

Web Quest Approach on Developing Second Year Level Students’ Hypothetical Feat

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Abstract: *This study investigated WebQuest Approach on Developing Second year level Students’ Hypothetical Feat. The study employed quasi experimental design with population of 183 students. The sample size consisted the entire population. However, after administration of treatment 100 mortality rate representing 100 persons were observed and 83 instruments were properly filled; therefore, 83 students from the Departments of Foundations and Human Kinetics, Faculty of Education, University of Port Harcourt 2015/2016 session consisted the sample size. The respondents were randomly assigned to groups of control and experimental. The respondents were given a pre-test prior to using WebQuest and a post-test after 4 weeks of intensive teaching. Results indicated that the experimental group outperformed the control group. There were significant differences in favour of the experimental group. The use of pre-designed WebQuest in this research may have constrained the teachers in implementation and in choosing interesting topics that meet the needs of the students. The researchers therefore recommend that the teachers should have knowledge of the WebQuest tool, and the challenges to its integration in the classroom should be investigated further.*

Keywords: *WebQuest, Self-directed learning, cooperative learning, Pedagogical, traditional teaching.*

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I. Introduction

Bernie Dodge and Tom designed WebQuest in March, 1995. Their motive was to integrate World Wide Web into classrooms. With numerous resources online, students are made to source and gather vital information as regards to subject matter (Dodge, 2010). Some of these resources are supported with TeacherTube, videos, video conferencing etc in order to enhance understanding and facilitate learning (Koenraad, 2008). WebQuest is designed for a purpose of exchange of real information and to trigger meaningful communication amongst students. WebQuest encourages collaboration and team work among students and serves as a scaffolding structure that encourages student’s motivation and facilitates critical thinking with integration of enriched learning resources (March, 2014). The use of WebQuest gives students the avenue to be exposed to many resources on the web while they are in the classroom. WebQuest, being a technological innovation, was found by teachers to be an up-to-date strategy that provides knowledge to students in an interesting and proactive way (Vidoni & Maddux, 2002). Presently, the expansion of knowledge and awareness in all fields of learning has made traditional teaching and learning methods to lose their efficacy, so in order to keep pace with the trend, new ways to increase and transfer knowledge has to be sought (Bowles, 2000). Educational planners and administrators need to adopt new strategies by using appropriate educational methods to enrich students in the classrooms (Gaskill, McNulty & Brooks, 2016).

Web Quest is web-based strategy of teaching and learning that use learning skills that involve high levels of critical thinking (Dodge, 2010). Web Quest includes the principles of learning and cognitive activities, such as cooperative learning, learning framework, problem solving, formative thinking and learning, real and objective evaluation, cognitive and social learning, active learning and increasing motivation (Murray & McPherson, 2014). Web Quest is anchored on Constructivist Learning Theory that advocates students centered learning. According to the structural approach, it’s the learner who is responsible for higher learning, not the trainer, and knowledge is built up by him in his mind.

Some of the principles of web-based learning are retrieval and imagination, classification and generalization, comparison and evaluation, analysis and synthesis, inference and deduction; so, students are required to answer some questions, solve some problems, or elucidate a set of observations that have been provided for them. If applied effectively, this method can help students learn how to form questions in a good way, identify and collect appropriate evidence, conduct a systematic study, analyse and interpret the results, draw conclusions and evaluate values and the magnitude of the results (Saleh, 2016). Today, throughout the

world, tens of thousands of teachers have accepted Web Quest as an appropriate way of using the Internet that involves the students in a way of thinking that is essential in the 21st century (Dodge, 2010). One of the advantages of Web Quest is that each learner is able to make progress at his own speed by using self-direction (Schwarz, 2014). In terms of process and in terms of personal characteristics, this kind of learning activity best with self-directed learning. In this method of learning, the student is responsible for controlling the further education that causes students to achieve high levels of self-direction to succeed in the learning environment (Dudeny, 2003).

Basic Elements of WebQuest as shown by (Ismael & Abdo, 2014):

1. **Introduction:** This provides the students with the cognitive background about the subject matter, subjects and topic in a way that induces their motivation.
2. **The Task:** This is the utmost and basic part of the WebQuest that includes the sub tasks, such as the collection, design, creative production, persuasion and issuing the rule, and other tasks.
3. **The process:** The mechanisms are determined and explained clearly to the students at this stage. More so, the processes that will lead to the accomplishment of the educational tasks are also considered.
4. **The Sources:** The list of available sources is determined which cover the student's cognitive needs, to be designed professionally and reliably.
5. **Evaluation:** This stage considers an important component of the WebQuest. The students perform the self-evaluation and compare what they had learned with what they have accomplished, the teacher evaluates the students and as well work at the previous stages.
6. **Conclusion:** In this stage, set of recommendations regarding the WebQuest task, the students task and the results they had reached should be placed, encouraging them to apply what they had learned of experiences to other settings.

Some advantages of WebQuest Approaches in teaching and learning as opined by (Saleh, 2016) include;

- Encouraging the collective work and exchange of ideas between the students.
- Enabling students, the opportunities for searching deeply for specific topics.
- Equipping the students with searching skills over the internet web.
- Encouraging the students, self-evaluation.
- Dealing with the information sources regarding the quality and efficiency.
- Each learner is able to make progress at his own speed by using self-direction

Problem Statement

Teaching and learning processes evolution has to experience paradigm shift with the call for using different approaches in teaching. Improved teaching is anchored with its transformation from solely depending on the conventional method that focuses on chalk-talk, memorization and drilling. Based on the era we are into now, it is no longer relevant that the students sit as receptor of information, but instead there should be the confirmation on the students as the axis of the learning and teaching process. Many studies indicated that the academic achievement of students always taught with traditional methods often perform poorly. It is in this note that the researchers sought to determine the effect of WebQuest on academic performance of 200 level students in Art of Teaching.

Purpose of the Study

1. Determine the effect of WebQuest on pre-test scores of students in Art of Teaching who use WebQuest and those who do not.
2. Ascertain the effect of WebQuest on the pre-test and post-test of students in Art of Teaching who use WebQuest.
3. Find out the effect of WebQuest on the academic performance of students in Art of Teaching of students who use WebQuest.
4. Examine the effect of WebQuest on the post-test scores of students in Art of Teaching who use WebQuest and those who do not.

Research Questions

1. What is the effect of WebQuest on pre-test scores of students in Art of Teaching who use WebQuest and those who do not?
2. Is there any effect on the pre-test and post-test of students in Art of Teaching who do not use WebQuest?
3. Is there any effect of the pre-test and post test scores of students in Art of Teaching of students who use WebQuest?

4. Is there an effect of WebQuest on the post-test scores of students in Art of Teaching who use WebQuest and those who do not?

Research Design

The design for the study was quasi-experimental. It used a pre-test/post-test quasi-experimental non-equivalent research design.

Population

The population of the study comprised of two (2) Departments; Departments of Foundations and Human Kinetics in Faculty of Education, University of Port Harcourt who offered Art of Teaching as a course. The total number of students were 183; 96 students from Department of Foundations and 87 students from Department of Human Kinetics.

Sampling and Sampling Technique

The sample size consisted the entire population. However, after administration of treatment 100 mortality rate representing 100 persons were observed and 83 instruments were properly filled; 41 from Department of Foundations and 42 from Department of Human Kinetics. Thus, a final sample size of 83 was used for analysis 83 students were used as the sample size. Purposive sampling technique was used.

Instrument and Administration

Achievement test of 30 items was developed by the researcher from the student's course content was used to gather data for the analysis. Validity was done by 2 experts from test and measurement while the reliability of the instrument was obtained using Cronbach's alpha. The Cronbach's alpha reliability coefficient of the 30 items was 0.86.

Data Analysis

SPSS 22.0 (Statistical Package for the Social Sciences) was used to analyse data. T-test was used to analyse the research questions 1, 2 and 3, while ANCOVA was used to analyse research question 4.

Context of Selection

The respondents were 200 level students in the Departments of Foundations and Human Kinetics, Faculty of Education University of Port Harcourt. Students had Intensive lectures and micro teaching in the whole 2nd semester of 2015/2016 session. The groups were selected using a simple random selection. There were 42 students in the experimental group and 41 students in the control group.

II. Results and Discussion

Table 1: What is the effect of WebQuest on pre-test scores of students in Art of Teaching who use WebQuest and those who do not?

Group	NO.	Mean	SD	t Value	Sig. (2-tailed)
Control	41	13.9024	5.91526	.035	0.972
Experimental	42	13.8571	5.85004		

Significant at 0.01 level

Table 1 revealed that the results of the pre-test show that the mean averages of Art of Teaching grades on the pre-test of both control and experimental were very similar. These results were computed through Independent Samples Test (t-test) and revealed at the p<.05 level in scores for the two groups [t = 0.35, p= 0.972].

Table 2: Is there any effect on the pre-test and post-test scores of students in Art of Teaching who do not use WebQuest?

Group	Subjects	Test	NO.	Mean	SD	t Value	Sig. (2-tailed)
Control	Art of Teaching	Pre-test	41	13.9024	5.91526	3.354	0.002
		Post test	41	15.2195	5.86307		

Significant at 0.01 level

Table 2 showed that the performance of the students in the control group improved significantly in Art of Teaching scores [t = 3.354, p=0.002]. There are significant differences between the two performances in favour of the post-test scores at the level of p<.01.

Table 3: Is there any effect on the pre-test and post test scores of students in Art of Teaching who use WebQuest?

Group	Subject	Test	NO.	Mean	SD	t Value	Sig. (2-tailed)
Experimental	Art of Teaching	Pre-test	42	13.8571	5.85004	12.600	0.000
		Post test	42	20.1429	5.74911		

Significant at 0.01 level

Table 3 indicated that the experimental group improved significantly in their performance in Art of Teaching [$t = 8.567, p=0.000$] at the level of $p<.01$ in favour of the post test results. These results also might be due to the period of applying the study and the intensive teaching. However, the margin of the mean scores between the mean scores in the pre-test and the post-test is higher in the experimental group than in the control group.

Table 4: Is there an effect of WebQuest on the post-test scores of students in Art of Teaching who use WebQuest and those who do not?

Group	NO.	Mean	SD	F	Sig. (2-tailed)
Control	41	15.2195	5.86307	64.804	0.000
Experimental	42	20.1429	5.74911		

Significant at 0.01 level

Table 4 showed that the results of both groups showed that there were significant improvements in students' performance in Art of Teaching over time. It also showed that there were significant differences between the experimental and control group in the post-test controlling the pre-test scores [$F=64.804, p=0.000$] at the level $p<.01$. The strongly significant differences occurring in the students' post-test scores support the claim that using WebQuest can improve students' academic performance.

III. Discussion

The study revealed that the performance of the students in the control and the experimental group improved significantly in Art of Teaching scores. Thus, the strongly significant differences occurring in the experimental group's post-test scores when compared to the pre-test scores showed that the use of WebQuest improves students' academic performance in Art of Teaching. This research supports the findings of Tsai (2006) who investigated the impact of WebQuest on the academic achievement and class size of grade II university students. Tsai (2006) found that students engaging in the use of WebQuest significantly outperformed those in the control group in Art of Teaching. Research on the efficacy of WebQuest indicated that it enhances learning and improves performance because it entails student's problem solving and creativity (Dodge, 2010; Perkins & McKnight, 2015). The three underlying constructs found by Zheng, Perez, Williamson and Flygare (2015) to be critical to the design and related benefits of WebQuest are constructivist problem solving, social interaction and scaffolded learning. Scaffolding teaching involves the teaching in which a well-informed teacher provides individualized support for students, is a method that aims in building on prior knowledge while internalizing new information or skills. Important to learning with WebQuest is the notion that the support mechanisms of the learning intervention should easily be taken away as the student gains proficiency at the given task. The goal of the teacher is, thus, to support the student to be an autonomous learner.

WebQuest motivates student by using simple directions to accomplish an activity with clearly defined learning expectations. More so, as suggested by Zheng et al. (2015), the emphasis of learning via WebQuest could be placed on constructivist learning that incorporates critical thinking and individualized knowledge application. Lužon-Marco (2010) found that WebQuest help students engage with texts related to their discipline by supporting autonomous learning and helping the students become accustomed to the methods of meaning construction needed in digital learning. Similarly, this study supports the theory that WebQuest can be a useful tool in constructivist learning as the method does create an environment in which learning seems relevant, supports the acquisition of skills that are needed in real-world scenarios, and encourages students to analyse information using multiple tools and perspectives. The teacher's role is to facilitate, support the learners for the learning activity. An environment created by WebQuest in which students work in groups with teacher assistance also help in reducing the support required from the teacher by the students. Many studies have found that using WebQuest in learning process enhances vital cooperation and collaboration among students.

IV. Conclusion

The results showed that WebQuest is very useful and potential for enhancing student's academic achievement. Facilitators and students therefore should be exposed to the use of WebQuest for teaching and learning purposes. The respondents used for the study were intensively trained on the use of WebQuest before they were able to use it on their own without difficulties. Several theoretical and pedagogical implications for students and teachers can be derived from this research. Theoretically, the results of this study showed that WebQuest can bring about didactic learning outcomes in terms of improving skills. The pedagogical implications of the study call for the use of WebQuest in teaching: WebQuest engages students in greater classroom interaction. Students worked collaboratively while using WebQuest and this motivated them to learn. In contrast, in response to the traditional method, students demonstrated little or no excitement.

V. Recommendations

1. Teachers in general need to be provided with training to explore the usefulness of WebQuest and to master its integration in their various classrooms.
2. There are challenges inherent in the implementation of WebQuest due to the changing pedagogical principles and practices arising from the use of the tool, therefore, it is recommended that teachers need support in understanding and adjusting to the new way of teaching, especially when they are used to the transmissive mode of instruction.
3. It is very imperative that teachers understand the changing role from an authoritative figure to the role of facilitator as needed by the WebQuest design.
4. Also, the use of pre-designed WebQuest in this research may have constrained the teachers in implementation and in choosing interesting topics that meet the needs of the students. The researchers therefore recommend that the teachers should have knowledge of the WebQuest tool, and the challenges to its integration in the classroom should be investigated further.
5. The use of WebQuest seems motivating to students from the results of the study. However, teachers should invest in the potential of WebQuest as a motivating activity.
6. The researchers recommend that more research should be carried out on WebQuest as to compare the results.

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