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PRACTICE PAPER

Using Webquest to Support Learning with Technology in Higher Education

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Abstract

A 'webquest' as defined, by Dodge (1995), is an inquiry-oriented activity that helps students to learn through gathering, analysing and evaluating information from teacher-nominated Internet websites. This paper discusses an introductory webquest aimed at teaching and enhancing student learning through technology. The paper develops a rationale for teaching practices that encompass such a webquest and outlines a step-by-step approach complete with all necessary materials. The webquest also contains a questionnaire aimed at evaluating its value, and the findings reveal that students considered that it significantly enhanced their learning. Suggestions for further development of the webquest are identified.

Keywords: Technology, Higher Education, Webquest, Leisure, Tourism, Hospitality

Introduction

Information and communication technologies have had a major impact on education and training around the world. There has recently been significant attention paid to the ways in which technology can be used to support students in Higher Education (HE) (e.g. Laurillard, 1993; Squires et al. 2000; Seale and Rius-Riu, 2001; Seale 2002). For example, telecommunication technologies used in distance learning have many benefits such as:

- a) cutting the costs of education;
- b) improving access to education; and
- c) providing time flexibility for learners (Mason, 1994; Owston, 1997).

Ester (1995) found that computer assisted instruction (CAI) and learning style can significantly improve student achievement and attitudes while decreasing necessary instructional contact times. In

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one of the most comprehensive studies on the effectiveness of using computers to increase student achievement, Kulik and Kulik (1991) found that computer based tutorials produce improvements in learning outcomes of approximately 20 percent above the average for non-computer based learning. Simulation, interactive video instruction, hypertext programs, bulletin boards and networks have also all been found to be effective in enhancing learning (Cronin and Cronin, 1992; Khalili and Shashaani, 1994; Kulik et al, 1986; Schlechter et al, 1992). In addition, educational technologies such as the internet, satellite interactive television, and interactive multi-media CD-ROMs are widely used in technologically advanced nations around the world. However, Green and Gilbert (1995) argue that despite a greater degree of access to technology within HE, the utilisation of innovative technologies as a tool for teaching has remained low. Technology is, however, regarded as a potentially valuable tool for improving teaching and learning in HE (Ely 1996). At the same time, it should be noted that technology alone does not guarantee solutions to educational problems. It will only have a positive impact when used within the framework of a solid strategic plan for supporting learning and teaching.

This article focuses on the use of the 'webquest' to support students and their learning for a particular set of activities and includes discussion of the definition, characteristics, and design of webquests. This is followed by a reflective and critical account of the planning, delivery and evaluation of a specific webquest designed for the Research Methods Module which is a core module for all Level 2 Leisure, Tourism and Hospitality students at Wolverhampton University. The last section of the article provides an evaluation of the webquest's effectiveness, a discussion of its limitations, and suggestions for its future development.

Webquest

The concept of webquest is relatively recent, dating from the mid-nineties. The term 'webquest', coined by Dodge, refers to:

“An inquiry-oriented activity in which most or all of the information used by learners is drawn from the web. Webquests are designed to use learners' time well, to focus on using information rather than looking for it, and to support learners' thinking at the levels of analysis, synthesis, and evaluation” (1995: 2).

Since then, the concept has become very popular in the academic world. Ezell et al (2003) point out that webquests can be developed for various subject areas at different educational levels. They argue that the webquest is a technological tool, which is frequently being used to improve the quality of teaching and learning. Within the context of HE, the author believes that this type of technology has not been sufficiently used and there is room for further development. With a few appropriate modifications, Webquests can provide an effective instructional tool for university students. In order to introduce students to the challenge of webquests in HE, a multifaceted webquest activity was developed which is described and analysed in this article.

Webquests can be developed for various subject areas at different educational levels. In this instance, it was decided to develop a webquest for the Research Methods module which was taught in Semester One of 2003. The rationale for the use of the webquest for this module can be broken down into five main areas:

- Students are usually more motivated to use computer technology for research than the more traditional modes (books, articles, etc), as suggested by Littlejohn (2003)
- Students can find current information on research methods by using a range of resources that may otherwise be difficult or expensive to use (Littlejohn and Higgison, 2003).
- Students have opportunities to be engaged with interactive resources through the worldwide web
- Research methods are an abstract subject in terms of its concepts and philosophies and it was felt that this webquest would enable students to link theory to practice
- Personal interest

Webquest design

It was necessary to find a way to create a webquest that students could easily navigate, and that could blend easily into a module which was already being taught. The study of research methods was a major core module for Level 2 students. The tutor chose to create a webquest that would include the concepts students need to know and provide an exciting, innovative method of delivery of research theory and knowledge for their learning development.

In 2001, Dodge devised a set of general guiding principles for creating a well-developed webquest. The following acronym helps to explain these principles:

- Find great sites
- Orchestrate learners and resources
- Challenge learners to think
- Use the medium
- Scaffold high expectations’.

(Dodge, 2001: 3)

By following the five FOCUS principles, Dodge believed that new webquest creators could improve both their practice and knowledge through previous people’s experience. He subsequently developed a generic five-step process that could be used to design a webquest (Dodge, 2002). These steps were to:

- a) select a topic appropriate for webquests;
- b) select a design that would fit the topic;
- c) describe how students would be evaluated;
- d) design the process by determining how specific resources could be explained further; and
- e) modify and improve the webquest check capitalisation template.

These principles were considered in creating and designing the Research Methods webquest. Through this webquest, students would be able to learn about different research philosophies, the various research methods, techniques, and literature reviews. The intent of the webquest was to support a lesson and help leisure, tourism and hospitality students learn about the different research philosophies in social science.

In summary, the webquest consisted of six sections:

- Introduction: aims and objectives of the webquest
- Task & Guidelines: rationale and instructions
- Resources: visiting internet sites to gather information on each research philosophy
- The Process: five activities (steps)
- Evaluation: debate session
- Conclusion: summary of the points mentioned before

Webquest Organisation

The organisation of the webquest comprised five sessions:

Session One: The overall purpose was to give students an idea about the webquest and to stimulate their thinking on the subject.

Session Two: Students were asked to define some basic research concepts (e.g. research, literature, theory, primary and secondary research and so forth) and to submit their written answers in the following session.

Session Three: The basic characteristics of every research philosophy such as positivism and phenomenology and its methods were discussed. Then the students were asked to investigate their personal predisposition towards particular research philosophies by answering the questions on the

webquest website. Students were able to identify their preferred research philosophy and to know the results immediately after completing the questionnaire.

Session Four: In this session every student was asked to prepare a one page paper justifying why they were happy or not happy with the results of the questionnaire. According to the results of the questionnaire, the class was divided into two groups: 45 students in Group One represented the quantitative researchers and 27 students in Group Two represented the qualitative researchers.

Session 5: The truth about this topic is pretty complex - a lot of research scholars have different opinions about research methods and concepts (Tashakkori and Teddlie, 1998). All students, therefore, were encouraged to come to the class and participate in a debate to defend their favourite research philosophy and to evaluate their own argument. In the debate session, the students were divided into two groups: the 'Positivistic Group' and the 'Phenomenological Group'. Each group had to make a short presentation in favour of their philosophies. This was followed by a structured debate of the main issues raised by the presentations and concluded with a closing statement. It was the students' responsibility to plan and manage the debate. The tutor was neutral and acting as the facilitator or organiser.

After the completion of the debate, the tutor gave the students a lecture on the combined research methods in order to conclude the activity. The students learnt that there was no right or wrong research method – all research methods have some merit. The value and relevance of the paradigm would depend on the nature of the research topic and its aims. Finally, students were asked to fill in a questionnaire in order to evaluate the webquest activity. The findings of this survey are discussed and analysed below.

Methodology

A two-page questionnaire was developed. The questionnaire included both qualitative and quantitative questions. This approach allowed the students to answer specific questions, as well as giving them the chance to express their views without limiting their responses.

The quantitative section of the questionnaire was designed to measure the attitude and opinions (McKernan, 1991) of the students regarding their satisfaction, their level of interaction with the webquest, their academic development and progress and the webquest design. There were 10 questions scored on a five-point Likert Scale (from 1 = strongly agree to 5= strongly disagree) which assessed perceptions regarding the webquest as a whole (e.g. 'I found the webquest activity stimulating'), how it might help learning (e.g. 'the webquest tasks related well to the intended learning outcomes for the module'), and the structure of the process (e.g. 'activity sessions were well organised').

The qualitative section contained open-ended questions. These were designed to explore students' opinions in relation to what went well and identify areas for further improvement (Braskamp et al., 1984). Two questions gave students the opportunity to identify: the strengths of the webquest, and: ways to improve the webquest. Content analysis was used to analyse the qualitative results.

It should be noted that 68 students participated in the webquest evaluation. Of these, 39 were males and 29 were females. In addition, 28 percent of the participants were international students and 72 percent were from the UK. The majority of the participants (91 percent) were over 18 years old, of which 64 percent were over 20 years old.

Findings

Most of the students (96 percent) found the webquest activity stimulating (66 percent strongly agreed, 29 percent agreed) for their academic progress. It is worth mentioning that none of the students answered 'not important' at the other end of the scale. Moreover, most students agreed (62 percent strongly agreed and 35 percent agreed) that the activity sessions were relevant and useful. Along the

same lines, all students agreed that the webquest tasks related well to the intended learning outcomes for the module. Similarly, the majority (88 percent) agreed that suitable learning materials were made available for the activity.

Although 74 percent of the students agreed that the activity was well organised, interestingly 21 percent were uncertain regarding that point. This might have been attributed to their unfamiliarity with such types of internet activities. Similarly, the majority of the students agreed (82 percent) that they had sufficient opportunity to get help and advice on their academic progress while 18 percent were uncertain or disagreed with the same statement. This might be attributed to the lack of time, as mentioned before, and/or their poor knowledge of technology.

The findings confirmed previous work by Faseyitan and Hirschbuhl (1992), which indicated that more training was needed to overcome a variety of inhibiting factors such as fear of change, criticism and lack of understanding of new technology. They also confirmed that the human communication should not be ignored in the learning technology process, as suggested by the literature (Spitzer, 1998; Willis, 1998).

Table 1, below, summarises students' opinions in relation to the best things about the webquest activity. Students chose 'gaining knowledge' and 'easy access from home' as the best two things about the webquest activity (65 percent and 54 percent respectively).

Opinion	Number	Frequency
Gaining knowledge from different internet websites	45	65%
Easy access from home	37	54%
Using technology to support learning	25	43%
The debate	29	41%
Lecturer's assistance and support	26	38%

Table 1

The results further demonstrate support for the argument of Evan and Fan (2002), in that students commented that the webquest highlighted the value of using technology as a mechanism for learning. Surprisingly, many students (41 percent) considered the debate as one of the best things about the activity. This might be attributed to the fact that this topic is pretty complex and research scholars have different opinions about research methods and concepts. Students felt that the use of the webquest focused their minds and enhanced their understanding of the competing research paradigms, enabling and empowering them to take a more active role in the debate. Therefore, students were looking forward to participating in the debate to defend their favoured research philosophy and to evaluate their own arguments. It should be noted that these findings were also confirmed in the final module evaluation.

On the other hand, students proposed some areas for improving the webquest such as:

- 19 % of students suggested that more time was needed to do the tasks
- 16% of students felt that they required further IT guidance and assistance
- 12% of students thought that more tasks (e.g. research ethics and research proposal) would add more value to the webquest.
- 12% of students expressed their desire for webquests to be incorporated within other modules.
- 6% of students felt that their interactive experience was affected because some website resources were not accessible

However, these suggestions could be responded to in the following manner. Firstly, time constraint was the result of the webquest being designed as an additional formative activity which was not initially included in the module. Secondly, more IT support was needed due to the limited Internet

knowledge of some students. Thirdly, the third and fourth statements are indications that students enjoyed the activity and positively interacted with it. Finally, “some website resources were not accessible” would be beyond the control of the tutor for many reasons, for example the website creators needing to update or renovate their websites from time to time and technical problems, such as system failure. Also, these findings are supported by a study carried out by MacGregor (2001) which indicated that many distance learning students have concerns with regard to the technical problems that they experience and how these affected their work.

The outcomes of the webquest activity were very positive. Students enjoyed using the internet to learn about the research methods in Leisure, Tourism and Hospitality. They thought the idea of diagnosing their favourite research philosophy was fun. Most students learned much more about the different research schools of thought than they might have if presented the information in a more traditional format. Students used the information they found when carrying out their own assignments. In other words, they used the formative assessment (the webquest) as a tool for their summative assessment.

These findings support earlier studies by: Littlejohn (2003); DfES (2002); Becta (2002); and Seale and Rius-Riu (2001), which emphasised the significance of technology in HE in terms of student motivation, engagement, progress and development.

Reflection

Creating a webquest was a challenging, yet very rewarding, experience that the author is proud to have completed. The experience will certainly lead to greater planning for, and use of, technology to support students' learning and teaching. As a university lecturer, the tutor's key goal is to encourage each student to achieve to the best of their abilities. One obvious way to accomplish that goal is through the use of new, innovative technology-based strategies.

Previous research studies proved that lectures can be a poor way of stimulating thought and changing attitudes (Bligh, 1998). For example, Maloney and Lally (1998) recorded an absence rate of 40 percent among third-year students, and Sanders et al (2000) found that formal lectures were ranked amongst the least favoured teaching methods by their sample of students. A quality webquest allows teachers to encourage their students to solve problems and create projects that relate to classroom ideas, without directly being in a classroom setting. This is where webquests align with the author's teaching philosophy. As a result, it was felt that students learnt and remembered the material far better than if they had taken part in a typical class comprising of lecture, discussion, and more traditional activities. This is because learning technology adds value to both the efficiency, and the effectiveness, of the learning process (Seale and Rius-Riu, 2001: 3). In addition, previous research reveals that contemporary students themselves will increasingly expect technology to play a part in their learning (DfES, 2002; Becta, 2002). Enabling students to learn the material is, after all, a significant goal for a lecturer. The internet is a solid foundation for helping students learn and conduct research in today's school system (Bailey and Cotlar, 1994; Ellsworth, 1994; Alexander, 1995; Cecez-Kecmanovic, 1996; Mioduser et al.1999; Thompson, 1999).

As a result of using a webquest activity, two major problems involved with student internet use would be avoided. The students would no longer need to spend several hours reading through websites generated from a search engine as websites are provided for them. Also, students would have less excuse to be distracted from the task, because they would have no need to be looking at websites other than those included in the webquest.

Accordingly, a webquest is considered as an exciting tool that will undoubtedly help students on an interactive learning journey. However, the task that a webquest outlines for students to complete is truly the key component to achieve an effective webquest. That is because it clearly describes the activity that the students will undertake and gives them some direction on how to complete the activity.

Development of the webquest was definitely a challenging and rewarding experience for the tutor and more of these projects will be created for his classes to complete because their value as an exciting learning tool is recognised. Most students liked the webquest and would like to see similar webquests for other modules. They enjoyed completing each task and had never done anything like it before, as the tutor had never taught anything in this way before. Most students were able to complete all of the tasks and follow the guidelines. Some took a little longer, but were able to complete the tasks with some guidance. Others became very frustrated with the tasks but these were generally students who were not very proficient with internet usage. The directions designed to support students did aid most of them with their webquest, but some were still confused. The directions on the webquest internet itself were originally the only ones given. Most students found these helpful, but there were still some students who were overwhelmed due to the lack of familiarity with technology.

The students learned a tremendous amount from this activity. There are things which would be adapted for future use. It was felt that HE students could benefit to a greater degree from this kind of activity. Quite a lot of time was spent just helping students navigate through all of the information. Finding sites that are easily used by undergraduate students is hard. Most research sites are geared for postgraduate students, and thus it was difficult for some students to read and understand some of what they found. Even with these difficulties though, other tutors would still be encouraged to create webquests of their own in order to use technology to support learning and teaching in HE.

Limitations

This webquest had a number of limitations:

- More time was needed to familiarise students with the webquest concept and its tasks. The webquest was designed after the module content was planned and decided. Therefore it was difficult to totally fit the webquest within the contents of the module because the webquest was not developed and designed as an integral part of the module.
- Some students had poor technological knowledge. They needed more training, support and guidance.
- Some of the webquest tasks were completed in the classroom, although in an ideal world students should complete the tasks without being in a classroom setting and thus relying only on using electronic means. These tasks were carried out in the classroom because: a) the webquest was a formative activity and some students would not complete the tasks if they had been asked to do them away from the classroom; b) in order to encourage more students to participate in this activity; c) some students needed direction and guidance due to their poor knowledge of technology; and d) time limitation as there was not enough time available if any of the tasks needed to be repeated.
- More research is needed to assess the impact of the webquest on the performance of the students, and their knowledge and understanding of the subject. This could be done by splitting the class into two halves, running the webquest with one group only and measuring the difference in knowledge and understanding between the two different groups.

Taking account of these limitations and the evaluation findings, this webquest will be redesigned to further support students in making effective use of it and its associated resources. New resources and tasks will be added, and students will be asked to summarise their tutorials and complete the tasks on-line. An electronic forum will also be developed for the debate and a discussion board will be integrated into the webquest. The final dimension that needs to be included is the assistance of another person in the classroom to help those students lacking computer proficiency.

Conclusions

This article has presented an exploratory study of the value of using the webquest as a technological tool to support learning and teaching in HE. It has discussed the importance of technology in HE in general, and the significance and development of the webquest concept in particular. The article focused on description, analysis and evaluation of a webquest which was specially designed for the Research Methods course.

It was found that, to a great degree, students understood about the research philosophies and techniques in social science. They began to see the relationship between the research philosophy and the research aim(s) and question(s). Most students wanted to extend their learning beyond this activity and encouraged the tutor to support creation of more webquests for other areas of the curriculum. There was rarely a time when students were not enthusiastic about what they were learning and doing on the computers. Students also found a new appreciation for the wealth of knowledge to be found on the Internet.

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Note

Page numbers quoted from Dodge (1995) are from a print-out of the Internet version of the document.