

# **Action Research Project**

## ***Searching From the Inside Out***

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### **Description of the Project**

Our plan is to introduce our students to Internet searching strategies over a two-week period. Before we begin the direct teaching of search strategies, we will administer a pre-survey and an initial non-subject-specific task to assess student skill levels in locating information. Following our direct instruction lessons, students will be given opportunities to apply their search skills to new assignments. They will be required to maintain search logs and to document their progress in locating and evaluating information.

We plan to use the following schedule:

- Day 1
  - Administer pre-survey to assess prior knowledge of Internet search strategies
  - Introduce a topic search activity on student interests. Students will brainstorm topics they are personally interested in knowing more about.
- Day 2
  - Students will select from yesterday's list the topic they wish to research.
  - With no further instruction, they will be asked to go to a computer and within a 30-minute time limit, search for online information on their topic (pre-test)
- Day 3 – 7 - Teacher will begin direct instruction in the following Internet search strategies:
  - How to do keyword searches
  - How to select a search engine
  - How to analyze a URL
  - How to evaluate information for bias, authority, accuracy, and usefulness
  - How to design meaningful research questions (question/note-taking template)
- Day 8
  - Students will return to computers and repeat the same 30-minute assignment to search for information on their chosen topic of interest (post-test).
- Day 9 – Students will complete post-survey on knowledge of Internet search strategies.

# Action Plan

## 1. Purpose of Research – Area of Focus

The purpose of this study is to examine the impact of direct instruction in Internet search strategies on student ability to locate and evaluate information..

## 2. Variables

- Age level
- Grade level
- Reading level
- Language ability
- Special needs (e.g., resource, SDC)
- Range in computer literacy – from “I only use the computer to play games” to “I regularly use the computer the do research for school assignments.

## 3. Research Questions

- In the year 2001, what is the definition of information *literacy*?
- What skills do students need to access and evaluate digital information?

## 4. Intervention

- Our intention was to develop a set of digital research strategies to help students improve their ability to effectively locate and evaluate information.
- We conducted a baseline survey of students’ computer backgrounds
- We developed a set of instructional scaffolds (templates for note taking and evaluation of sites)
- We conducted whole-class debriefing discussions after research sessions.
- We required students to complete a minimum of two written reflection pieces to document their growth in using Internet search strategies.

## 5. Membership of the Action Research Group

As a team of three, we each brought to this research project different socio-economic school populations and a range of grades taught from 5<sup>th</sup> – 7<sup>th</sup> grade.

- Gail Desler – 5<sup>th</sup>/6<sup>th</sup> grade, self-contained with the exception of math in a low-performing school in an urban setting. *API = 717*
- Cathie Conforti – 6<sup>th</sup> grade Language Arts/Social Studies in an affluent suburban setting in a high-achieving school. *API = 807*
- Alix Peshette – 7<sup>th</sup> grade Art and Social Studies in an affluent university town – the highest achieving district in a nine county area. *API = 858*

## 6. Negotiations

- Sent home “Request for Permission to Participate in Educational Research” form
- Sent home “Experimental Subject bill of Rights” form

## **7. Timeline**

- Phase 1 – February:
  - Distribute student pre-surveys on search strategies, student journals, and students templates for note-taking
  - Review related literature
  - Refine research questions
- Phase 2 – March – collect initial data, interviews, pre-tests, pre-surveys
- Phase 3 – April – collect post data, post survey, exit interviews
- Phase 4 – May
  - Collate information
  - Study results
  - Reflect on implication for future instruction in search strategies.

## **8. Resources:**

- Computers
- Internet access at school sites

## **9. Data Collection:**

- Baseline survey
- Oral interviews
- Teacher observations
- Student journal entries
- Templates for students to document search strategies used

## **Discussion of Findings**

We developed this research project based on what we perceived as a genuine need for our students to become information literate. “It need hardly be stressed that in a society whose political foundation is built on an informed citizenry able to evaluate the merits and determine the consequences of various course of action, an ability to think effectively is essential (Mancall, 1986).” Using the timeline listed below, we embarked on a two-week plan for direct instruction on Internet search strategies.

## **Preliminary Activities**

- Session 1 – Distribute and explain “Informed Consent Document” and “Experimental Bill of Right”
- Session 2 – Administer baseline survey to assess general computer literacy levels (See Appendix – Document One: Survey)

- Session 3 – Introduce topic search activity on student interests. Students will brainstorm topics in which they are personally interested in conducting research. (See Appendix – Document Two: Student Interest List)
- Session 4 – Students will select from Student Interest List the topic they wish to research. With no further instruction, they will go to a computer and for 30 minutes do online research.

### **Direct Instruction Activities**

- Session 5 – Introduction of how to do keyword searches (See Appendix – Document Three: Preparing Your Keyword Search, Part I)
- Session 6 – Choosing a search engine or subject directory (See Appendix – Document Three: Preparing Your Keyword Search, Part II; see PowerPoint on Subject Directories and Search Engines)
- Session 7 – Introduction of how to analyze a URL (See Appendix – PowerPoint from CUE Conference)
- Session 8 – Introduction of how to evaluate a site for bias, authority, accuracy, and relevancy (See Appendix: Evaluating a Website)
- Session 9 – Introduction of Boolean logic

### **Post Activities**

- Session 10 - Students return to computers, select a topic from the Student Interest List and apply their newly acquired search skills

### **Data Analysis and Interpretation**

From our initial baseline survey, we had an approximate idea of our students’ beginning computer skills. Although the survey questions ranged from general computer skills to searching and evaluating skills, it was the latter two that we were most interested in tracking. By administering the survey at the beginning and end of our direct-teaching sessions, we hoped to see growth in how our students searched for and evaluated web information. Five survey questions in particular were designed to provide this feedback.

<b>Question #13: Do you personally find useful information using Internet searches?</b>		
	<b>Pre-test</b>	<b>Post-Test</b>
<b>A Never</b>	<b>13%</b>	<b>0%</b>
<b>B Sometimes</b>	<b>75%</b>	<b>76%</b>
<b>C Always</b>	<b>17%</b>	<b>24%</b>

<b>Question #19: What is your favorite choice of search engines?</b>		
	<b>Pre-test</b>	<b>Post-Test</b>

<b>A Yahoo.com</b>	<b>42%</b>	<b>1%</b>
<b>B Google.com</b>	<b>13%</b>	<b>29%</b>
<b>C Ask Jeeves.com</b>	<b>21%</b>	<b>0%</b>
<b>D Other</b>	<b>29%</b>	<b>62%</b>

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**Question # 20: Do you know what a “key word” is?**

	<b>Pre-test</b>	<b>Post-Test</b>
<b>A Yes</b>	<b>75%</b>	<b>100%</b>
<b>B No</b>	<b>29%</b>	<b>0%</b>

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**Question #23: Do you know what the “dot” ending (.com, .org., edu) means on the URL addresses?**

	<b>Pre-test</b>	<b>Post-Test</b>
<b>A Yes</b>	<b>24%</b>	<b>0%</b>
<b>B No</b>	<b>79%</b>	<b>100%</b>

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**Question # 27: How do you evaluate sites to determine the quality (truth) of the information?**

	<b>Pre-test</b>	<b>Post-Test</b>
<b>A If it’s online then it is true.</b>	<b>0%</b>	<b>0%</b>
<b>B I do not know or I do not care.</b>	<b>46%</b>	<b>14%</b>
<b>C I ask someone like a teacher or parent.</b>	<b>46%</b>	<b>19%</b>
<b>D I look for other websites to find ones that agree or disagree with the information I already have.</b>	<b>67%</b>	<b>62%</b>

In observing our students apply searching and evaluating strategies, we could see evidence of improved skill levels. Furthermore, we found that a number of our initial assumptions regarding students’ Internet skills proved to be true. We observed the following:

- Many of our students believed that “if it’s on the Internet, it must be true.”
- Many students were unaware that commercialism affects the placement of URLs on the search engine page (e.g., payment of fees determines who is placed first on list)
- Many students were unaware that spelling errors can seriously hamper search efforts
- Many students had difficulty formulating key words for their searches. We realize now that coming up with a key word requires the ability to summarize and to do abstract thinking, perhaps a developmental issue

- Many students were reluctant to delve into the reading of text-heavy sites, even if the page contained information relevant to their assignments

Basically all students showed some degree of growth in accessing and evaluating information. We found there were several essential steps needed in order to achieve growth, beginning with direct instruction. Opportunities to dialogue with classmates before, during and after research sessions helped the students to gain an awareness of what useful information is and how to find it. They began to develop a repertoire of questioning: *What would be the best search engine for this question? How could I rephrase my key words? How would you do this search differently?*

Requiring students to document the steps they took in order to find new information paid off. By filling out their note taking templates, students externalized their thinking process and had a visual record of their progress as researchers. The most important step in helping students become good consumers of information is to give them frequent opportunities for seeking and evaluating information. Students were motivated by and took pride in successful searches. The more they practiced, the more they improved.

“All which the school can or need do for pupils, so far as their minds are concerned, is to develop the ability to think.”

John Dewey, *Democracy and Education*, 1916

## Action Planning for Educational Change

*Searching from the Inside Out*, our action research project, was an effective instructional unit of study for our students. We know that teaching students how to locate and evaluate information is essential to their success in school and to their survival in the work force.

All three of us plan to re-teach searching and evaluating strategies in the coming school year. Since all of our students showed gains in their ability to locate information after just ten sessions of direct instruction, we plan to begin the school year with an introduction to this unit. By integrating search and evaluation skills across the curriculum from day one, we anticipate that students will benefit from not only the direct instruction, but also from frequent opportunities to apply strategies inside and outside the classroom.

We also plan to teach our students how to read a web page, since it is a specific reading genre, with its own rules. Just as we teach our students how to read, interpret, and question printed media such as a news article, a speech, or an advertisement, we need to provide them with skills to read a web page for both its literal and inferential meaning. Teaching students to read for bias and accuracy has always been an integral part of a well-planned reading program. Today, more than ever, our students need critical thinking skills as they plow through increasing amounts of available online information. They need to know that, unlike their textbook, the Internet has no editor.

Teaching students to summarize readings and extract main concepts will aid them in their Internet searches. The ability to generate key word phrases – and the flexibility to rethink those phrases if the search is not fruitful – will come about only through repeated practice and the opportunity to learn by trial and error.

Above all, providing students with opportunities to share their strategies as a group and requiring them individually to reflect on and document their progress must be a regular piece of teaching Internet search strategies.

As we worked with our students and researched the literature, we realized that these searching strategies should never be taught in isolation. By introducing *Searching From the Inside Out* at the beginning of the school year, it is our intent to focus not only on searching and evaluating information, but also using that information.

Requiring students to write “the” *mission report*, *state report*, or *county report* is no longer an appropriate use of information. The “write a report about...” approach simply encourages students to do “dump truck writing” (pick up the information from one place and dump it into another). Once students know how to locate information, they are ready to engage in meaningful, real-life learning. The opportunity to research and take a stand, for instance, on whether Elian Gonzalez will indeed have the same educational opportunities in Cuba as he would in the United States will probably result in more learning than writing the traditional isolated facts-based *country report* on Cuba (how much sugar is exported, annual rainfall, and gross domestic product, etc.).

By teaching our students how to locate and evaluate information, we believe we are providing them with the foundation for applying their findings in a meaningful way. It is our goal to prepare our students to meet the challenges of new technologies and new and evolving standards of literacy.