interactions with other team members. Stein and Hawking (2001) emphasis the main findings from the survey among information systems management professionals employed in the Australian and New Zealand marketplace about the skills mix necessary in the “E” world. According to them this survey showed that the teamwork and deadlines dominated the business skills whilst knowledge of e-business models dominated the technical skills.

Theoretical background for collaborative learning mode could be found in the works of Russian psychologist Vygotsky. According to him (Vygotsky, 1978) knowledge is constructed through social interaction and collaboration. Then, when the knowledge is constructed it is absorbed individually. In other words knowledge does not exist before social interaction starts.

The approach we have adopted in e-commerce course is using a mixture of two learning modes: collaborative learning and independent/individual (inquiry-based) study. What are the implications of adopting this mixture of two learning modes on the course content, course learning environment and assessment types?

Course content

Although the course design for an online course puts emphasis on using dynamic content and interaction part of the course content is in static form defined in advance by the tutor. But even then, the length of the online course material should be smaller in size than the same print-based course. The way people are reading (actually scanning) the text on screen influence the size of an online course material. In collaborative learning mode part of the course content is created through interactive process between tutors and students and among students. The other part of the course material is added as a result of research efforts by team members (inquiry-based learning mode).

Course learning environment

Research has shown that interactivity and clear instructional design remain essential in the online learning process (Sims, Dobbs and Hand, 2001). All interactive opportunities must be explored in order to provide optimal learning for online students. The course learning environment have to be constructed having in mind the need for collaborative interaction between tutors and students and among members of virtual teams. It should support synchronous and asynchronous discussion, file exchange, virtual team and team project management, initiate research and even be pleasant environment for socialising.

What is equally important regarding learning environment is that the learning is not just a product of interaction between students and tutors, or students and students, but also the learning environment, course materials and some external factors could influence learning process (Joyce, 1999).

Assessments

The virtual environment opens the door for new forms of assessments. The following suggestions how to assess students' work in e-commerce courses were compiled using Swatman and Chan (2001) report:

- A literature review on the chosen e-commerce topic followed by an argumentative essay for the topic;
- Analyse the prospects of e-commerce in an industry or a specific firm;
- Analyse New Zealand e-commerce sites;
- Analyse e-commerce academic papers/research issues;
- Develop a web-based business site;
- Write a business plan of electronic commerce solutions for a local company.

Most of the suggestions listed above are adopted and built in our e-commerce course. Following the inquiry-based learning mode students are researching real-life web sites focusing on a particular site's feature or issue relevant for the topic they are studying. They interpret the findings and then post a reflection in the discussion forum. Other students are invited to do the same and also to comment on others works. Most of these activities are consider as building blocks or "skills building tools" which prepare them to start and successfully complete the final projects. One of the final projects is based on the problem-based learning mode while the other is a group project which is based on

the collaborative learning mode. Students are forming virtual companies and start working on a group project – setting up and running an e-business which include writing a brief e-business plan, creating basic e-commerce site, maintaining and running an online business. We are be aware that the major factor for successful course delivery is the amount and the type of inter- and intra- teamwork involved in a group project (Petrova, 2001).

DESCRIPTION OF THE WEB BASED LEARNING ENVIRONMENT

A variety of educational platforms such as Blackboard and WebCT are available for online distribution of educational content. However these products can't be used for the development of an online course. It is still up to course design and the educator to decide the optimal mix of IT tools from the learner's perspective to be used on the course and how to integrate them within the educational platform, in what we call web-based learning environment. The current versions of educational platforms do not support full integration of externally developed software application such as virtual shopping mall. Therefore we have decided to build a learning environment that incorporates the following four major components: course information, learning guide, collaborative environment and virtual playground.

Course information

Course information is a standard part of most course web sites from the early days of the Internet. This section of the web site is an electronic version of the student brochure, i.e. cyber brochure that provides information about the course, teaching team, assignments, set text, course resources, learning environment, recommended study time, important dates, etc. Read more about the transition of academic web sites from cyber brochure model in Kovacic (2001).

Course topics

Our Electronic Commerce course provides an introduction to the evolving technologies associated with electronic commerce and an overview of the business and social implications of these developments. The main goal of this course is to enable students to prepare for future management roles, be technology competent, and be able to understand technological trends and take advantage of the opportunities made possible by the rapidly evolving telecommunications technology. These technologies are changing the way business is done. New business models need to be invented and new business strategies adopted. The course highlights these technological and business aspects of the ever-changing e-commerce environment. The topics are grouped into four sections:

- **Starting with Electronic Commerce.** Describes the basic technologies of the Internet and the Web and how they are used in e-commerce. It gives an overview of the subject and describes the basic steps in starting with an online business. Also, it gives a brief introduction to web design and web programming.
- **Business issues.** Examines business issues related to e-commerce such as business models and strategies used on the Internet, e-marketing, advertisement in e-commerce, role of intermediators and various online applications (auctions, banking, etc.)

- **Technology issues.** Introduces technology infrastructure of e-commerce and examines the most important technology issues related to e-commerce such as electronic payment systems, security and organisational communication (Intranet and Extranet).
- **Public policy issues.** Examines public policy issues such as taxation and legal issues (consumer protection, privacy and intellectual property rights).

Depending on the student's prior knowledge and experience, it may take up to 200 hours of study time to complete the course.

We have organised the “learning guide” as a collection of e-commerce topics which may be navigated in a non-linear fashion. However, there is a predefined structure, i.e. recommended study path through the topics. Pre-requisites for each topic are defined and student may start reading from any particular topic. E-commerce topic takes students through the set text and the readings. Topics are designed to reinforce the key points as well as introduce some interesting aspects not covered in the set text. While progressing through each topic student should read the brief introduction to the topic which usually ends by asking relevant questions. As a starting point for their research on particular topic we have provided a list of associated and recommended readings. Activities in each topic are designed as inquiry-based activities, which means they have to research a particular topic on real e-commerce web sites and then post their findings in the appropriate discussion forum. Students are invited to post comments on each others postings. Topic and activity pages are integrated in the learning environment through the set of links to the appropriate discussion forum and relevant resources. These links make learning environment more structured connecting course information, set text, resources for the topic and activities with the collaborative part of the learning environment. The first part of the topic is predetermined and contributed by the tutor but additions or modifications to the topic could be made if and when required. The second part of the content is dynamic and constructed by learners. Students add new content to the course collaborative area and discussion forum while they work on the topic and activities.

Course portal

The collaborative platform is in the form of portal. The reason for using a course information portal in e-commerce course is twofold. Firstly, to bring closer to students' attention one of the most popular business models on the Web, to get them familiarised with its features, advantages and limitations and secondly, to use the course information portal as a focal point for all in-course activities, events, announcements, and discussions (public or private) in synchronous and asynchronous modes. Students may add new resources to the course resource base and even rate how useful particular resource is. They may organise their group work by exchanging files, organising discussion within the team in both synchronous and asynchronous way. The tutor takes a facilitator role in the discussion forum initiating discussion on current e-commerce issues. In the course information portal the tutor is just one of the “subscribers” which submit useful resources for the course with other members of the virtual community.

E-Playground

The virtual e-playground is an area in the learning environment where students can get hands-on experience with a selection of e-commerce tools and applications. At the moment two applications have been installed: auction and VCommerce. VCommerce

was initially developed as a database driven Active Server Pages application at University of Hawaii (Moffett, 2000 and Johnson, 2000). It is a web site where students conduct business transactions under conditions simulating real-world business-to-consumer e-commerce. Over the course of a semester, students start up, design, and operate e-businesses. Process of starting with an online business and running it makes the second part of the final assessment (in the first part they have to write an e-business plan). No programming knowledge is required for students to set up storefronts (storefront template is provided) or to shop in the VCommerce. Students from other degree courses are invited to visit shops at VCommerce and spend virtual money provided by the tutor. VCommerce system tracks consumer behaviour, shops and pages they have visited and goods and services they have purchased.

The main design difference between well-known Deakin Electronic Trading Community (Joyce, 1999) or Web-TRECS (Parker and Swatman, 1999) and our e-playground is that in our approach students are facing less structured situation which is more closer to reality and therefore may act with more degrees of freedom. They are not restricted to a specific business opportunity, but to specific target market. They choose their own business opportunity, as they would do in real world. They are working in small, self-directed teams and are investigating issues involved in the creation of web-based businesses. We direct them to go through the initial process of choosing business idea, forming and managing a virtual team of people to implement the idea. Although there is a predefined set of topics for the course with recommended readings, students are responsible for determining what they need to learn in order to develop and manage their online businesses. As a consequence, students are drawing upon a range of disciplines to resolve the problems they face. These are some of the essential elements on problem-based learning. The overall experience with the virtual learning environment, including the team work and research of e-commerce issues should lead students to achieve higher levels of comprehension, develop more learning and knowledge-forming skills and more social skills.

CONCLUSION

Our design and development of an e-commerce course and web-based learning environment presented in this paper has shown the way to integrate different learning modes into teaching an e-commerce course. It also shows the major components of the learning environment, how they are structured and related to the specific course activities such as assessments and group work. Our research findings suggest that:

- Virtual learning environment is more than just the course information and the learning guide. It has collaborative area and the playground where the students could get hand-on experience with e-commerce.
- Only a part of an online course content is predefined. Rest of the content is created through interaction of the learners with other participants and with the learning environment.
- Well-defined structure between e-commerce topics and activities on one side and collaborative area with discussion forum on the other side integrates various parts of the learning environment into effective learning place.

- Virtual playground provides space for students to test what they learnt in this course and their entrepreneur's ability to set up and run an online business in semi-real environment.

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