Experience of Elementary School Students with the Use of WebQuests

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The aim of this study was to examine the perspectives of primary school students on the use of WebQuests in learning. There were nine graduate students, twenty-six 4th grade and thirty 5th grade pupils involved in this study, which took place over eight weeks in a graduate course. The graduate students designed and developed their WebQuests as a project based on their interests. The researcher gave a questionnaire, including open-ended questions, to both graduate students and primary school students, who stated their perceptions of the development and implementation of the WebQuests. The researcher only examined the views of the primary school students on the use of WebQuests in learning. The study shows that both 4th and 5th grade pupils found something very interesting about WebQuests, which enhanced their motivation to learn. The students also commented that they played, had fun and learned using WebQuests.

Introduction

There have been many educational studies conducted to help students overcome their difficulties in learning mathematics, language or other areas depending on their grade level. There are many variables, such as parental-care, use of technology, real-life activities, teachers' knowledge, instruction, gender, prior knowledge, curricula, peer-interaction, and so forth, that play a prominent role in determining students' achievement and motivation to learn (Middleton, 1995; Stipek, 1998; Wei & Chen, 2006; Halat & Peker, 2011). In addition, there have been great changes in both technology and education in the last two decades. In particular, the rapid development of technology, such as the development of computers, mobile phones, iPads, smart-boards, and so on, and the availability of the internet almost at everywhere, has substantially influenced all disciplines, from health to business, and has had a great effect on people, especially on students (Brown, 2001). Today, students cannot live without using the internet and mobile phones, and are unable to stay away from these technologies. The development or change in technology has affected developments in other areas of life. In other words, the rapid developments in technology and dramatic increase in the availability and capabilities of computers and other electronic devices has not only affected students, researchers, educators, parents, and so on, but has also caused the changes in the direction of scientific disciplines. Moreover, the availability of the internet and technological development has captured politicians', administrators', researchers', educators' and publishers' attention. They all want to benefit from the internet and electronics in schools (e.g., Subramanian, 2010; Birgin, Çatlıoğlu, Gürbüz & Aydın, 2010).

In particular, there have been many research studies done on the use of technology, alternative teaching and learning methods, and theories to enhance students' motivation in class (i.e., Açıkalın & Duru, 2005; Gökalp & Eryılmaz , 2011). That is one of main motivations to

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integrate technology into the teaching and learning environment. Likewise, today most people (in particular students) use the internet in their daily life. Many researchers and educators thus recommend the use of the internet in the classroom because it is a valuable source of knowledge for both teachers and students (Schofield, 1995; Dodge, 2001; Halat, 2008b). One fast emerging use of the internet is web-based activities (e.g., Wei & Chen, 2006). "WebQuest" is a computer-based learning and teaching model in which learners are actively involved in an activity or situation, and use the internet as a resource. Likewise, Lamb & Teclehaimanot (2004) claim that WebQuests are a student-centered and project-based approach to teaching and learning, which is supported by a variety of theories, including the theories of constructivist philosophy, critical and creative thinking, situated learning environments, cooperative learning, and engaged learning.

WebQuests have become very important in many educational areas and have received considerable attention from teachers and educators since they were proposed and developed by Dodge (1997). For instance, Gökalp & Eryılmaz (2011) examined the implementation of WebQuests in a 9th grade physic classroom and the reactions of the students to web-based instruction. Subramanian (2010) used a WebQuest and the 5E learning cycle (inquiry –based strategies) in a science classroom. Halat & Peker (2011) investigated the effects of mathematical representations developed through WebQuest and spreadsheet activities on the motivation of pre-service elementary school teachers. Halat & Jakubowski (2001) worked with pre-service mathematics school teachers on the use of WebQuests in teaching and learning geometry.

Dodge (2001) defined two types of WebQuests: short-term and long-term. According to him, well-designed WebQuests—either short-term or long-term— have the following critical attributes: an introduction, a task, a process, resources, an evaluation, and a conclusion (Dodge, 1997/2001; Kelly, 2000; Halat, 2008a). More information about these attributes can be found elsewhere (Dodge, 2001). In addition, Halat (2008a) points out the strengths and weaknesses of WebQuests.

Why WebQuests?

Halat (2008a) worked with pre-service elementary school teachers on the webQuest-based applications and found the strengths of WebQuest:

- It can be an alternative teaching technique that enhances students' motivation toward the class.
- It could serve as an alternative assessment tool in the assessment of student's learning.
- It helps teachers to get an idea about the students' degree of acquisition of knowledge and students' implementation of the gained knowledge.
- It provides teachers an opportunity to see and assess students' ability in using technology in learning.
- It can enhance teachers' creativity in thinking and writing, such as trying to find interesting and funny fictions/scenarios and to adapt and combine these scenarios with math or other topics.
- It can enhance teachers' higher-order-thinking skills, such as finding topic-related websites, examining and selecting professional, well-prepared and reliable websites among the others.
- It requires students to be active learners (p.10).

However, he also underlines a couple weakness of this teaching and learning technique. He (2008a) claims, "In this strategy, students are expected to follow the given directions of the WebQuests and visit the reliable links selected by the teachers to get new information. However, students may not come back to the webQuest portals and complete their works if they are distracted by other websites that they might find more appealing or attractive. Furthermore, students may not want to work on the WebQuests and do the tasks if they do not like the scenario or the topics or if they find the tasks very difficult." (P.110-111).

Research has documented that WebQuest has potential to improve critical and logical thinking, motivation, creativity, higher-order thinking and learning, problem solving skills and active learning (i.e., Whitworth & Berson 2002; Abu-Elwan 2007; Allan & Street 2007; Lim & Hernandez 2007; Zheng et al. 2008; Halat 2008b; Yang, Tzuo, Higgings & Tan 2012) and to provide an environment in which teacher educators could implement the educational theories and approaches to practice (Halat & Jakubowski 2001; Lim & Hernandez 2007; Halat 2008a).

Though educational theories and models, such as van Hiele theory, constructivism, behaviorism, multiple-intelligence, cooperative learning and others, help teachers and students, it seems at times that theories or models are inadequate when applied to curriculum (e.g., Swafford, Jones & Thornton, 1997; Billstein & Williamson, 2003). Thus, if we support curriculum development that uses technology based on these theories or models, we might be more successful in teaching and learning (Timmerman, 2000; Perkins & McKnight, 2005). In particular, the use of computers with well-prepared educational software would enhance teaching and learning. It is clear that the Internet has a great influence on both students and teachers (e.g., Wei & Chen, 2006). Therefore, instruction supported with WebQuest-based applications, including the use of technology and the internet, might help students overcome their difficulties and enhance their motivation learn mathematics. Research shows that there have been many studies conducted in different areas about WebQuests and their implementation since 1997 (e.g., Halat & Jakubowski, 2001; Wilson, 2008; Sox & Rubinstein-Ávila, 2009; Altstaedter & Jones, 2009; Peker & Halat, 2009; Öksüz & Uça, 2010; Cameron & Champbell, 2010; Subramanian, 2010). Most of these concern pre-service teachers.

Purpose of the Study

The aim of this study was to investigate the views of 4th and 5th grade pupils on the use of WebQuests in learning. In particular, the researcher examined the answer to the following question: *What do primary school pupils think about the use of WebQuests in their learning?*

Method

The researcher used a qualitative research method in this study. This method is ideal for getting more detailed information about problems, issues, events, or theory implementations, and for getting clearer and better answers to how and why questions in a research study (McMillan, 2000). The researcher chose this method because he wanted to get more intensive information about the implementation of WebQuests at the primary school level.

Participants

There were a total of 65 students involved in the research study. Nine of them were graduate students (in-service primary school teachers), twenty-six of them were 4th graders

and thirty of them were 5th grade students. This study took place over eight weeks in an elective graduate course.

Teaching & WebQuest Development Process

At the beginning of course the researcher gave presentations on both the theoretical structure of a WebQuest and the findings of research studies done on WebQuests for two weeks. After examining a couple of good WebQuests, the graduate students decided what they were going to teach via WebQuests. After that, they wrote their stories or scenarios and found many websites related to their teaching topics, and selected reliable and well designed websites as resources for the students. While the graduate students collected the necessary documents, the researcher started to teach how to develop a website. The graduate students all learned the use of FrontPage editor in order to develop their WebQuests. In three weeks, the graduate students designed their WebQuests as a project based on their interest area, which were appropriate to the level of primary school students. Some of the topics of the WebQuests were "geometric figures," "natural disasters," "step by step Turkey," "our culture and its elements," "heart and blood circulation".

Data Collection and Analysis

The graduate students were supposed to show their WebQuests to their students. They were free to choose the number of 4th or 5th grade students (between four and ten). First, they introduced WebQuests to their students and gave information about how they were going to learn using this new learning strategy. Then, the 4th and 5th graders worked on the designed WebQuests, appropriate to their level. After the implementation of the WebQuests with 56 students, the researcher gave an open-ended questionnaire to the students so as to get the views of the 4th and 5th grade students about the WebQuests. The questionnaire included written questions, such as "what do you think about the use of webQuest in learning?," "What parts of the webQuest do you like?," and "what are the things on webQuest you dislike?"

The students wrote their answers on the papers. The researcher examined these written papers, then coded and classified the students' responses. After the classification, the frequency table was constructed (see the appendix). He made valuable inferences from the qualitative data. The results are presented below.

Results & Discussion

The researcher searched for the answer of the following question: What do primary school pupils think about the use of WebQuests in their learning?

This study found that the WebQuests had positive effects on the motivation of the primary school students to learn. This supports Schofield (1995), who claims that using technology in teaching and learning has positive effects on student motivation and achievement. Likewise, according to Wei & Chen (2006), the internet has a great impact on both students and teachers. Most of the 4th and 5th grade students (71%) gave positive responses to the implementation of the WebQuests. Sixty-four percent of the participants stated that they liked this new teaching and learning technique. Moreover, they gave some reasons why they had found WebQuests useful and amusing. For instance, "we learned new information… using the internet is very good, but using it in a learning environment is much better." Moreover, 64 % of the participants claimed that while they were surfing on the internet, which was exciting, they learned a lot. One said, "Learning by a click is more efficient than other ways because I like using the computer and surfing on the internet, which is funny and enjoyable." These

views are not different from the perspectives of the pre-service middle and secondary school mathematics teachers on using WebQuests while teaching mathematics (Halat & Jakubowski, 2001).

Furthermore, sixty-six percent of the participants of this study found WebQuests that included animations, nice figures and pictures, and good stories, or adapted scenarios, such as Smurfs, Harry Potter, Hugo, Sponge Bob, Keloglan and so on, very interesting adding that this enhanced their motivation to learn. According to the students, animations and other interesting parts made the WebQuests attractive and different from other teaching techniques and approaches, in particular, from the traditional way of teaching. For example, "I completed the lesson because of the story used in the WebQuest. I gave my full attention to the lesson because I wondered what was going to happen at the end of the story. Therefore, it wasn't boring for me to complete the lesson, which I liked," "There were several videos in the WebQuest that helped me to understand the topic very well. Including videos in teaching was a great idea," and "we found information in the WebQuest that couldn't be found in the textbooks. The WebQuest also included more figures and pictures than the textbooks, which helped students to learn the topic well and retain the information effectively." The finding of this study lines up with the claim of Middleton (1995) who states that real-life examples or activities are major motivating factors in a mathematics classroom. He added that using real-life application, group practice, hands-on activities, and other strategies, plays an important role in determining students' motivation. Similarly, according to Halat & Jakubowski (2001), the pre-service middle and secondary mathematics teachers stated that "they felt that this environment allowed students to apply geometric concepts in real-life applications using technology. Projects included topics such as the Bermuda Triangle, sports, and music. The use of WebQuests provides K–12 students with appropriate educational uses of the Internet" (p.3).

Fifty-four percent of the participants stated that the WebQuest could be used in other classrooms, such as Mathematics, Social Science, and Science and Technology classrooms. For example, "we would have understood the lessons very easily if our teachers had used the WebQuests in our classrooms," "the topic, matter, in the Science and Technology classroom was explained easily with the WebQuest. Therefore, the ones who felt weak in mathematics could study the math topics in the WebQuests that presented the topic in a game or story including figures, funny pictures and videos. This could help these students learn the topics easily and efficiently in mathematics." Furthermore, one student said that this technique could be used effectively in story-writing in Turkish classes, to enhance students' thinking. In addition, WebQuests could be beneficial in teaching some topics, such as weather forecasting, climate, water -circulation, and evaporation, in Social Science classes. And, one student added, "I believe that WebQuests can be more useful in Social Science classes than in other classes, and a topic taught in a week can be taught in a short time with the use of WebQuests." However, one of the students involved in the study, on the contrary, said that it couldn't be used in other classes. S/he added, "For example, it was necessary to do some complex operations in mathematics. So, we were not able to ask anybody if we did not understand any points in the topic." This finding supports the idea stating that WebQuests could be used in many educational areas (e.g., Kelly, 2000; Sox, & Rubinstein-Ávila, 2009; Halat, 2009; Subramanian, 2010; Gökalp & Eryılmaz, 2011). For instance, Yang, Tzuo & Komara (2011) stated that designing webQuest-based applications positively affected the pre-service special education teachers stating that after dealing with WebQuests, they were eager to use more technology and web resources in their future teaching. Besides, Altstaedter & Jones (2009) claimed that webQuest could be an influential way to motivate undergraduate students in a foreign language course.

In addition, fifty-one percent of the participants claimed that the classroom teachers could use a traditional way of teaching but also use WebQuests in the classroom, because sometimes it (the traditional way of teaching) became very boring. So, the WebQuest could be a break for the students who got bored. And one said, "While the teacher was teaching, I got bored, but I did not get bored when I was working on the computer by myself. I liked the WebQuest. I liked computer classes, which I enjoyed a lot." Furthermore, one stated "I prefer learning from the WebQuest to other ways because it is funny and there is a competition and a reward in learning with the WebQuest. You get nice rewards if you successfully complete it…It is like playing a game." Likewise, one student said, "I understand well when the teachers use different methods in their teaching. Studies like this one are instructive and entertaining." However, this student added, "although I follow the directions and reach the results by myself, I suppose I cannot pay attention to all things. I think that if the teacher shows or explains the points I do not understand, then I can learn things better." This is not in contrast with the claim of Dudeney & Hockly (2004) who state that while students are working on the WebQuests, they should be reminded about what they are doing, why they are doing it and what the benefits are to them, because it is very easy for the students to not think of the benefits and to view regular visits to the computer labs as a waste of time.

Moreover, 57 % of the participants of the study expressed that while they were working on the WebQuests, they felt as if they were in the story and playing the role of Hero or as one of the characters. For example, one said, "I felt as if I were Harry Potter in the scenario. It was great for me to save Harry's life. I saved the life of Harry by giving right answers to the questions. So, I felt as if I were in the story or in the game." Similarly, another student expressed, "I felt as if I were Keloglan in the competition…I achieved to help Keloglan, who got married to the King's daughter. I felt as if I was there during the competition, or I was in a knowledge competition. He never became hopeless throughout the competition, I didn't either. So, I trusted myself throughout the competition, and this enhanced my self-confidence. This was good; I would suggest it for everybody." These views strongly support the use of WebQuests in teaching and learning. This aligns with the findings of Peker & Halat (2009) and Halat (2009) about using WebQuests.

Furthermore, one of the participants expressed, "I learn better by reading. Therefore, the webQuest is good for me. I think I learn much better this way." Another student said that she learned more detailed information about natural disasters, and added that she could use this information if she faced these kinds of natural disasters in her real life. Similarly, another one stated that he got more information on the WebQuests about the topics, such as solids, liquids, gases, and water- circulation. The research findings show that rewards play a prominent role in students' achievement in the classroom, and enhance students' motivation in class. In this study, fifty percent the participants claimed that they liked the rewards in the WebQuests. For example, "while I was working on the WebQuest, I enjoyed receiving the award as well as new information." This result lines up with the claims of other researchers (c.f. Dogde, 2001; Halat, 2008a).

To conclude, these findings about the use of WebQuests at the primary school level encourage teachers and educators to develop WebQuests and implement them in classes. Moreover, it is clear that this teaching and learning technique can be used in any class, such as Mathematics, Social Science, Science and Technology, Health, Engineering, and Tourism. Furthermore, many students claimed that they had surfed safely on the internet, played, had fun and learned with WebQuests, without getting into any troubles that would concern parents and educators.

Implications and Limitations

There were several positive aspects to using WebQuests in the classroom. They had a positive effect on students' motivation. This current study implies that using WebQuests in learning may be helpful for students struggling to overcome difficulties in some of their classes, and developing and implementing WebQuests may be beneficial for the teachers to attract their students' attention to their classes and increase their students' achievement in class. In addition, the findings of this current study imply that using WebQuests may be an important learning tool that protects students from harmful websites on the internet, as most of parents want their children to benefit from the internet, and at the same time don't want their children to visit websites that are unsuitable or harmful.

Even though the participants stated a lot of good things of using WebQuests in teaching and learning, they also claimed that there were several limitations in their use. For instance, there was a common view shared by the participants (35%) that when they were visiting other websites for information, or formulas, they wanted to go or visit other links. In other words, they had a hard time going back to the WebQuest portals when they were visiting other websites. This lines up with the finding of Halat (2008a), who says "students may not come back to the WebQuest portals and complete their work if they are distracted by other websites that they might find more appealing or attractive" (p.110-111).Moreover, twenty-four percent of the participants claimed that reading the story, connecting to the internet, doing the assessment questions and watching the videos took a lot of time. This bored and tired them. Likewise, another one claimed that one weakness of the WebQuest was its use of time as it took a lot of time. In addition, another one added, "Sometimes I had difficulties connecting to the internet" and there were other students (25%) who stated that the suggested resource websites had a lot of unnecessary information about the topic they were looking for. Twenty-four percent of the students of the study expressed that students without a basic knowledge of the internet could participate in WebQuests. This result supports the reports of Halat (2008a) who argued that limitations in using WebQuests include the possibility of lack of access to the Internet, and finding reliable links for resources for the webQuest.

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Appendix:

Table 1: Frequency Table Based on the 4th and 5th Graders Response

Statements	%
1- I learned new information from webQuest	73
2- I like webQuest, it is useful and exciting	64
3- Classroom teachers should use both the traditional teaching technique and webQuest	51
4- I felt as if I were in the scenario (taking the role of character in the story)	57
5- I like webQuest, I want my teachers to use webQuest in other classes	59
6- WebQuest can be used in Social Sciences, Science and Technology classes, and Mathematics	54
7- Rewarding is great	50
8- I surfed on internet safely, enjoyed and learned	64
9- I liked animations, pictures, images, and so forth on the webQuest	66
10- I did not get bored when I was working on the webQuest	71
11- I had a hard time to go back to the webQuest after visiting other websites	35
12- I had difficulties while finding the right information on the websites (unnecessary information)	25
13- I had internet connection problems	29
14- It takes a lot of time to read the story, watch the videos, and so on	21
15- It requires basic internet knowledge	24