WebQuests in the Middle Grades Classroom: Teachers' Perceptions

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The average middle school child may very well know as much about technology as their parents. In fact, some may know much more. Today's students have grown up in an environment with incredibly easy access to the Internet, emaiJ, word processing, and almost any other technological innovation. With the advances in technology it is safe to assume that in the near future most jobs will require at least a working knowledge of computers. If technology is so important to the future success of our students, it makes sense that it should also be an important part of our instruction. How, then, do we as teacher educators ensure that our pre-service and in-service teachers leave our programs ready to fully integrate technology in effective ways?

One Internet-based teaching strategy that is gaining in popularity is WebQuest, an inquiry-based learning activity (Dodge, 1997). As of September 17, 2003 over 4.7 million people have accessed the WebQuest Homepage at San Diego State University since February 28, 1998. Seeing the benefits of incorporating WebQuests into instruction, hundreds of schools, school districts, and universities have on-line collections of well-written WebQuests. Many teachers have been using Web Quests in the classroom for several years. But, how much does the average pre-service and in-service teacher know about WebQuests? What are teachers' perceptions of the benefits of WebQuests? What can teacher educators do to ensure that teachers have the knowledge and skills to use them effectively with students? This study attempts to answer those questions.

What is a WebQuest?

According to Bernie Dodge from San Diego State University, a Web Quest is an "inquiry-oriented activity in which some or all of the information that learners interact with comes from resources on the internet" (Dodge, 1997, p. 1). WebQuests were created by Dodge in 1995, during the early stages of widespread Internet access. With the increase in Internet access in university labs, Dodge began to experiment with effective ways to integrate the technology into classroom instruction (March, 2000). As Dodge developed activities for pre-service teachers, "he launched the Web Quest, arguably the most popular approach for integrating the Web in classroom learning" (March, 2000, p. 1).

A teacher conducting an on-line search of posted WebQuests will find many activities from all subjects and topics. Whether long-term or short-term, quality WebQuests have certain critical attributes (Dodge, 1997). These attributes include an introduction, a task, information sources, process, guidance, and conclusion. Some attributes that are usually included, but not critical, in Webquests are group activities and motivational elements. In addition, WebQuests can be interdisciplinary or within a single discipline.

Creating a WebQuest

Educators wishing to create their own WebQuests must begin by building a webpage. Many educators use popular webpage authoring software such as Netscape Composer or Microsoft Front Page. Some, however, simply build a page using Microsoft Word and save the file as a webpage. The actual program used to create the page is unimportant. The content of the page, however, is critical.

Quality WebQuests begin with an introduction. The introduction provides the students background information on the topic and sets the stage for the investigation or activity (Dodge, 1997). One critical aspect of WebQuests that is sometimes included in the introduction is that the students are presented with an open-ended, essential question (March, 1998). When students are presented with an essential question "we encourage more advanced performances" (March, 2000, p. 56). The introduction

should also motivate the students to want to learn more and explore the topic in-depth.

The next section of the WebQuest is the task. The task includes an activity that is "doable" and is of interest to the students. March cautions that "problems can occur, however, if people expect higher-order thinking outcomes from an assignment inviting copy/paste masterpieces. This type of sloppiness undermines the integration of the best practices we hope to support (p. 56). Therefore, the task that students complete should go beyond read-the-page-answer-the-questions activities. Dodge (1997) suggests that thinking skills that may be required in a quality WebQuest include comparing, classifying, inducing, deducing, analyzing errors, constructing support, making abstractions, and analyzing perspectives. For example, students create a news broadcast centered around Jim Crow laws. The students use available Internet resources to research the topic and create the broadcast. The task often identifies roles for cooperative group members. Each student is assigned a role to play as they complete the assigned activity.

Next, the resource section provides links to high-quality Internet-based resources that students will use to complete the activity. Some WebQuests have a separate section for information sources where some embed their resources in the Web Quest as anchors pointing to information on the Internet (Dodge, 1997). The resources that students use are varied. Students may view historical photographs from the Library of Congress. They could listen to audio files of Martin Luther King, Jr.'s "1 Have a Dream" speech delivered at the March on Washington. They can read archived newspaper and magazine articles. What is most important is that the resources are high-quality and developmentally appropriate for the targeted age group.

The process section provides a step-by-step guide for completion of the activity. The WebQuest should provide a clear description of exactly what students should do to complete the task. Again, the resources mayor may not be embedded here as anchors to Internet sites.

Most all quality WebQuests include an evaluation tool or assessment instrument as the next to last section. The evaluation may be in the form of a rubric or checklist of some form. Because the task involves some type of inquiry learning, it is poorly assessed using paper-pencil types of assessment. . The evaluation tool should illustrate to students exactly what they should do to be successful. . The authentic assessment instrument could be created on the WebQuest using the "table" feature available on most webpage authoring software. Or, it could be created using online resources such as Rubistar and then linked from the WebQuest. .

The last section of the WebQuest is the conclusion. The conclusion brings closure to the activity and summarizes what you hope the students have learned as a result. of competing the activity. The conclusion may also encourage students to extend their recently-gained knowledge to other domains (Dodge, 1997).

Taken together, these sections should form a Web Quest that is reflective, fluid, and dynamic (Watson, 1999). Students are motivated to engage in inquiry-learning and are provided all the resources and guidance to do so. Students are aware of what they need to do to be successful. . In addition, they are encouraged to use their newly acquired knowledge in different contexts.

Why WebQuests?

Tom March, who is credited as being a major contributor to the development and refinement of WebQuests in the early stages, suggested that WebQuests promote student motivation and authenticity, develop thinking skills, and encourage cooperative learning (March, 1998). According to March, WebQuests increase student motivation by providing an essential question, real-life resources with which to work, and opportunities to work in cooperative groups. WebQuests, by their very nature, encourage the development of thinking skills. The assigned task requires students to "transform information into something else: a cluster that maps out the major issues, a comparison, a hypothesis, a solution, etc." (March, 1998, p. 2). In addition, WebQuests encourage cooperative learning among students Because

WebQuest tasks are often complex or involve controversial topics, students work in groups to complete tasks (March, 1998).

The Problem

Very few studies have examined student outcomes associated with using WebQuests in the classroom with school-aged students. Also important to note, several database searches resulted in no studies that look at teachers' knowledge and perceptions of WebQuests. Before we can conduct large-scale studies of the benefits to students we need to determine teachers' knowledge and perceptions of WebQuests to determine how many are actually using the technology with school-aged students. This study, then, attempts to answer the following questions:

1. How many middle-level pre-service and in-service teachers surveyed are familiar with WebQuests?
2. How many middle-level pre-service and in-service teachers surveyed know the steps necessary to create WebQuests?
3. How many middle-level pre-service and in-service teachers surveyed have created a Web Quest?
4. How many middle-level pre-service and in-service teachers surveyed have used WebQuests with school-aged students?
5. What are teachers' overall perceptions of WebQuests?

Methodology

This study was conducted at a regional university in the Southeastern United States. Surveys were distributed to all students enrolled in on-campus middle grades education courses during the fall semester of 2003. A total of 135 students responded to the survey. Fifty-three students enrolled in Bachelor level courses, 21 students enrolled in Master level courses, 12 students enrolled in Educational Specialist courses, and 49 students enrolled in initial certification courses completed the survey. Initial certification students *hold* undergraduate degrees in fields other

that middle grades education and seek initial certification in that area.

The survey (see Appendix) includes four questions that were included to determine the pre-service and in-service teachers' background knowledge of WebQuests. Respondents answered "yes" or "no" to the first four questions. The survey also includes eight Likert-type items. Participants respond on a scale ranging from "strongly agree" to "strongly disagree". The Likert-type items, which were included to determine teachers' perceptions of WebQuests, were piloted with a group of pre-service teachers who had previously created WebQuests. The reliability for the Likert-type items was determined using Cronbach's alpha. The items were found to have high internal consistency, with alpha = .82. Those who responded "yes" to question one, which asked if they were familiar with WebQuests, were asked to complete the Likert-type items. Those who responded "no" to question one did not complete the Likert-type items.

Results

Research Question 1

How many middle-level pre-service and in-service teachers surveyed are familiar with WebQuests? Of the 135 respondents only 38 were familiar with WebQuests. Thirteen pre-service teachers enrolled in Bachelor level classes reported that they were familiar with WebQuests, and 40 were unfamiliar with them. Only 7 of the 21 Master level in-service teachers were familiar with WebQuests. Seven of the 12 in-service teachers in Educational Specialist courses reported their familiarity with WebQuests. Finally, 11 alternative certification students were familiar with WebQuests.

Research Question 2

How many middle-level pre-service and in-service teachers surveyed know the steps necessary to create WebQuests? Only 13

of the 135 in-service and pre-service teachers surveyed reported that they knew the steps necessary to create a Web Quest.. Four of the 53 Bachelor level in-service teachers knew the necessary steps. Two of the 21 Master level in-service teachers and 3 of the 12 Educational Specialist in-service teachers reported that they knew the how to create WebQuests. Only 4 of the 49 alternative certification students responded that they knew the necessary steps for creating a WebQuest..

Research Question 3

How many middle-level pre-service and in-service teachers surveyed have created a WebQuest? Fifteen of the 135 in-service and pre-service teachers surveyed reported that they had actually created a WebQuest.. Of the 53 Bachelor level pre-service teachers, six had created a WebQuest.. Four of the 21 Master level in-service teachers have created a WebQuest.. Only 2 of the 12 Educational Specialist in-service teachers and 3 of the 49 alternative certification students reported that they had created a WebQuest..

Research Question 4

How many middle-level pre-service and in-service teachers surveyed have used WebQuests with school-aged students? Twelve of the 135, or just under 9%, of all those surveyed reported that they had used WebQuests with school-aged children. Two of the 53 Bachelor level pre-service teachers reported the use of WebQuests with school-aged children. Three of the 21 Master level and 5 of the 12 Educational Specialist level in-service teachers responded that they had used WebQuests in the classroom. Finally, only 2 of the 49 alternative certification students have used Webquests with school-aged children (See Table 1).

Table 1

Pre-service and In-service Teachers' Knowledge of WebQuests

Level	Bachelor	Master	Educational Specialist	All. Cerl..
	(n=53)	(n=21)	(n=12)	(n=49)
Knowledge				
Familiar				
Yes	13	7	7	**II**
No	40	14	5	38
Steps				
Yes	4	2	3	4
No	49	19	9	45
Created				
Yes	6	4	2	3
No	47	17	10	46
Used				
Yes	2	3	5	2
No	51	18	7	47

Research Question 5

What are teachers' overall perceptions of Web Quests? Teachers' perceptions of WebQuests were measured using the eight Likert-type items included in the survey. Of the 135 respondents, only 38 were familiar with WebQuests. Only those familiar with WebQuests were asked to complete the Likert-type items. Therefore, only 38 surveys were used to measure teachers' perceptions of WebQuests. Overall, these pre-service and in-service teachers had positive perceptions of WebQuests. Specifically, 79 % of the respondents either agreed or strongly agreed that WebQuests foster critical thinking skills. 92 % of the respondents agreed or strongly agreed that WebQuests have the potential to enhance student learning. With regards to cooperative learning, 71 % of the respondents agreed or strongly agreed that WebQuests were valuable. 74 % of the respondents agreed of strongly agreed that WebQuests allow students to construct their own knowledge. 76 % and 82 % believe that WebQuests are

valuable classroom resources and represent an effective way to use the Internet in the classroom, respectively.

In an effort to determine if there was a difference in the perceptions based on level of education, undergraduate pre-service teachers were compared with graduate in-service teachers. The 53 Bachelor level pre-service teachers were compared with the 82 graduate level students (Master, Educational Specialist, and alternative certification). There was no statistically significant difference between the two groups ($t = -.91$, $P > .05$). In addition, traditional students were compared to non-traditional students. That is, students in the Bachelor, Master, and Educational Specialist programs were compared with the 49 alternative certification students. There was also no statistically significant difference between the tradition and non-tradition students ($t = -.20$, $P = > .05$).

Discussion

The results of the survey indicate that very few of these teachers are familiar with, much less use, WebQuests. Those pre-service and in-service teachers who are familiar with WebQuests seem to have a positive perception of them. They perceive many benefits to using WebQuests with school-aged children. These benefits include fostering critical thinking skills, reinforcing required objectives, enhancing student learning, encouraging cooperative learning, encouraging students to construct their own knowledge, and utilizing authentic assessment strategies. In addition, the majority of the respondents believe that WebQuests represent an effective way to use the Internet in the classroom and they believe that WebQuests are valuable classroom resources.

Previous research has examined why teachers do not Lise technology in the classroom (Strickland & Nazzal, 2003). The most common barriers to successful technology integration include:

1. lack of hardware
2. lack of appropriate teacher training

3. lack of time
4. lack of autonomy in the classroom
5. lack of classroom management
6. lack of administrative and peer support..

Teachers wishing to use WebQuests in the classroom must overcome all of the barriers before implementation. They must find access to the necessary hardware (computers with Internet access), receive support from administrators so that they are provided with the necessary training and time for implementation, and they must learn to integrate the technology into what they are already doing in the classroom.

Future research needs to look at the student learning outcomes associated with using WebQuests in the classroom. Do WebQuests really foster critical thinking skills? Do WebQuests enhance student learning? The research is really lacking when it comes to the real benefits, as opposed to teacher perceptions and perceived benefits. In addition, research needs to examine the best way to train teachers to use technology, especially WebQuests.

If WebQuests truly have the power to foster critical thinking skills, reinforce required objectives, enhance student learning, encourage cooperative learning, encourage students to construct their own knowledge, and utilize authentic assessment strategies then we, as teacher educators, need to include this in our methods courses, at the undergraduate and graduate levels. The results of this study illustrate that we are not doing a good job in that area now as few of the surveyed teachers were even familiar with WebQuests.

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