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Information seeking and use by low-level students

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This paper reports on an exploratory study of information seeking and use in high school students with a low level of information skills and academic competency. Seven students in the 11th grade Remedial Education Program class in American Literature and Composition completed a class project that involved somewhat comprehensive information seeking and use. Data were collected through observation and interview (with students, the teacher, and two library media specialists). All documents each student produced in completing the class project were gathered for data analysis. The preliminary findings of the study indicated that students experienced a great deal of difficulty in the cognitive and affective demands that their tasks required and suggested that technological and instructional mediation would motivate the students' interest in their information seeking and use. The paper concludes with some important implications that can provide a basis for designing information literacy instructions for low-level students.

Introduction

Schools in the United States have been making a serious effort to provide a variety of online and print sources through library media programs. Teachers assign class projects that require students to use these information sources, with an expectation that it can enhance learning. Students are now surrounded by information in school where they can access such a wide variety of information sources. This information-rich environment in school has raised pedagogical concerns that the educators have to cope with the different learning needs of individual students. Unfortunately, we do not yet understand well the complexity of information seeking and use by students with varying levels of information skills and academic competency. The goal of this study is to explore information seeking and use by

low-level students in order to provide insight into the design of information literacy instructions.

Whether a student is successful or not may largely depend upon the student's ability to find and use the information that meets his/her own learning needs. Students who possess good skills and competency will likely carry out the required tasks in a class effectively, as shown in the Kuhlthau's Information Search Process model (1991). The Kuhlthau's model explains how these students move along the process of information seeking and use from the cognitive and affective perspectives. Students without such skills and competency, however, may likely have greater difficulties in carrying out the required tasks in classes and may not smoothly move along the processes described by Kuhlthau.

A few studies has examined information seeking and use by low-level students. Gross (2005) explained that students with low-level skills often overestimate their abilities, develop strategies that do not work for their own situations, and make poor decisions as they move along with their process of information seeking and use. Far more studies need to be done in order to have a comprehensive knowledge about information seeking and use by low-level students. The lack of research on this important issue limits the professional practice by teachers and library media specialists.

Study Design

Research Questions

This study focuses on high school students with a low-level of information skills and academic competency in order to reveal their information seeking and use. More specifically, the following research questions were investigated:

1. How do students with a low level of information skills and academic competency behave when seeking and using information? What are their cognitive and affective difficulties?
2. How do the teacher's instructional strategies affect the student's information seeking and use?

Participants

Using "purposeful sampling" (Patton, 1990), seven participants were selected from an urban high school in a metropolitan area of the southeastern region of the United States. All seven participating students were in the 11th grade and enrolled in an American Literature and Composition class of the Remedial Education Program (REP)¹. We asked the classroom teacher to select students who did not have the behavioral problems in classroom and who were willing to participate in our study. The classroom teacher initially excluded half of the students in his class who demonstrated behavioral problems. Seven students out of the

remaining eight students volunteered (with the approval of their parents) for participating in the study. These students consisted of three females and four males, and four of them spoke Spanish as their first language.

Students' Tasks

Each student conducted a class project that required independently researching a selected author in American literature using at least five information resources (three print and two online) available through the library media center. The final products of the class project were for students to write a two-page paper about the selected author and to do a PowerPoint presentation on their research. Other sub-components of the project included completing two questionnaires prepared by the teacher, note cards, source citation cards, and a research journal. Seven weeks were scheduled for the instruction and library research needed for completing the class project. Students were asked to conduct their research during class sessions only.

Methodology, Data Collection, and Data Analysis

The goal was to understand the less-known phenomena of information seeking and use by low-level students. Qualitative research methods were chosen due to the exploratory nature of the research questions. Within the qualitative research framework in the constructivist paradigm (Guba and Lincoln, 1998), we adopted "interactive" (Neuman, 1991) and "comprehensive" (Chung & Neuman, in press) observation and individual interviews with the seven students, the teacher, and two library media specialists.

Data were collected over the course of seven weeks during students' class projects. Both the observational notes and the transcribed interview data were coded using QSR NVivo 7 for data analysis. All documents each student produced in completing the class project were gathered to establish greater confidence in the inferences that were supported by observation and interviews. Data analysis is currently being done using inductive reasoning in order to infer the emerging issues and themes from the data gathered.

Preliminary Research Findings

Our preliminary findings indicated that students with a low-level of information skills and academic competency had difficulties in coping with the cognitive and affective demands that were involved with information seeking and use, as stated in the following:

- **Cognitive demand:** Students lacked the basic information skills needed for information seeking and use and did not have an appropriate reading level to understand what was presented in a source material. Due to these barriers, it was harder for students to extract conceptual information from a source material (e.g., literary criticism) than

factual information (e.g., biographical information of an author).

- **Affective demand:** Students demonstrated a low level of tolerance to the uncertain nature of information seeking and use involved with the class project, and the level of tolerance decreased noticeably as the difficulties in dealing with the affective demand (e.g., uncertainty, anxiety, frustration) increased over the course of seven weeks. Students felt a sense of accomplishment simply by having the physical copies of the documents they needed. As a result, students easily lost their tolerance while reading and extracting information from a source material and often were frustrated due to their inability to cope with the task. When students did not know how to proceed with a certain component of the project, they simply skipped it and waited until the teacher came to instruct them.

Our findings suggested that the information seeking and use of low-level students could be enhanced by providing some technological tools and instructional mediation, as explained in the following examples:

- **Technological tools:** The use of some technological tools to enhance information seeking and use could promote students' interest and motivation about the project. For instance, providing the AlphaSmart keyboard to each student greatly increased his/her level of interest in the project and thus facilitated writing the project paper. Designing the PowerPoint slides for their presentation was another example that enhanced the student's motivation and interest in completing the project.
- **Instructional mediations:** Employing proper instructional mediations could facilitate information seeking and use by low-level students. For example, frequent individual conferencing between a student and the teacher was essential for ensuring that the student was following the process. It also helped students make progress by guiding them when needed, and thus mitigated their affective demands, such as frustration.

Conclusion and Implications

This study explored the less-known phenomena of information seeking and use by low-level students. We examined the cognitive and affective demands that caused some difficulties for students when seeking and using information. Students recognized factual information from a source material better than conceptual information and demonstrated an increasing amount of uncertainty, anxiety, and frustration over the course of the seven weeks for completing the class project. The use of some technological tools, such as the AlphaSmart keyboard and PowerPoint slides, and proper instructional mediations, such as frequent individual conferencing, were found to mitigate the difficulties in dealing with the cognitive and affective demands. The findings of the study contribute to the research community by shedding light on the issues associated with information seeking and use by low-level students. The study guides educators to design an information literacy curriculum that can effectively instruct the

low-level students.

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¹ Georgia Department of Education defines Remedial Education Program as “an instructional program designed for 9-12 students who have identified deficiencies in reading, writing, and math” (2006).

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