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Integrating Traditional Research-Journal Based Sources with Trade and Web-Based Sources in Coursework

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INTEGRATING TRADITIONAL RESEARCH JOURNAL-BASED SOURCES WITH TRADE AND WEB-BASED SOURCES IN COURSEWORK

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ABSTRACT

Due to the rapidly changing nature of telecommunications, it is challenging to be able to introduce timely topics into this curriculum. At the same time, educators are challenged with preparing students to function in the workplace where change is a given, as on average workers spend an average of 9.25 hours per week looking for or analyzing data [4]. Initiatives to keep instruction relevant and prepare students to be information literate mandate that students be able to discover, digest, and put into context new information about technologies. This skill is developed and enhanced through the use of research projects. This work describes the reengineering of the traditional research paper project for a telecommunications course.

INTRODUCTION

Students raised in the era of the Internet often find that it provides them with an incredible variety of information on virtually any topic and in many cases, start and end their research there. Today's students are provided with high-speed network connections in their residence halls, off-campus apartments, classrooms, computing laboratories and libraries on their campus. With an abundance of information on virtually any topic available through high-speed access, it is no wonder that students grow impatient reading lengthy research journal articles, are unwilling to expend effort reading and distilling others' viewpoints, refuse to make the trek to the campus library when asked to do course-related research and have little skill in evaluating what they find regardless of its source [1]. While it is easy and convenient to rely solely on web-based resources to prepare today's research papers, most professors are routinely dissatisfied with the quality and depth of student research that results from this strategy [5].

One way to deal with this problem is to forsake the use of research projects. Coupled with the problems of authenticating student research [6], reading and objectively evaluating student work, and training students to search out and use refereed research articles make this an attractive option. After all, what role does the development of objective research skills have in an undergraduate information systems program?

This paper details the development and early results of a strategy resulting from the collaboration between an information systems professor and a research librarian who felt that students must be able to evaluate and form grounded opinions about new developments in information technology-related fields. This outcome outweighs the difficulties that accompany traditional research projects.

BACKGROUND

Telecommunications is a 300 level course that serves as the introductory course for computing and information systems majors from two separate colleges within the university. Enrollment is closely balanced between majors from each college. Students are given the option of participating in a community service-learning project or in a research group. Research groups typically consist of four students, and they are encouraged to mix majors within groups.

Prior to Fall 2001, each student that was not selected for a service-learning project was required to form a group and develop a research proposal to investigate a topical issue relating to telecommunications. Each proposal was required to include a refereed research journal article related to the research topic. The intention was that this article would form the basis for the group's work. To assist students in the preparation of their proposal, one class session was held in the library and was conducted by a research librarian. The research librarian stressed the fundamentals and rigors of academic and refereed publishing, the importance of such literature to this (or any) discipline and noted sources where they could locate such material. The research librarian offered the students two pathways to the research process, from the scholarly literature forward through the trade and popular press, or from the trade press backwards to the refereed journals.

The results demonstrated that the assignment missed the mark. Students submitted research proposals that varied in quality and that included general periodicals as *Dr. Dobb's Journal*, *The Wall Street Journal*, *Smithsonian*, *PC World*, and *Datamation* as sources of scholarly material. Of the groups that submitted appropriate refereed research journals, many made no subsequent use of the information

in their research. Research paper results were disappointing, as a review of the bibliographies showed that the students relied on 4-8 sources to produce 15-20 page papers. This assignment did not achieve the goal of motivating and preparing them to be information literate workers.

METHODOLOGY

Reengineering the Research Assignment

Working together, the professor and research librarian resolved to reengineer the research assignment. According to Hammer and Champy, reengineering is defined as "the fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical, contemporary measures of performance" [2]. This work began by removing several assumptions about students' abilities and the nature of the assignment, including:

- Students understood the definition of a refereed journal.
- Students knew how to use library resources and would enlist the assistance of research librarians.
- Each student working in a group would benefit from the group's experience in locating resources.
- Students working on service learning projects did not require the knowledge gained from this portion of the research project assignment.

Gloria Leskie identifies several research-flow hurdles for undergraduates, including:

- How to select and narrow a topic
- Understanding the role of "popular" literature
- Demystifying scholarly research [3]

After removing assumptions of their skills and acknowledging obstacles, a plan to re-engineer the assignment began. In Fall 2001, all students in the class were required to seek out an individual research topic and a relevant scholarly article as the basis to create a short research proposal. The proposal was to include an explanation of the research topic, the rationale and process for selecting it, and the formulation of a research question that required them to consider their topic and its potential impact. A future review of the end result of these proposals and the subsequent papers may indicate a more in-depth research plan might also be included as part of the assignment.

Library Instructional Session

The mandatory library research session was retooled from a lecture on sources to a process-driven series of steps and one pathway through the research process. The purpose of the assignment was explained as essential for the portion of their working or research career that will require them to discover information about new topics. Outcomes of the research session were; to introduce students to the purpose of the assignment, introduce scholarly publication, and show them a systematic process for navigating the literature of the discipline. Topic selection was highly stressed and an avenue for working on topic selection is noted below. An important goal of this discussion was to get students to recognize the rigor and external evaluation that research journal articles are subjected to in contrast to trade publication articles and web postings. Handouts on what a student should see when reviewing an article for scholarly content were provided.

Students were introduced to the Gartner Group Research Service as a source for general information about topics germane to telecommunications for IT professionals and as an excellent source for topic selection. Gartner was an excellent choice to help in topic selection, as it prompted the students to consider topics beyond the textbook for the course. With an introduction to the current awareness functions of the Gartner database provided *prior to* the selection of topics, the librarian was able to instruct students on how to use a practitioner's resource to focus their research efforts without struggling with a vocabulary of a discipline with which they were still unfamiliar. Armed with search terminology, some background and several topics to work with, the students were more prepared to work with the scholarly literature. The library research session covered changes in vocabulary between database sources; the literature of current awareness databases vs. that of scholarly abstracting and indexing services (in this case, Cambridge's Computer Information Systems Abstracts). This allowed students to see the differences amongst search interfaces, database content and scope, how to use keywords and controlled language, and how to scrutinize article abstracts in order to decide which articles are best suited for their particular research topic.

Research Proposal

All students were required to prepare an individual research proposal consisting of three tasks and prepare a single page write-up for their research proposal. The Gartner Group article that the student used to conceive their research idea and the research journal article that they were going to base their research on were required attachments. The assignment is reproduced as Appendix 1.

Upon completing this assignment, students were instructed to meet with each other and form groups based upon their research interests using their proposals as levers to facilitate the conversation. Ultimately, each group selects one of the topics to collaboratively develop a research paper and presentation.

Discussion and Preliminary Results

The changes made to the research proposal process have proven beneficial. Students are now provided with the experience of discovering an appropriate research topic and identifying a refereed research journal that will aid them in their pursuit of that topic. The research papers that will result from this exercise are forthcoming, It remains to be seen whether the overall quality of the group research projects will improve. Since the reengineering of the assignment, many students have sought help in the library or have made appointments for in-depth assistance with the research librarian who led their library session. Expected improvements include an expansion the number, breadth, and quality of consulted sources.

During the conference, the authors hope to share their experiences and to exchange information with other educators who also have interest in including a research component in their courses.

APPENDIX 1

Library Assignment

This assignment has three parts and is intended to develop your familiarity with online research services such as the Gartner Group that are available for your use in JMU's Library. Each student is expected to complete this assignment independently and turn it in by the date indicated on the course syllabus.

1 - Examine Gartner Group postings for trends that they see as influencing information systems over the coming months/years. Select one of these trends and consider what its implications are for telecommunications. (Skill = use of the current awareness service, not using **trends** as a search term)

2 - Think about what new telecommunications services will be necessary to support the trend and what current services will need to be enhanced to support the trend (skill = take current awareness service terminology into a trade/industry press source to locate additional data)

3 - Check other sources to validate your thinking. Include materials from trade publications and at least one refereed journal. (skill = validate popular press against research activities, translate terminology of trade press/current awareness to scholarly journals)

Prepare a one-page write-up stating your position, supporting it with evidence from the supporting sources that you checked (include citations). Attach a printed copy of the Gartner Group document and support materials to your one page write-up. Be sure to staple all materials together and include your name and section number on the first page.

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