Effectiveness of Web Quest Strategy in Acquiring the Geographic Concepts among Eighth Grade Students in Jordan

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[Abstract] This study aimed at identifying the efficiency of using Web Quest Strategy in acquiring the geographic concepts among eighth grade students in Jordan. The study individuals consisted of (119) students in the scholastic year 2013-2014. Four sections were randomly selected from two schools and divided into experimental and control groups. They were placed into the experimental group that consisted of (58) male and female students taught by Web Quest Strategy and into a control group that consisted of (61) male and female students taught by the traditional method. To achieve the study objectives, teaching plans were prepared according to the Web Quest Strategy and testing the acquisition of the geographic concepts. The study results showed the presence of differences with statistical significance at significance level (α =0.05) between the means of the students' scores on the test acquiring the geographic concepts attributed to the teaching method in favor of the experimental group. But the results did not reveal the presence of statistically significant differences between the students' scores on the test of acquiring the geographic concepts by the eighth basic grade attributed to the gender variable or to the interaction between the teaching method and gender.

[Keywords] web quest strategy; geographic concepts; eighth basic grade

Introduction

In Jordan, the new vision of developing education focuses on knowledge economy by employing technology in education and preparing a generation of learners able to deal with technology and use it effectively. Undoubtedly, raising the level of output is the basic goal of the development process, which helps students who know about modern technology to construct knowledge and employ it in their life. One of the basics of developing education in Jordan is the focus on concepts and cognitive structure in ways that assure learners' effective role in learning through activity, work, and practice, which help them understand and apply concepts. Developing education also focuses on using knowledge in life and employing the concepts and cognitive structures in dealing with daily practical problems and situations (Al-Ziadat & Qatawi, 2014).

Educators affirm that helping students at different stages of study to learn concepts in an effective way is a fundamental objective of basic education, and learning the concepts facilitates learning the educational content, increasing its fixation in the memory, improving the students' abilities in achievement and education, and employing the educational experiences (Qatawi, 2007). For an example, from this research concepts are considered as the important component in the content of geography subject. Learning and developing these concepts is considered one of the teaching objectives of the geography subject. Therefore, teachers of geography need to know how to use methods in teaching geographic concepts. It is worth mentioning that learning geographic concepts has a great importance; studying the cognitive concepts of any subject starts by clarifying the basic concepts to enable the students' abilities to use them (Ababna, 2006; Al-Zydat & Qataqi, 2014).

The general frame of the geography subject, which is published in text books and curricula management in Jordan for the year 2005, makes the student aware of the social, political, and economic role in society; these materials also facility understanding the relationship between time and place, and explain natural and human phenomena scientifically. Therefore, these objectives cannot be achieved unless modern strategies in teaching geography are used in author's opinion.

Al-khidr (2014) and Al-Kasab (2011) pointed that one of the important challenges facing the

achievement of the geography subject's objectives is the lack of using modern strategies in teaching. As many researchers stated, the common method in teaching geography depends on memorization and drilling that make the students rely on the teacher in obtaining the geographic concepts and take them away from inquiry, research, and thinking skills (Al-Edwan & Al-Shra, 2008). So, those who are interested in teaching geography seek to find strategies and methods of teaching suitable to the modern technological developments, on the one hand, and to the tremendous scientific progress in geographical information on the other hand (Abdalbasit, 2003).

Web Quest Strategy is considered one of the most important strategies that links the educational planning of the educational process in an accurate form and the Internet. It is considered a constructive educational pattern that is based on the learner model as a traveler and explorer, and it assures the interaction between the learners and the teacher during the educational process. Additionally, it reflects the idea of the modern teaching that relies on the latest technology as a source of knowledge (Lacina, 2007; Wang & Hannafin, 2008).

Hishor & Cope (2001) defined Web Quest Strategy as educational activities that depend on searching, questioning and discovering, developing the students' high mental capabilities, and depending on the available electronic resources on the Web, which were selected previously, with the possibility of adding other resources, such as journals, books and compact discs (CDs).

The Web Quest Strategy is defined as purposeful educational activities guided by inquiry that depends on the searching processes on the Internet to reach the correct information in less time and with less effort and to develop the students' mental capabilities. It is an educational means that aims at presenting a new learning system through integrating the Internet with the educational process; it is a flexible learning mean that can be used at all stages form school to the university, and even in all the courses and majors (Al-Hila & Nofal, 2008, p. 206)

Sen & Neufled (2006) see that this strategy is a cognitive journey on the Web to reach the correct information with less effort and more time to develop thinking; this strategy makes the learning process an interesting process to the student, which increases their motivation and participation in classes.

Schweizer & Kossow (2007) assured the same idea as they also believe that Web Quest Strategy is a logical method to use for the cognitive sailing on the Internet to deepen students' understanding and expand their thinking. Halat (2008a) considered it as a teaching approach based on the student and on the constructive theory, thinking skills, and cooperative learning.

The Web Quest Strategy is one of Piaget's most important educational applications that are based on his assumptions of the mental growth, which affected greatly the methods of teaching; the learner constructs his knowledge by himself, and he can reconstruct his knowledge through the process of the social negotiation with others (Joma & Ahmad, 2012). One of its basic points is that ideas are not given to the students, so they have to build their own concepts and knowledge created through their thinking and self-activity (Zeitoon, 2007).

Based on what has been mentioned, the researcher sees the necessity of taking into account the technological changes and carrying out experiments to ascertain the benefits of these technologies to improve the students' level of acquiring the geographic concepts. Therefore, the objective of this study is to identify the efficiency of Web Quest Strategy in the acquisition of geographic concepts by eighth basic grade students in Jordan.

Study Problem & Hypothesis

Interest in the development of the educational process has increased in Jordan with the call for the necessity of using different methods of teaching; improving the educational process is linked with its transformation from depending on the traditional method that focuses on memorization and drilling to learning that stimulates the students' desire to discover through different situations and activities. Many studies and educational researches including Al-Syabia (2006, Al-Edwan&Al-Shra (2008), and Al-Kasab (2011) pointed to the students' weakness in achievement in geography, geographic skills' acquisition, and their attitudes towards geography as a subject. In addition, the researcher noticed during his field visits that teachers totally depended on traditional methods of teaching geography, weakness in using

technology in teaching geography, students' low achievement in geography, and the difficulty in applying geographic knowledge to different educational situations. Based on what has been mentioned previously, the researcher believes in the importance of using modern methods of teaching that is interested in the concepts and the acquisition of knowledge by the students; educational literature of teaching the concepts showed a scarcity of scientific research or and studies that studied the impact of using Web Quest Strategy on the geographic concepts' acquisition in Jordan. So, based on this premise, this study examined the efficiency of Web Quest Strategy in the geographic concepts' acquisition among the basic eighth grade students in Jordan. Therefore, the study problem has been identified by testing following hypothesis:

- There are no differences of statistical significance at the significance level ($\alpha=0.05$) in the eighth basic grade students' acquisition of the geographic concepts attributed to the method of teaching Web Quest Strategy and the traditional method and the gender variables and the interaction between them.

Objectives of the Study

Significance of the Study

This study is compatible with the modern trends in the teaching process with its concentration on the concept of qualitative teaching. Qualitative teaching is characterized using technology in teaching and learning, which increases the interactions between the teacher and the student on one hand and between the students themselves on the other hand. The Web Quest Strategy considers an aspect of this global trend. The significance of this study lies in its harmony with the modern developmental thinking of the Ministry of Education in Jordan, which is represented by the project of knowledge economy that focuses on using technology and helping students' construction of the concepts by themselves. This study addresses,

- Attention of the specialists in the curricula of geography as curricula designers and educational supervisors towards exploring a method that may motivate the students to learn to improve their results and to employ Web Quest Strategy in geographic concepts' acquisition.
- Making the teachers of geography aware of the Web Quest Strategy to improve the methods of teaching, which have been already used and to develop them continuously at schools.
- Benefiting from the theoretical literature of the Web Quest Strategy in clarifying its educational applications.
- Encouraging the researchers to do more research and experiment in the teaching strategies of geography.
- Contributing to the currency and originality of knowledge production and verification in the context of the Jordanian and Arabic environment because it fills a gap in studies that address this topic .

Procedural Definitions

   Web Quest Strategy, which are purposeful planned educational activities depend on the technology usage in teaching to help students construct knowledge by themselves. These activities are represented by the research and inquiry processes on the Internet in addition to journals and CDs in order to reach information with less effort and time.

   Traditional Method. A set of strategies is in the teachers' guide books in teaching geography in the eighth basic grade. It is a teaching method that relies on memorization and discussion strategies, in delivering the information to the students depending on text book using the same procedures with all students.

   Geographical Concepts. All the meanings which the students have of the concepts mentioned in the unit of natural resources, such as natural resources, water resources, mineral resources, energy resources

and maintaining and protecting the natural resources, are all mentioned in the eighth grade book of geography in Jordan for the academic year 2013-2014.

Geography Subject. The school curricula for the eighth basic grade taught in the schools of Ministry of Education for the year 2013-2014 include studying units distributed in two semesters, including a unit on natural resources.

Limitations of the Study

The study is limited to a sample of eighth basic grade students of AL- Zarqa, the Second Directorate of Education, who enrolled in public schools for the year 2013-2014. The study is limited to teaching the concepts mentioned in the natural resources unit of the eighth grade book of geography in Jordan.

Previous Studies

The results of the studies assured the efficiency of using Web Quest Strategy in developing the students' learning skills, thinking skills, and achievement. For example, the study of Brunton (2005) concluded that the achievement of the eighth students in science is attributed to the integration of technology using Web Quest Strategy, and the students who were taught by using Web Quest Strategy showed positive attitudes towards the science subject. The study results of Michelle & Eula (2005) showed the superiority of the students who studied math by using Web Quest Strategy over the students who studied by the traditional method. The results also showed differences attributed to the gender variable in favor of the females. The results of Jadallah's study (2006) revealed statistically significant differences in achievement in the intermediate and delayed exams of the students who learned by Web Quest Strategy, and the students have positive attitudes towards chemistry. The study recommended the necessity of having training courses in Web Quest Strategy in the programs of the educational sciences colleges.

The results of Ikpeze & Boyd's study (2007), which aimed to measure the effect of the scientific tasks based on   Web Quest Strategy on developing the sixth grade students' higher order thinking skills, revealed that there were differences between the experimental group that studied using Web Quest Strategy compared to the control group that studied by the traditional method.

While the study of Ismael and Abdo (2008) showed the impact of using Web Quest Strategy in teaching science on developing methods of thinking and the attitudes towards by the female students of the educational college;   results were in favor of the experimental group compared to the control group.

Al-hila &Nofel' study (2008) showed statistically significant differences in favor of the control group, which learned through using Web Quest Strategy in developing the critical thinking;   there were statistically significant differences in favor of the experimental group in developing the achievement in courses of teaching thinking of the students in the   University Educational Sciences (UNRWA) compared to the control group.

Halat (2008b) conducted a study aimed at identifying the impact of Web Quest Strategy on developing the motivation and the attitudes of the students of the basic education section in math. The results revealed positive attitudes towards math between the experimental group, which studied by using Web Quest Strategy, and the control group that studied by the traditional method in favor of the experimental group.

The results of the study conducted by Joma and Ahmad (2012) showed statistically significant differences in the achievement of the third-level students in the College of Science at the University of Sulaimani in the course of Organic Chemistry in favor of the experimental group, which studied using Web Quest Strategy compared to the control group.

The study of Saleh (2012) concluded the efficiency of using Web Quest Strategy in stimulating ninth grade students' academic attitudes towards learning math in the Tulkarm Governorate. The students expressed the preference of using Web Quest in learning math.

The researcher concluded that most of the previous studies which addressed Web Quest Strategy were in the scientific subjects, as the studies of Michelle and Eula (2005), Jadalla (2006), Ikpeze and Boyd (2007) Ismael and Abda (2008), and Joma and Ahmad (2012) showed the efficiency of Web Quest Strategy in

increasing achievement and developing thinking skills in scientific subjects. But the researcher did not find, according to the researcher's knowledge, any study addressing Web Quest Strategy in social studies, particularly in geography, and so the researcher was encouraged to identify the efficiency of the Web Quest Strategy in acquiring the geographical concepts in order to keep up with the modern trends in teaching geography. The researcher has benefitted from the previous studies in developing the tools of the study and preparing daily planning of a lesson according to the Web Quest Strategy.

Methodology

The researcher depended on the experimental approach of two groups to identify the efficiency of using Web Quest Strategy in acquiring the geographical concepts by the eighth basic grade students in Jordan for the academic year 2013-2014.

Study Individuals

Study individuals consisted of 119 male and female eighth basic grade students who enrolled in the public schools of Al-Zarqa in the second Directorate of Education in the academic year 2013/2014. Four branches were selected randomly from to two schools and distributed in two groups; the first group was the experimental group consisting of (58) male and female students who studied using Web Quest Strategy, and the other group was the control one consisting of (61) male and female students who were taught using the traditional method, as it illustrated in Table 1.

Table 1
Distribution of Study Individuals According To the Strategy of Teaching and Gender Variables

Gender	Strategy of teaching		Total
	Experimental	Control	
Male	27	29	56
Female	31	32	63
Total	58	61	119

Study Instruments

The researcher used the following instruments to achieve the study objectives. ***First objective: Preparing the Lessons Plans According To Web Quest Strategy.*** The first unit (Natural Resources) was selected from the eighth basic grade's geography book to understand the efficiency of Web Quest Strategy. To achieve this objective, the researcher prepared a guide to the teacher, including thirteen plans of Web Quest Strategy. To test its validity, it was presented to ten arbitrators representing academic staff's members at Balqa Applied University and the University of Jordan, in addition to supervisors and teachers of geography who worked at the Ministry of Education. The teacher's guide was adjusted according to the arbitrators' notes. Stages of Preparing the Teacher's Guide:

- Analyzing the content of the Natural Resources Unit. The unit consisted of six lessons (natural resources, water resources, mineral resources, energy resources, and maintaining and protecting the natural resources) where the educational outputs and the main and sub-concepts of each lesson were identified along with the relation between them.

- Identifying the general steps of the strategy and preparing the daily planning of every class including the basic steps of every class and writing the cognitive content according to these steps, including the selected activities. This stage was implemented according to the steps of Web Quest Strategy (Joma & Ahmad, 2012; Salih, 2012);

- Introduction: Clarifying the idea of each lesson in the unit of Natural Resources by first presenting the educational outputs and the whole idea of the student's task, started by identifying the idea and the method of the research, the required evaluation, and the way of presenting the research; in addition, a basic question aimed at stimulating the learners' motivation and attracting their attention to the subject.

- Tasks: Included in the organized and the pre- prepared major and sub task was the accurate and clear description of the final results of the activity. Some of the tasks to be achieved will enable the students to acquire the geographical concepts, wording the subject in the students' language, the students' retelling the content using their own words, verification, reporter's missions, creative production, conversation, negotiation, practical and analytical tasks, and making judgments.

- Operations: The sequenced steps of carrying out the activity were mentioned; websites on Internet were identified so as to be accessed by the students, and each group formed by the teacher was to search resources, which were provided by the teacher, in addition to providing guidance concerning ways of organizing and displaying the information, such as in PowerPoint presentations, on worksheets, conceptual maps, summaries, tables, teaching path plan and others.

- Resources: A list of related resources in the unit of Natural Resources was identified to help the students complete the tasks (electronic websites, scientific encyclopedias, journals, periodicals, research, articles, PowerPoint presentations and others.

- Evaluation: A set of standards that helped in evaluating the students was prepared, and the teacher had to clarify the standards used in the evaluation process as the students' cooperation at work, using resources and the references, exchanging of information between the groups, and students' communication skills. Other evaluation tools were used as rating scales, checklists, and scoring guides.

- Conclusion: The basic idea of using the Web Quest Strategy searched for and summarized the activities, or the lessons results, and some questions of about activities and other related ideas that meet the students' desires were introduced.

Second objective: Testing the Acquisition of the Geographical Concepts. A test was prepared to measure the acquisition of the study individuals of the geographic concepts in the unit of Natural Resources in the eighth grade book of geography that students studied in the first semester for the academic year 2013/2014. The test in its initial from consisted of 34 multiple-choice questions with four alternatives for each item and one correct answer.

To check the test's validity, it was presented to ten arbitrators representing academic staff members at Balqa Applied University and the University of Jordan, in addition to supervisors and teachers of Geography who worked at Ministry of Education. They were all asked to present their suggestions for deleting or adjusting items or adding some items. In the light of arbitrators' views and notes, the researcher made the appropriate adjustments, which (80%) of the arbitrators agreed upon, and so the test in its final form consists of 30 items of multiple-choice questions, and the grades ranged from 30 (highest grade) to 0   (lowest grade).

The researcher also tested the reliability through applying the test to a sample; the study sample consisted of 31 male and female students. The reliability was calculated according to Kuder Richardson (KR-20), and its value reached 0.91, which is acceptable for the purposes of the study. The coefficients of difficulty and discrimination were calculated; the coefficients of items' difficulty ranged from 0.39 to 0.88, while the coefficients of discrimination of the items of the geographic concepts' acquisition test ranged from 0.26 to 0.79, and these values indicate that the value of coefficients of difficulty and discrimination are within the acceptable limits.

Procedures of the Study

The following procedures were followed to conduct this study:

- Identifying the geographical concepts that should be taught by analyzing the unit of Natural Resources in the geography book of the eighth grade.

- Preparing the plans of the lessons of the Natural Resources' Unit in the eighth grade's book of geography according to Web Quest Strategy, which includes the educational outputs of the unit, electronic websites regarding to the short and long-term cognitive journeys, tools, and the educational means used in implementing the activities and identifying the steps of carrying out the lesson according to the Web Quest Strategy followed by evaluation questions to measure the students' degree of acquisition at every level.

- Preparing a test of the geographical concepts' acquisition and affirming its validity and reliability.

- Selecting the study Individuals from the eighth basic grade students studying at AL- Zarqa, the second Directorate of Education, for the academic year 2013-2014.

- Applying the pre-test to the Study groups to test their equivalence. The results revealed the groups' equivalence at the pre -test of acquiring the geographical concepts.

- Implementing the experiment lasted for two months with a class weekly teaching geographical concepts of the Natural Resources Unit in the book of geography, while the experiment group was taught using Web Quest Strategy.

- The control group was taught the Natural Resources Unit using the traditional method, and this group was taught for two months.

- Applying the post-test geographical concepts' acquisition to study individuals directly after finishing the experiment.

- Collecting data and analyzing it and carrying out the necessary statistical treatments.

- Concluding the results, discussing them, and presenting a set of recommendations.

Study Variables

Independent Variables **.** Teaching strategy, and it has two levels (Web Quest Strategy and the traditional method) and gender (male, female). Dependent Variables. The degree of the students' achievement at the test of acquiring the geographic concepts.

Statistical Treatment

Data was analyzed using the Statistical Package for Social Sciences (SPSS). The means and the standard deviations were calculated and the Two Way ANCOVA was used to control the impact of the differences' on the pre-test.

Results & Discussion

This study has attempted to test the following hypothesis: *There are no differences with statistical significance at the significance level ($α=0.05$) in the basic eighth grade students' acquisition of the geographic concepts attribute to the method of teaching (Web Quest Strategy and the Traditional Method) and the gender variables and the interaction between them.* To test the hypothesis, the researcher applied the test of acquiring the geographic concepts to the study individuals according to the method of teaching and the gender variables. Means and standard deviations of the students' scores were calculated, and Table 2 illustrates this.

Table 2
Means and Standard Deviations of The Students' Scores on the Pre And Post Test of the Student's Acquisition of Geographical Acquisition According to the Method of Teaching and Gender Variables

Group	Gender	No	Pre-test		Post-test	
			Mean*	Std. Div.	Mean*	Std. Div.
Control Group	Male	29	8.19	2.37	19.67	3.89
	Female	32	8.22	2.34	20.14	3.53
Experimental Group	Male	27	8.24	2.24	27.81	2.52
	Female	31	8.16	2.38	28.09	2.36

Mean* - maximum degree of 30

Table 2 showed apparent variance between the means of the eighth grade students' scores at the test of the geographic concept's acquisition in the pre and post tests according to the method of teaching and to gender. Knowing the significance of the statistical differences between the means, Two Way ANCOVA was used, and Table 3 illustrates this.

Table 3
Results of Two Way ANCOVA for the Differences between the Means of the Eighth Grade Students' Scores on the Pre and Post Test of the Geographic Concepts' Acquisition According to the Method of Teaching and the Gender Variables

Source of Variances	Sum of Squares	DF	Mean of Squares	F-Value	Sig.
Pre-test	25.824	1	25.824	5.636	0.001*
Method	29.361	1	29.361	6.408	0.001*
Gender	5.027	1	5.027	1.097	0.492
Method*Gender	4.294	1	4.294	0.937	0.525
Error	522.348	114	4.582		
Total	586.854	118			

Sig* - ($\propto$ =0.05)

Table 3 demonstrates three aspects:
1. There are differences with statistical significance at the significance level (α =0.05) between the means of the eighth grade students' scores on the test of geographic concepts' acquisition attributed to the method of teaching variable in favor of the scores of the experimental group.
2. There are no differences with statistical significance at the significance level (α =0.05) between the means of the eighth grade students' test scores on acquiring the geographic concepts attributed to the gender variable.

3. There are no differences with statistical significance at the significance level (α =0.05) between the means of the eighth grade students' test scores on acquiring the geographic concepts attribute to the interaction between the method of teaching and gender.

The researchers attribute these differences in acquiring the geographic concepts to the social cooperative atmosphere inside the classroom. Considering the student as the axis of the educational process and exchanging ideas and opinions among the groups during teaching created an effective educational atmosphere. The researcher also noticed during the application of Web Quest Strategy the students' participation to reach solutions to the given activities as their degree of harmony increased with their groups to get a turn in answering, which reflected their understanding and the acquisition of the geographic concepts included in the course.

The Web Quest Strategy encourages self-directed learning, takes into account the individual differences between the students, and creates more effective learning environment than the traditional method. Additionally, it leaves a space for thinking, searching, and inquiring, which made the learner the center of the learning process instead of the teacher as it is in the traditional method. Therefore, this made the differences in acquiring the geographic concepts between the members of the experimental and control groups. This result is compatible with the results of the studies by Michelle and Eula (2005), Jadallah (2006) Al-Hila and Nofal (2008), and Joma` and Ahmad (2012).

The researcher attributes this result to the similarity of the circumstances of the educational environment which the male and female students were exposed to, or this result may be attributed to the nature of Web Quest Strategy that provided the students with a space to search and inquire about geographical issues according to a cognitive plan provided to them with specific electronic websites, regardless the teacher's gender. Additionally, Web Quest Strategy agrees with the students' interests in using modern technology, especially the internet. Since the students spend very long times using the internet for different purposes, such as enjoyment, entertainment, and play, regardless of their gender male or female.

Recommendations

The study results showed the effectiveness of the Web Quest Strategy, so the researcher recommends the following:

- Using the Web Quest Strategy in teaching the Natural Resources Unit in geography and not only depending on the traditional method to enable the eighth grade students to acquire geographic concepts and to improve their level of achievement.
- Conducting training courses for geography teachers to enable them to activate Web Quest Strategy in the process of teaching and learning.
- Using technology in teaching geography with the focus on teaching strategies that interest the students and provides self-directed experiences in the geography subject.
- Devising a strategy using new variables as creative and critical thinking skills, motivation, attitudes towards learning and on other samples and other studying stages.

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