

# Action Research

## WebQuests and Their Effectiveness in the Classroom

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### Description of the Project

The purpose of this project is to introduce students to a WebQuest. The WebQuest, which lasts over a four-week period, teaches students to navigate the Internet. Students will work in collaborative groups of three or four. As Bernie Dodge states, WebQuests are “an inquiry-oriented activity in which most or all of the information used by learners is drawn from the Web.” Following an explanation of the assignment, students will complete the Introduction to the Net by reviewing the sites provided. Next students have the opportunity to apply their search skills by completing the Scavenger Hunts. As the culminating exercise, students will produce a tri-fold travel brochure with a log of visited web sites, noting information gathered.

Students will complete the WebQuest using the following schedule:

- Day One
  - Administer a preliminary-survey
  - Brief students on the purpose of the research
  - Introduce the students to the Internet basics (How to use) through direct instruction
- Days Two-Three
  - Introduce the WebQuest to students
  - Have students select their groups
  - Check groups for understanding
  - Have students complete part one (Introduction to the Net)
- Days Four –Five
  - Have student complete the Scavenger Hunt 1
  - Students are learning to navigate web sites
- Days Six-Seven
  - Search review the use of search engines
  - Students gain exposure to 15 different search engines and evaluating which sites they like the best
- Days Seven-Eight
  - Students learn Boolean logic
  - Students learn how to narrow their search to more effectively use search engines
- Days Nine-Ten
  - Student complete Scavenger Hunt 2
  - Students use Boolean logic to navigate web sites

- Days Eleven-Fourteen
  - Student complete the Travel Brochure
  - Students engage in a culminating assignment to apply the learned skills
- Day Fifteen
  - Student take a Post Survey

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## **Action Plan**

### 1. Purpose of Research – Area of focus

The purpose of this study is to determine if the use of WebQuests will increase student engagement in learning

### 2. Variables

- Reading level
- Language ability
- Range of computer literacy
- Special needs
- Comfort level using Internet

### 3. Research Questions

- How do students respond to inquiry learning activities while using a WebQuest?
- How do students act collaboratively during a WebQuest activity?
- How do students perceive Inquiry Learning before and after participating in a WebQuest activity?

### 4. Intervention

- The students took a preliminary survey to establish their baseline of our student's comfort level for navigating the Internet and their feelings about working collaboratively.
- The students were informed of the purpose of the study
- The students were required students to track their progress of Internet understanding.

- Teachers administered Individual instruction for students who need it.

## 5. Members of the Action Research Group

The Action Research group consists of four teachers. Listed below is information about their assigned school::

- Emily Dunnagan – 7th and 8th grade Math and Science in a suburban high-achievement school. API=749
- Gerald Hifner – 12th grade Business Finance class in a suburban high-achievement school. API=678
- Ryan Miller – 7th – 12th grade, Computer basics/Web Design in a suburban high-achievement school. API=678
- Christie Wheeler – 10th-12th grade, Computer Applications, Introduction to Computers, and Web Design in a suburban high-achievement school. API=767

## 6. Negotiations

- Received permission from district and school site principal to conduct a research project.
- Obtained 100% affirmative responses from the “Request for Permission to Participate In Educational Research” forms that were sent home.
- Obtained 100% affirmative responses from the “Letter of Consent” forms that were sent home.

## 7. Timeline

- Phase One - September
  - o Review of the Literature
  - o Refine research
  - o Distribute/collect Research Forms
  - o Preliminary survey to determine students feelings and attitudes on inquiry, collaboration and the Internet
- Phase Two - October
  - o Collect data
  - o Study results
  - o Determine what changes need to be made to improve student learning

## 8. Resources

- Computers
- Internet access at school
- Microsoft Office 2000
- CSUS library

## 9. Data Collection

- Preliminary survey
- Field notes
- Teacher observations
- Oral interviews
- Photographs of students working collaboratively
- Post survey

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## Discussion of Findings

This research project is based on a perceived need for students to be comfortable while effectively navigating the Internet. With more and more information available on the Internet to middle and high school students to conduct research, they need to expediently find information. The WebQuest activity is designed to promote student's ability to inquire and collaborate, as well as increase students' interest in learning, while participating in an Internet based unit. "Using inquiry and discovery you will engage the students' interest, raise their critical abilities, focus their learning, and provide subject matter of sufficient importance to help them build new mental patterns while discarding some old assumptions." (Bateman 1990, page 41).

## Preliminary Activities

- Session One - Distribute and explain "Informed Consent Document" and "Letter of Consent"
- Session Two - Give preliminary survey to assess students feelings and attitudes on inquiry, collaboration and the Internet (See Appendix, Document One: [Pre/Post-survey](#))
- Session Three - Brief students on the purpose the WebQuest, and teach students the basics of the Internet.

## Student Initiated Activities

- Session Four - Learning the basics of the Internet. (See Appendix, Document Two; [Introduction. to the Net](#))
- Session Five - Learning how to navigate through a web site (See Appendix, Document Three: [Scavenger Hunt 1](#))
- Session Six - Choosing a Search engine or directory (See Appendix, Documents Four and Five: [Search Engine Rankings](#) and [Search Engine List](#))
- Session Seven - How to effectively find information using a Search engine and/or directory (See Appendix, Document Six: [Boolean Logic Worksheet](#))
- Session Eight - Finding Information on the web, using Boolean logic (See Appendix, Document Seven: [Scavenger Hunt 2](#))
- Session Nine - Culminating activity (See Appendix, Document Eight: [Travel Brochure](#))

### Post Activities

- Session Ten - Give post survey to assess changes in student feeling and attitudes on inquiry, collaboration, and the web- based learning.

### Data Analysis and Interpretation

We administered the preliminary and post surveys to develop a sense of students' attitudes and feelings regarding inquiry, collaboration, and web-based lessons. Questions one and two are directed toward inquiry, questions three and four are directed toward collaborative learning, and questions five and six are directed toward web-based learning.

<b>Question #1: I like to figure out things for myself.</b>		
	<b>Pre-survey</b>	<b>Post Survey</b>
Strongly Agree	<b>32%</b>	<b>18%</b>
Somewhat Agree	<b>50%</b>	<b>52%</b>
Somewhat Disagree	<b>14.2%</b>	<b>24%</b>
Strongly Disagree	<b>3.5%</b>	<b>6%</b>

<b>Question #2: I tend to do a better job when I am working at my own pace.</b>		
	<b>Pre-survey</b>	<b>Post Survey</b>
Strongly Agree	<b>75%</b>	<b>52%</b>
Somewhat Agree	<b>21.4%</b>	<b>39%</b>
Somewhat Disagree	<b>3.5%</b>	<b>6%</b>
Strongly Disagree	<b>0%</b>	<b>3%</b>

<b>Question #3: I work better on my own.</b>		
	<b>Pre-survey</b>	<b>Post Survey</b>
Strongly Agree	<b>25%</b>	<b>16%</b>
Somewhat Agree	<b>50%</b>	<b>44%</b>
Somewhat Disagree	<b>17.8%</b>	<b>37%</b>
Strongly Disagree	<b>7.1%</b>	<b>3%</b>

<b>Question #4: I work well with others.</b>		
	<b>Pre-survey</b>	<b>Post Survey</b>
Strongly Agree	<b>71.4%</b>	<b>45%</b>
Somewhat Agree	<b>25%</b>	<b>43%</b>
Somewhat Disagree	<b>3.5%</b>	<b>6%</b>
Strongly Disagree	<b>0%</b>	<b>6%</b>

<b>Question #5: I am comfortable with the Internet.</b>		
	<b>Pre-survey</b>	<b>Post Survey</b>
Strongly Agree	<b>82.1%</b>	<b>61%</b>
Somewhat Agree	<b>14.2%</b>	<b>36%</b>
Somewhat Disagree	<b>3.5%</b>	<b>0%</b>
Strongly Disagree	<b>0%</b>	<b>3%</b>

<b>Question #6: I am comfortable with taking and on-line class.</b>		
	<b>Pre-survey</b>	<b>Post Survey</b>
Strongly Agree	<b>57.1%</b>	<b>57%</b>
Somewhat Agree	<b>25%</b>	<b>47%</b>
Somewhat Disagree	<b>10.7%</b>	<b>3%</b>
Strongly Disagree	<b>7.1%</b>	<b>3%</b>

While observing our students in the classroom, we have noticed many changes, both positive and negative. We observed the following:

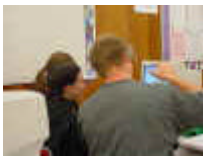
- Many students preferred working with others.
- Many students were excited to search and explore new ideas/information because of the relevance of the topic.
- Many students split up the tasks in order to finish on time (divide and conquer).
- Many students collaborated outside of their own groups to obtain information.
- Students that were reluctant to do research on the Internet watched their peers, and time passed, became more involved.
- Over time, the group dynamics seemed to erode; one or two of the group members seemed to carry the entire load.
- Many students preferred the web-based environment.
- Student participation increased as they worked on the assignment at home.



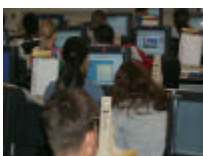
Using a web-based lesson encouraged students willing to participate. Basically, students were highly motivated during the assignment. They felt that they had a stake in the finished product and how it reflected on what they learned. We found students testing the limitations of the web-based lesson and searching for additional information outside of the sources provided by the teacher. A student noted, "While the sites provided can answer the questions, there are other sites where you find the same information."



In our field notes we observed our students attitudes and feelings toward cooperative learning change. At first students were genuinely excited that they were able to work together. Students were collaborating and sharing ideas. They seemed to piece out the work amongst the groups, becoming experts in their own part of the assignment and reporting back to the main group. However, as time passed that excitement dwindled as students found that the group dynamics were deteriorating, causing individuals to work on commutation and working together despite educational and personal goals. Overall students seemed to benefit from the group activities because it allowed them to share and compare ideas with others allowing them to expand their horizons of knowledge.



Our survey showed growth during the unit: in students ability to work well in groups, in their ability to learn on their own and, in obtaining information from a source outside of the classroom. In the preliminary survey student response to question one (I like to figure out things for myself) led us to believe that we had a lot of independent students who would not fit in with the group. However, in the post survey response, fewer students agreed that they like to figure things out for themselves once the assignment was complete. We concluded that once students undertook the WebQuest activity, they felt more comfortable asking each other for help. The opportunities to converse with other classmates before, during and after research sessions helped students gain an awareness of where to locate information. In the preliminary survey 75% of the students responded that they liked to work better on their own, but in the post survey only 60% still agreed with their statement. Our field notes verified that students were asking each other for information with regards to items they were not able to locate during their Internet search. Some students noted they still felt uncomfortable asking their peers for information. We feel the number of students not collaborating is insignificant. We think when students took the preliminary survey, they answered the questions as if they only had two options, learning and working on their own or having the teacher lecture to acquire the knowledge,



While reviewing our field notes and surveys, we found some correlation exists between student behavior and the post survey results. Our assumption was that students

respond well to the group environment of the WebQuest activity. A student commented, "This is much better than having the teacher lecture us endlessly." We did observe, however, that even though students liked the group activity in the beginning, some students, who at first were excited and enthusiastic, lost the energy as time went on. In this case, the group dynamics deteriorated. From our field notes we also noted certain students exhibiting signs of frustration with the group, feeling that they were carrying the workload of other students. Our survey results verify how students' attitudes

"Research provides exceptionally strong evidence that cooperation results in greater effort to achieve, more positive interpersonal relationships, and greater psychological health than competitive or individualistic learning efforts." (Johnson, Johnson, & Holubec, 1994, p. 107 ).

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### **Action Planning for Educational Change**

The use of WebQuests in the classroom was a meaningful and intuitive unit that taught both students and teacher. We know that students are normally in classrooms where direct instruction is the only mode of teaching. Our hope is to change both students' and teachers' perceptions of web-based lesson in the classroom, as well as making them aware of the importance and usefulness of these educational tools.

We plan to continue using web-based lessons in our classroom and at a future time to expand the number of web-based lessons included in our curriculum. Some areas that require additional attention for this particular unit were group roles, individual accountability, and make students more responsible for independent research outside the classroom environment.

We need to better establish group roles and responsibilities with students before the assignment begins. Students need to understand the roles that need to be filled in the group to complete the assigned tasks. Through our observations we notice that different students were completing the same tasks, which wasted valuable group time as well as individual time. We feel that the addition of group roles allows the groups more time to research and explore other avenues of information.

To make individuals more accountable for their time, we will require students to maintain a daily journal. The journal will track the accomplishments of the individual student, as well as be used as a task sheet where students log what sites and tasks were completed during the class period. This form will also be used as a grading tool. It establishes the productivity of individual students. This form can even be used for students to record their feeling and apprehensions regarding the assignment and how well the group dynamics are working and if all members are participating in the group activity. By recording their feeling, individually, they can be assured their feeling will be kept confidential. This process allows them to reflect on their ideas and feeling while the assignment is in progress. It also allows the teacher to gain insight into how the project is progressing.

Some of the students collected most of their information from resources provided by the WebQuest activity. Others spent a number of hours outside of the classroom exploring and expanding their knowledge base. We feel it would be beneficial to have all students explore outside the classroom environment. We will add a component to the WebQuest assignment requiring students to do a certain percentage of work at home. The drawbacks to adding this

component will be the lack of Internet access at home for some of the students.

We feel we are preparing our students for life beyond high school by teaching them how to be independent learners and explorers of the Internet. Students need to be able to research on their own once they venture into the college or professional arena. If they should choose to not continue with their education, the tools they have learned will be invaluable in the working world.

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