COMPARING INTERNET SEARCH ENGINES: AN EXPERIENTIAL LEARNING EXERCISE

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ABSTRACT

In keeping with this year's theme, Visions of Learning in the 21st Century, this paper describes an exercise that can be used to explore the use of different Internet search engines to find information regarding a specific topic. Working in groups, students learn search strategies, how to access a variety of search engines, and to understand the differences and similarities between them. One of the major attributes of this exercise is that it can be used in virtually any college course to enhance almost any learning experience.

INTRODUCTION

One of the challenges faced by both faculty and students alike during the 21st century will be how to effectively use the Internet to enhance their knowledge. In the past, when students needed new knowledge they went to the library. In the future they will increasingly go to the Internet.

Search engines are at the heart of the Internet information system. Names like Netscape, Lycos, Hotbot, and Dogpile are quickly becoming more familiar to students than "microfiche," "interlibrary loan" and "ISBN numbers."

Educators face the challenge of helping students to develop their ability to use these search engines wisely. While the Internet provides a rich source of business information, not all information is of high quality. Students need to develop proficiency in finding information on the Internet and evaluating the credibility of Web sites that provide that information. This exercise is designed to help students become skilled at understanding the logic of searches and the use of search engines (such as Alta Vista, InfoSeek, Lycos, Webcrawler, Yahoo) by having them evaluate their own search strategies and search outcomes.

THE EXERCISE

Purpose and Objectives

The objectives of this exercise are as follows:
1. To familiarize students with different Internet search strategies.

2. To provide students with information regarding the relevance, validity, and usefulness of various search engines.

3. To acquaint students with some of the resources available over the Internet with regard to specific topics.

4. To provide students with experience working with their colleagues on a team basis, as actually is done when working for most companies.

5. To build upon critical thinking skills by analyzing and evaluating Internet information.

6. To enhance writing skills by writing a research report. (optional)

Design and Procedures

At the end of one class period students are divided into groups of two to four individuals and asked to complete an assignment which is due the following class. The assignment consists of three parts. First, they are given a specific topic directly related to the class by the instructor and told to use a specific search engine (instructor's choice) to research it. They are to spend no more than ten minutes on this task and are to print out their findings. The instructor can assign the same topic to all groups or each group can be assigned a different topic.

Second, students are told to research the same topic again, only this time they are required to use several

different search engines (instructor's choice). Once again, they are to limit their time to ten minutes for each search engine and are to print out their findings. Among the search engines that could be used are:

www.hotbot.com
www.altavista.digital.com
www.yahoo.com
www.excite.com
www.lycos.com
www.infoseek.com
http://www.dogpile/index.html
http://www.albany.net/allinone/all1www.html

Third, students are asked to write a 100-250 word report that summarizes their findings. Specifically, the report should answer the following questions:

1. What search strategy did you follow in researching the topic using the assigned search engine (first part of assignment)? Critique your strategy. Was it effective?

2. Compare the search engines used in part two of the assignment in terms of their ease of use and the usefulness of the information each query result provides. Overall, which search engine do you believe was most useful?

At the start of the next class, all students are asked to reassemble into their respective teams and to sit or even stand in a large circle. Alternately, with large classes, student teams can be divided into groups of three to five teams. Each team is then asked to present their findings to the rest of the class or group based on their written report.

Debriefing the Exercise

After each team has made its presentation, the exercise is debriefed by the instructor. The debriefing centers on developing answers to two questions:

1. What search strategies are most successful when using search engines? What search strategies should

be avoided because they are ineffective or too time consuming?

2. What are the advantages and shortcomings of each of the search engines examined? Is any one search engine clearly superior or inferior to the others?

DISCUSSION

This exercise is designed to be completed within a 50 minute time period, assuming that each team has completed the out-of-class assignment before class. An alternative for those who have computers with Internet access already in the classroom is to have students do the out-of-class assignment during class itself and to debrief the exercise when each part of the assignment is complete.

The time allotted for group presentations will vary depending on the number of groups involved. However, twenty five minutes should be sufficient for most classes. The debriefing part of the exercise should be allocated the remaining class time.

The success of this exercise is based on how proficiently each team does the assignment. More importantly, it depends on how well the exercise is debriefed by the instructor. However, even if some of the teams do an ineffective job, the exercise can still be a success.

Exercise Applications

This exercise and variations on it have been used successfully in several courses. More recently, this exercise was used in an upper-level auditing class. Here, the instructor assigned students to groups and asked each group to select from among the following topics:

- Assurance Services for Quality Standards
- Auditor-Client Disagreements
- Audit Committee Requirements
- Audit Derivative Securities
- Auditing Environmental Liabilities
- Auditing Financially Distressed Clients
- Auditing Financial Statement Fraud

- Auditor Resignations
- Auditing Service Pricing
- Auditor Switching
- Market Reactions to Modifications of Audit Reports
- Measuring the Persuasiveness of Audit Evidence
- Opportunities for Assurance Services
- Risk-Based Auditing
- Second Partner Reviews
- Whistle Blowing

For the first part of the exercise, students performed as ten-minute search using one assigned search engine. For the second part, students selected one key issue related to their topic and search the Internet again using several different search engines including a meta search engine. For the final part of the exercise, students were asked to evaluate at least one of the sites they found. In addition to participating in a class discussion after their Internet search was complete, students were asked to submit a report following the guidelines shown in Appendix A.

In the first phase of the assignment, students were asked to use the very popular Lycos search engine at Ahttp://www.lycos.com/@ to find as many relevant sites as possible in a ten-minute search period. Lycos was selected for this first phase because it was easily accessed and provided directories of information resources rather than functioning as a keyword searcher. One advantage of using this search engine in the initial phase of this exercise was that its descriptions of the sites are generally about a paragraph in length. From the class discussion of this first phase, students reported that they quickly discovered how easily it was to be diverted from their search. Students who followed links provided in the sites they visited generally had fewer relevant hits.

The second part of this exercise resulted in many groups attempting to develop search strategies for refining their query. For example, one group who was researching the topic AAuditor Independence@ found that by going into the BUSINESS section of Lycos and searching the word Aauditing@ they got thousands of hits. But, by refining the search to Aauditing independence@ they were quickly able to find several different articles on their topic. Once students became more proficient at refining

searches, they benefitted from trying one of the meta search engines such as Dogpile at "http://www.dogpile.com/" or Inference Find! At "http://m5.inference.com/ifind/.@ Meta search engines are capable of making queries through multiple search engines simultaneously. Dogpile and Inference Find! query in parallel all the best search engines, merge the results, and remove redundancies. Inference Find! even clusters the hits into neat understandable groupings. Students learned, however, because their query is so broad, their responses often include a great number of irrelevant sites and that use of this variety of search engine should be restricted to well-refined topics.

In order to help students learn to evaluate sites, Excite at Ahttp://www.excite.com/@ was a useful search engine because of its special search features. For example, Excite Reviews rates about 60,000 sites on a scale of one to four and offers brief descriptions. The Excite Reviews are classified by subject, and are accessible by subject terms or by keyword. A supplementary course text on performing accounting research provided guidance for evaluating Web sites (Accounting and Auditing Research: A Practical Guide, by Thomas Weirich and Wayne State University, published by South-Western College Publishing, 1996, ordering information is located on their Web site at Ahttp://www.swcollege.com/acct/accounting.html@) It was important to remind students that the site with the most links or with the most dynamic home page may not always contain the highest quality information. Notwithstanding, all of the student groups were able to successfully complete this assignment.

CONCLUSION

The use of the Internet is expected to grow significantly during the 21 century. To access information, students will need to become increasingly more aware of the different search strategies and

search engines that are available and how to use each of them effectively. The exercise presented here is designed to help them meet these challenges.

The exercise has several positive attributes which we believe should be noted:

1. It is highly flexible and can be used in almost every course.

2. It is relatively easy to conduct. Any instructor with knowledge of Internet search engines and the ability to debrief an exercise can successfully use it.

3. It is highly interactive. Students not only interact among themselves but with the instructor and the computer.

We believe that ABSEL members who want their students to learn about researching course topics will find this to be a useful exercise.

Appendix A
Research Report Guidelines

STYLE: Follow the format used in [*insert an appropriate guidebook, such as Accounting and Auditing Research: A Practical Guide*]. Another helpful guide to usage and style is The Elements of Style, by William Strunk, Jr. and E.B. White (Macmillan).

CONTENTS: Every paper should have the following major sections:
Title page
Body of paper
a. First section should be the "Introduction."
b. Middle sections should have assignment questions followed by answers.
c. Last section should be the "Summary and Conclusions."
Printouts from findings
References (in alphabetical order).

FORMAT: All papers should be word-processed, printed on one side of 8.5 x 11 paper and be double-spaced, except for indented quotations. All pages, including tables, appendices, and references, should be numbered. All margins should be a minimum of 1-1/2 inches.