

WEBQUEST AS A SCAFFOLDING TOOL TO FOSTER HIGHER ORDER THINKING SKILLS AMONG ASPIRING TEACHERS

Dr. Sony Mary Varghese

Asst. Prof in Education, Peet Memorial Training College, Mavelikara.

Ms. Minu Varghese

M. Ed student, Peet Memorial Training College, Mavelikara.

INTRODUCTION

Information and communication technologies have a major impact on education and training around the world. Studies have shown that technological supports highly influence the teaching learning process (Squires et al, 2000). They transform newly acquired information into a more sophisticated understanding. In one of the most comprehensive studies by Cronin and Cronin (1992) it was found that interactive video instruction, hypertext programmes and networks are very effective in enhancing learning outcomes. In addition , internet , satellite interactive television, interactive multimedia CD- ROM' s are also widely used to develop more advanced intellectual skills , social skill and other capabilities among learners. However Green and Gilbert (1995) argue that despite a greater degree of access to technology, utilization of innovative technologies as a tool has remained low in higher education .The reason behind this can be attributed to lack of interest of teachers, short duration of course work, workload of teachers, lack of moral support from the authorities and perhaps due to lack of training. Yet we know that technology is a valuable tool for improving teaching learning process if it is used within the framework of a solid strategic plan.

This article discusses in brief about webquest as a scaffolding learning tool in technology which can develop higher order thinking skills among prospective teachers. It includes the definition, its characteristic features, webquest design, critical components of webquest, the organization of webquest developed by the investigator in psychology and implications of webquests on higher order thinking skills.

WEBQUEST

The concept of webquest is relatively recent, dating from the mid-nineties. The term 'Webquest' coined by Dodge (1995) refers to "an inquiry oriented activity in which most or all the information that learners interacts with, comes from the web or resources on the internet (Dodge, 1997). It is a predesigned tool that provides a practical way of acquiring information, participate in meaningful discussions, engage in solving problems and make them active learners instead of surfing the web in an unstructured manner. Webquest is a framework that integrates numerous sound learning strategies while also making substantial educational use of the web. There are two types of

webquests, short term and long term. Short term involves knowledge acquisition and integration, making sense of large amount of information within short term, Long term webquests extends knowledge by transformation and demonstrate it through survey, discussion area or response form and duration may go up to even one month. Usually learners focus on a tangible, high tech task with a webquest. Webquests can be of different forms including searchable databases, micro world that can be navigated, interaction story or case study, forum type documents or even online interview simulation. Webquest can be developed for various subjects at difficult educational levels.

NEED AND SIGNIFICANCE OF THE STUDY

A well designed Webquest uses the power of the internet and scaffolded learning process to turn research based theories into dependable learner centered practices. Teacher education curriculum comprises of rich theoretical base of philosophy, psychology, sociology, technology etc. Even though teacher education put lot of effort to make these abstract theoretical concepts into concrete terms, ambiguity occurs while elaborating certain ideas. Students lose interest in studying those concepts as they are quickly forgotten. In this context, the investigator plan to develop a Webquest, a supporting tool in technology that can motivate the students to put more effort in learning. It breaks a complex task into meaningful chunks and hence can develop interest in students. It can be linked with our classroom activities and cannot be isolated from the curriculum. It is a proper solution for overcoming the monotony in memorizing the abstract concepts in teacher education curriculum. This study is intended to develop a Webquest in psychology and to find its effectiveness on developing higher order thinking skills

OBJECTIVE :

To find out the effectiveness of webquest as a scaffolding tool to foster higher order thinking skills among aspiring teachers.

METHODOLOGY

Fifty student trainees were selected as the sample. Experimental group and control group were compared on the basis of higher order thinking questions, to find out the effectiveness of web quest on selected topics in psychology.

WEBQUEST DESIGN

It was necessary to find a way to create a webquest that students could easily navigate and could blend easily into the teacher education curriculum to be taught. The investigator selected a concept in psychology from the curriculum which require an exciting, innovative method of delivery for creating the webquest.

The guiding principle devised by Dodge (2001) was adopted for creating the 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.

By following the five focus principles, Dodge developed a generic five step process 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 the evaluation process of students
- d) Design the process and to locate specific resources.
- e) Modify and improve the webquest template.

These steps were considered in creating the webquest on Piaget's Cognitive Development. Through this webquest, students would be able to learn about stages of Piaget's theory , comparison with other cognitive theories , Implication of Piaget's theory for teaching , misconceptions, criticisms and modern views about Piaget's theory and how to develop a lesson for adolescents using Piaget's theory. The intent of the webquest was to support a lesson on growth and development in psychology for teacher education.

In summary, the webquest consisted of six sections :

1. Introduction : aims and objectives of the webquest .
2. Task : Rationale and instructions.
3. Resources : Visiting internet sites to gather information.
4. Process : Activities
5. Evaluation : Based on rubrics.
6. Conclusion : Summary of the points

WEBQUEST ORGANISATION

Webquest is organized into six sections. It begins with a motivating INTRODUCTION about Piaget. This WebQuest introduces Piaget's work through a variety of resources. It includes attention to basic concepts, stages, mechanisms of development, criticisms, misconceptions and educational implications. It involves viewing You Tube clips, visiting other web sites, and reading attached documents. Although there is a group task, each individual is expected to complete the entire process. Questions to check the previous knowledge is also provided in the introduction. Objectives of the webquest are also mentioned in this section.. The major objectives are:

- To elaborate the theories of Piaget and to bring out the educational implications.

- To make learning challenging and fun through the use of inquiry approach, and web-based resources, including multimedia.
- To develop higher order thinking skills among the students.

Second section provides the **TASKS** in the webquest.

Task 1: Plan to Work individually or with a group

Task 2: Resources Report –which gives information and instructions about 6 resources from the Process page of this webquest that help to design the activity: 3 Internet links and 3 documents.

Task 3: Design Your Own Instructional Activity (PRODUCT)–Students should create an instructional activity using principles from Piagetian theory and its educational implications. This activity can be in any subject but for students in Adolescent Level, mainly for high school students.

Task 4: Implement Your Instructional Activity–Students have to implement the instructional activity during the practice teaching session either individually or in group in any of the high school class.

Task 5: Self-Evaluation–Everyone should evaluate their own performance on the Webquest activities and presentations, using the criteria specified.

PROCESS to complete the webquest is given in the **third Section**. As described on the Task Page, the resources provided here on the Process Page are intended to help to learn about Piaget's theory of intellectual development and its educational implications so that you can they can apply this knowledge to teaching and learning in general .

After completing the process they should undergo self-evaluation and external evaluation using an **EVALUATION RUBRIC** given along with the webquest. Finally a **CONCLUSION** is given which is a summary of the content in the webquest. Through this webquest, students are made clear that that learning become interesting only when it become learner centred at all levels. Piaget's theory has some misconceptions that are not significant when compared to the implications. He equated age with stage, he was a maturationist, he didn't appreciate the role of environment in cognitive development and he thought education couldn't help students develop cognitively. Make sure that students don't get so focused on learning about the stages that they neglect the educational implications of the theory.

IMPLICATION OF WEBQUESTS ON HIGHER ORDER THINKING SKILLS

In a WebQuest students tackle questions that prompt higher level thinking.. Built into the WebQuest process are the strategies of cognitive psychology and constructivism. First, the question posed to students cannot be answered simply by collecting and spitting back information. A WebQuest forces students to transform information into something else, a cluster that maps out the main issues, a comparison, a hypothesis, a solution, etc. In order to engage students in higher level cognition, WebQuests use scaffolding or prompting which has been shown to facilitate more advanced thinking. In other words, by breaking the task into meaningful "chunks" and asking

students to undertake specific sub-tasks, a WebQuest can step them through the kind of thinking process that more expert learners would typically use. What they need are many examples with lots of information and opinions on the topic through which they will sift until they have constructed an understanding that not only connects to their own individual prior knowledge, but also builds new schema that will be refined when students encounter the topic again in the future. After implementing the webquest on Piaget's theory, it was found that the student teachers were able to develop higher order thinking skills which was analysed through a rubric on higher order thinking skills.

CONCLUSION

Prospective teachers are expected to deal with the future generation or the 21st century learners. 21st century learners are knowledge constructors rather than knowledge acquirers. The student teachers need to be trained to develop frameworks of learning for making the students to work on their own, thus preparing the students to become knowledge workers. Webquest is one such framework that actively engage students in acquiring knowledge by exploring and processing. In addition, students will develop social skills such as listening, cooperating, affirming others etc while working through webquests. They also learn to express opinions effectively and use language that will appeal to group members, while working together in small groups Internet sites are pre-selected so students don't waste time searching. Students are lead to use higher level thinking to process information. It employs cooperative learning (students are in pairs or teams for most). Students will do real world research that is current and up-to-date. Scaffolding provided within the lesson can help lower learners catch up. WebQuests can be used for a variety of subjects and topics. For this reason, they are a great collaboration tool for the media specialist to use with teachers. When student teachers become well versed in learning through webquests they can develop webquests which can be utilized for developing future generation into knowledge workers of 21st century.

REFERENCE

1. Cronin, M.W. and Cronin, K.A. (1992). A critical analysis of the theoretical foundations of interactive video instruction, Journal of Computer-Based Instruction, Vol. 19 (2), 37-41.
2. Department of Education and Skills (DfES), (2002) [online]. Available from: <http://www.dfes.gov.uk/index.shtml>
3. Dodge, B. J. (1995) Some thoughts about Webquests. available from: http://Webquest.sdsu.edu/about_Webquests.html.
4. Dodge, B. J. (2002). The Webquest design process. Retrieved September 15, 2002, from San Diego State University, Educational Technology Department Web site, available from: <http://Webquest.sdsu.edu/designsteps/index.html>
5. Dodge, B. (n.d.) The WebQuest Page. Retrieved February 14, 2007 from <http://webquest.sdsu.edu/>

6. Educational Broadcasting Corporation. (2004). Workshop: WebQuests. Concept to Classroom. Retrieved February 15, 2007 from <http://www.thirteen.org/edonline/concept2class/webquests/index.html>.
7. Green, K. C. and Gilbert, S. W. (1995) Great expectations: content, communications, productivity and the role of information technology in higher education, *Change*, Vol. 27 (2), 8–12.
8. Squires, D., Conole, G. and Jacobs, G. (2000) *The Changing Face of Learning Technologies*. University of Wales Press, Cardiff