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THE USE OF WEBCT IN DISTANCE LEARNING COURSE IN UNIVERSITY OF MANCHESTER

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ABSTRACT

The World Wide Web impacted the educational model and became part of distance education in this early century. There were many changes taking place in higher education for political, economic and educational reasons. New goals and educational objectives are being set within educational institutions. There were particular emphases to produce a more effective delivery of learning methods for distance learning students. The use of Internet was seen as an important issue in the development of an understanding of the complex process of instilling knowledge to post graduates students. Well-established universities are re-examining their missions and looking for different ways of providing lifelong education.

The Building Division of the MACE was particularly keen to increase the use of web-based learning in its courses, which will increase the amount of students enrolled into these programmes, help them learn in a flexible and workable manner. This paper describes the outline for the design and development of a distance-learning module. Some benefits and setbacks will be discussed and recommendation for future improvement explained.

Keywords: **Distance Education, Evaluation Methodologies, Postgraduates Programme, e-Learning, Teaching/Learning Strategies.**

INTRODUCTION

Advances in IT and telecommunication have allowed web-based courses to replicate more seamlessly the features of face-to-face instruction through the use of audio, video and high speed Internet connection which facilitate synchronous and asynchronous communication chat groups. Traditional instructional activities such as lecture presentation and delivery, student participation, discussion, feedback and evaluation can be easily translated to the web environment. In order to do this universities are moving from their traditional emphasis on classroom instruction to an environment where learning can be pursued through any media of instruction (Aggarwal, 2000).

There is a trend for universities to allow programmes to be studied part-time, and even at a distance. Because an increasing number of postgraduate students are expected to be working in a profession of some sort, the knowledge that is taught may often be more practical and tends to be more multi-disciplinary.

In the informational-networked economy, many postgraduate students are expected to be part-time students, their research work-based and partly funded by their employers.

e-Learning EDUCATION

Dearing (1977) asked the higher education establishment to provide a more flexible and open learning to a wider range and diversity of students, which includes lifelong learning. The use of IC&T and in particular the World Wide Web is now being recognised to play an important role in this aim. Virtual Learning Environments (VLEs) include built-in features that aim to provide higher education users with the opportunity and benefits of teaching and supports access and flexibility they require while enhancing interactive educational environments over the web. This feature was seen to be suitable for this research project. The intention to improve the style and delivery of education as set by Dearing, (1997) has lead to change in University of Manchester. Rogers (1969) suggested that the shift of the spotlight from teacher to individual learners. He also advocates delineation of accountability so that teacher and learner become jointly responsible for a positive outcome.

In the Construction and Civil Engineering discipline, there exist some evidence of mismatch between learning style and teaching style. Ford (1985) said that if learning progress is to be made then the questions of relating such styles with teaching styles must be resolved. Whereas, Felder (1993) suggested that mismatches, between the prevailing teaching styles in may science courses and the learning style of the students, have serious consequences. The good thing about distance learning is that students need not have to attend classes at a particular time or place. Student also need not follow subject according to lecturer's choice or pace.

To encourage interaction, discussion and revision amongst the part-time student, a social event is planned. To help the part-time student, a self–assessment exercise is given to them. The purpose of this is to let the student assess themselves during the course of studies. Networking is another feature of the part-time programme to help them interact between their peer as well as those from another company who are doing the same course. The uses of email, chat room and board are some examples of media to assist them.
Newby (2000) described alternative means of postgraduate studies over the Internet, which could possibly be sponsored by the student's employer. He also suggested that most of the redundant subjects be removed to from the curricula so that the postgraduate programme would suit directly during the student's lifetime career.

THE E-LEARNING PROGRAMME in MACE

MACE caters for five full-time courses and four part-time distance-learning programmes. It has been necessary to narrow down the scope of the research. Three programmes were chosen for the pilot test.

The main objective of this e-Learning unit is to design a web-based module using the Virtual Learning Environment used in University of Manchester – WebCT by focusing on a particular Unit selected by the programme director which takes up only 10 hours of the student's time.

Using WebCT

Essaka (2001) said that there are over 100 packages available in the markets that have been developed by universities or commercial companies and she argued that WebCT was found to be suitable for use in University of Manchester. There would only be small differences in distinguishing one product to another. It would then be far better to rely on a side-by-side comparative study of features (www.edutools.info) in making a selection. It would be wise to look at all the features of the entire product before engaging in compatibility exercise to those of the trainers needs.

The emphasis of the work was on the method of delivery of the distance learning courses to produce solutions to enhance the effectiveness of the postgraduate course. Distance learning courses had been produced with little attempt to assess the success of these programmes or to seek students' views on the effectiveness of the distance learning programmes. A study of their effectiveness would have provided an opportunity to develop and improve them for successive years. According to Essaka (2003) the use of WebCT was useful to enable: Monitoring of students, restrict and control access to the environment, track users and participation, and request other course statistics. Facilitating communication and collaboration between and among tutors and students, including threaded conferences, calendar, email, chat and whiteboards. Production of web pages are import digital course material such as web pages and PDF files.

Evaluation of students learning (assignments and tests) and the learning process in general. The students can manage their own learning in their own time and at their own pace and interact with one another through chats and group discussions. WebCT also allow the students to contact their tutors, view the content of the course and take quizzes and self-assessment questions as part of their own personal assessment.

Development of the WebCT unit

WebCT allowed files such as Adobe Acrobat and document files such as Microsoft Word to be incorporated in the web page. WebCT pages were created using HTML and plain text copied and paste from current module files.

The use of web editor allows text, HTML, graphics and hyperlinks to be organized into table of content within the WebCT type structure. Individual web pages can also be created using other software and uploaded into WebCT environment. Because WebCT is a password-protected web-based system it allows control to accessibility, privacy and personal assessment.

Assessment of the WebCT unit

The on-line unit will be assessed on a formative and summative method based on the objectives listed in Objective (a), (b) and (d) will be done in a formative manner, as it will be an ongoing process whereas the rest of the other objectives will be assessed on a summative method. These will be carried out in the following approach:

- **Online tests**
- **Self Assessment Question (SAQ)**
- **Email – tutorial**
- **Coursework**
- **Assignment and**
- **Include submission date.**

Exam questions could be given through live session–synchronous and students could attend any collaborated libraries (either public or university owned) to take them. Assessment will be e-mailed (important to make sure the date and time on the computers used are accurate as the email sent will have proof of date and time).

There will be external constraints such as the time is limited and given to each of the unit task. The participants will not have a problem regarding the accessibility to the module and unit.

The resources to help participant are in the form of on-line lecture notes, and links to other helpful web sites. The entire task will be posted via email. Group work could be part of the assessment, as the tutor would know the extent of work (through discussion forum/chat session) any member of the group has done.

EVALUATION of THE UNIT

An appropriate source of information for this research will be from students, staff as well as relevant documents and the methods of collecting evidence. A variety of methods will be used so that findings from one source could substantiate others.

One characteristic of evaluation methodologies is the types and range of data that are collected. Subjective information such as attitudes and perception are best-collected using questionnaires and interviews. The performance of students, which is affected by the change of style of learning, could be recorded by video logs and from their test results. To have more concrete evidence a survey was carried out between the students and staff on MACE. The data obtained from the survey allowed comparisons to be made between these different forms of delivery. One set of questionnaire ask how well the student did the unit using the paper based mode and the other set ask how ell the student performed with the WebCT version.

Gathering of Data

The time intensity in data gathering will depend on which methodology was adopted. The analysis between open-ended questions such as those in interview could give another problem during analyzing process. Close-ended questions used in questionnaire on the contrary, will ease analysis even if there is a few open-ended questions in it. It is important to collect as much information as appropriate as long as it does not exceed the resource available. The methodology to be adapted will be chosen for the suitability of data collection, and how these data can be analyzed. In the selection of a methodology each style represents a different approach to evaluation.

The fact that there are so many approaches in common use simply means that there is no single method, which is the best. The one method might be suitable for a certain task while the same is not for another task. It is important to be clear in what the question would want. With a clear question in mind, it is possible to start to work out which methodology is suitable. A good starting point is to decide how descriptive the study needs to be.

A 'what' question is highly exploratory in it the evaluator has little knowledge about the factors which will influence learning. These need to be discovered in the course of the study.

In the 'which' question, the factors have already been discovered and offers less investigation but a mere decision. Open qualitative methodologies such as interviews, observations and concepts (mind) maps tend to be best at explorative studies whilst checklists and experiments require framework for questions to be fixed in advance (Oliver and Conole, 1998).

The number of people who will be involved in the study will have an impact on the approach will be chosen. In general, the methodologies that a research best suited to large groups will limit the amount of qualitative data to be gathered. Just as it is important to be clear what sort of question need to be asked, it is also pertinent to be clear what will be counted as evidence. During the design of questions, students' performance, attitudes and their perceptions were asked. These criterions are separated into sections.

Limitations

The research findings need not satisfy all the needs but it would at least try to explain what the research have encountered and discovered within the evaluation. The limitation of time and research funding has limits the scope of the research but nevertheless, it has achieved its goal within the specific scope and timeframe. Some of the questions, which needs to be answered, are:

- **What type of information is most important to meet the goals and objectives?**
- **What information will help to convince key groups of the value of the research work? What area of the research, should be examined more closely?**

Performing an evaluation will provide a good opportunity to stand back and appraise it. A well structured and design question, which covers the broad area, will draw all of these concerns and provide an overall picture.

CONCLUSION AND RECOMMENDATION

The survey concerning the paper-based mode and the WebCT modules established which of the two was favored most. There were three sections in the survey. The first section was concerned with students' satisfaction. The second section was to established skills that were developed and the third was a measurement of opinions after completing each modes.

There was a clear agreement between both staff views and students' views regarding the effectiveness of using WebCT within the MACE projects as well as the other two WebCT programmes run in University of Manchester. These results (although not all) had been substantiated with a significant level of *p* value = 0.05 using the *t*-test.

The findings above not only give some predictions on what can be expected in the near future with regards to on-line learning, but it also tell us whether the students are ready to accept eLearning as an alternative to the paper-based mode.

Overall, WebCT had performed well than expected based on the students' satisfaction. Performing triangulation between the three different cohorts, question such as 'Learning at own pace' showed positive response throughout all three programmes surveyed. This validate that WebCT was effective to make the students learn at their own (Essaka, 2003, French 1999).

The survey also showed that the students and staff were keen in using the email facilities as a means of communication. This was validated when similar questions was posed in Section B of the questionnaires which also points to same response.

Most of the findings in this research were to do with skills development. Three cohorts in MACE showed positive responses towards almost all the skills asked of in the questionnaire. These are the components which employers are seeking according to CORTCO and these are the skills that are being developed by the students during the WebCT learning.

Generally, the findings in this research agree with the findings of other investigators reported in the literature. For example the definition from Rowntree (1981) suggested that learning is a change in knowledge, attitude and skills as a result of experience. This is generally confirmed by the findings of the above results that claimed the students favored WebCT more effective than the paper-based mode. These skills are 'sharing the knowledge and experience', 'ability to select pertinent data' and 'the development of reading and writing skills'.

The students recognized that WebCT could help them practice inter-personal skills and this is shown by their responses to the surveys conducted not only within MACE but in other discipline as well. The inclusion of two other disciplines was to establish a correlation and also act as a triangulation towards the survey.

The agreement of some of the aspects found would validate the survey. The responses from the students also indicated that the students perceived WebCT projects to be more effective in developing personal skills. This is in agreement with the findings of Rockler (1989) that traditional modes of teaching limit the development of these skills.

The last section of the survey found that there was a significant attitude from the students towards WebCT. The pattern indicates that students were found to have more time to discuss with their college via email.

This also shows that the students are better in front of the computer as recommended by Dearing and the white paper.

One important finding shared by all projects was that experience in administering the WebCT gave some reflection towards the effect of the responses of the students. This can be seen in the case of one of the project where the students did not give a positive response towards the WebCT almost in all questions surveyed as the students were the first ones encountered problem login to the WebCT system.

Another finding was that the WebCT frameworks made the students access the WebCT with ease once they had login the WebCT.

To conclude, WebCT provide not only the opportunity to learn in students' time and pace but also helps students to develop personal skills. Furthermore staff has also agreed that they would actual spend lesser time managing the students and more time structuring for a new WebCT unit.

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REFERENCES

Aggarwal, A. (2000) Web Based Learning and Teaching Technologies: *Opportunities and Challenges*, Idea Group Publishing.

Bloom, B. S. (ed.) (1956) *Taxonomy of Education Objectives*, Vol. I, Cognitive Domain, New York: McKay.

Dearing R. (1997) National Committee of Inquiry into Higher education (Dearing Report). *Higher education in the Learning Society*, Report of the National Committee, Norwich: HMSO.

Dunlap, J. (1997) Preparing Students for lifelong Learning: *A Review of Instructional Methodologies.*" Paper presented at the annual meeting of the AECT, Albuquerque, NM.

Essaka (2001) Choosing an appropriate Virtual learning Environment (VLE) for University of Manchester, Information System Department, University of Manchester.

Essaka (2003) A practical Guide to using WebCT at University of Manchester, E-Learning Section Information Systems Department, University of Manchester, 21 May 2003.

Felder, R. (1993) Reaching the second Tier, Learning and Teaching Styles in College Science Education, Journal College Science Teaching, Vol. 23 (5) pp. 286-290.

Ford, N. (1985) "Learning Styles and Strategies of Postgraduate Students." *British Journal of Educational Technology* 16(1): pp. 65-79.

French, D., Hale, C. et. al (ed) (1999) Internet (based) Learning, *An Introduction and Framework for Higher Education and Business*, Kogan Page.

Inglis A., (2001) Selecting an integrated electronic learning environment in Innovation in Open and Distance Learning, *Successful Development of online and Web-based Learning*, Kogan Page.

Manwaring, G. (1988) Directing your Evaluation, *Learning Technology Dissemination Initiative*, Institute for Computer Based Learning, Heriot-Watt University, Edinburgh. U.K.

Newby, H. (2000) The impact of globalisation and new technologies on higher education. *Higher Education Futures*, Design Council, pp. 41-43.

Oliver M., Conole G., (1988) Selecting a Methodology*, Learning Technology Dissemination Initiative*, Institute for Computer Based Learning, Heriot-Watt University, Edinburgh. U.K.

Rogers, C. R. (1969) Freedom to Learn: A View of What Education might Become, Columbus OH: Merrill.