ODI and information literacy: Personal information management in a world of information overload

Kristine N. Stewart
School of Information Science &
Learning Technologies
University of Missouri
111 London Hall
kns5gd@mail.missouri.edu

Josipa Basic
School of Information Science &
Learning Technologies
University of Missouri
111 London Hall
jbyv7@mail.missouri.edu

Sanda Erdelez
School of Information Science &
Learning   Technologies
University of Missouri
303 Townsend Hall
ErdelezS@missouri.edu

The proposed poster poster presents findings of a case study involving undergraduate students enrolled in an information literacy course that were surveyed regarding their experiences managing information found online. While information literacy courses teach students to identify, seek, analyze, and use needed information, it does not prepare them to manage and store information encountered while online.

INTRODUCTION

Information comes to students in many forms and through many channels without active seeking or requesting it. In a society overwhelmed by the sheer mass of information available, it is just as easy for individuals to ignore information they have not actively sought or requested. Information literacy seeks to solve problems associated with information overload through the provision of a skills set to assist individuals in recognizing "when information is needed and have the ability to locate, evaluate, and use effectively the needed information" (ACRL, 2000; ALA, 1989).

Emerging technologies have changed the way that we, as a society, interact with information as well as the extent to which we use technology to communicate. Information literacy in the 21st century needs to address information users as both passive and active receivers of information so that they are able to seek needed information as well as accept, gather, store, and retrieve information from a variety of sources. This includes the ability of a user to store and organize information in *anticipation* of a future need (Bruce, 1998). Friedel (2001) noted that "insight is every bit as important as the accident" (p. 38) so although it

is very possible that needed information may be stumbled upon accidentally, if the individual is unable to make the link between the information they have encountered and a need they have, the information will not be made use of. Information encountered by students requires they have practical skills that will assist them in managing unexpected information so that they may use it at a later time.

The proposed poster presents the results of a case study focused on the personal information management behaviors of students when they search for as well as encounter unexpected information. The research questions guiding this study are as follows:

1. How frequently do students encounter problems managing information found online?
2. Are students interested in learning personal information management skills?
3. What tools do students currently use to manage information they find or encounter online?

BACKGROUND
Personal information management

Personal information management (PIM) is a term describing the responsibility of an individual in the collection, storage, organization, and retrieval of personal items in digital form (e.g. Files, website addresses; Boardman & Sasse, 2004) and is frequently cased in terms of an individual's ability to manage information in fulfillment of their various life roles such as parent, employee, student, etc. (Fourie, 2011).

While the idea of PIM is by no means new, the problem of Keeping Found Things Found (KFTF) has become increasingly more complicated as with the increase of information on the Internet (Jones et al., 2001). Methods to collect and manage information have also increased with the accumulation of technologies that individuals rely on for everyday information needs and have thus assisted in the creation of information overload (Marshall & Jones, 2006). The increase in the quantity and accessibility of information creates an increased need for information literacy skills to assess the relevancy, reliability, and

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credibility of information as well as the added ability to manage this information efficiently.

In the Keeping Things Found Studies (KTFS), Jones et al. (2001; 2002; 2003) found that their participants were frustrated with the different technologies needed to organize their information across multiple organizational schemes. Participants collected and stored information sources in a variety of ways including self-addressed e-mails and document files. As this study showed, the management of information coming from multiple sources is a problem encountered on a daily basis by users in a variety of contexts.

Opportunistic discovery of information and Information Literacy

Erdelez (1997, p. 412) defined information encountering as 'memorable experiences of accidental discovery of useful and interesting information'. Erdelez (2004) has developed the IE model, which assumes that information users switch from the foreground task of finding specific information to the background interest or problem-related task during the information encountering process. The IE model proposes several steps that occur during IE: noticing, stopping, examining, capturing, and returning. PIM addresses the capturing stage of the IE model and how individuals collect and store information they have discovered in order to return to it later.

While the latest research on human information behavior suggests that opportunistic discovery of information is an important component of people's interaction with information in an increasingly networked world (Erdelez, 1997; Toms, 2000), this knowledge so far has not been translated into information literacy instruction. Since people encounter much more information than they can effectively use, they store information in many different formats, using a number of devices, technologies, and applications. The ability to collect and store information has increased with mechanisms created to store information with ease; however, the skills required to collect, store, and manage the large quantity of information stored on devices and applications has not developed at the same rate as our technologies (Jones, 2001).

RESEARCH DESIGN

To answer our research questions, we conducted a case study of undergraduate students enrolled in a semester long one-credit information literacy course at a large Mid-west research university in the United States.

Research Settings and Participants

The research site for this study was a semester long, one-credit information literacy course at a large Mid-western university in the United States. The class teaches research skills using library and web resources and is based on ACRL's Competency Standards.

Nine sections of the class were currently being taught and all nine sections were invited to participate in the study. The institutional review board (IRB) approved the distribution of this survey in-class. Participation in the survey was voluntary and if interested, students were given a few minutes at the end of class to take the survey. From these nine sections (a total of ninety-four students were enrolled), fifty students agreed to participate in the study.

Data Collection & Procedures

The researchers used a survey to determine whether students encountered problems managing the information they find online, their interest in learning skills related to data management, and how they currently manage the information they discover online. The survey questionnaire was entered into Qualtrics, a Web-based survey tool, and was distributed to course sections via a link posted on the course management site for each section of the class.

The survey asked respondents to indicate the frequency of PIM problems they encounter while online according to a five-point-scale (Never/Almost never, Seldom, Sometimes, Often, Always/Almost always). In order to discover what tools students use to manage personal information found online, they were provided an open text box so that their responses would not be limited to a set of responses chosen by the researchers.

Data Analysis and findings

After all sections of the undergraduate course completed the survey, the researchers conducted a frequency distribution analysis to answer the research questions.

The researchers broke the five-point-scale up into two different sections, grouping Never/Almost never or Seldom, into one group and Sometimes, Often, Always/Almost always into a second group. The third research question was answered using an open-ended survey question.

How frequently do students encounter problems managing information found online?

Thirty-two out of fifty respondents (64%) reported that when searching for online information they encounter problems associated with the collection and management of this information (See Table 1).
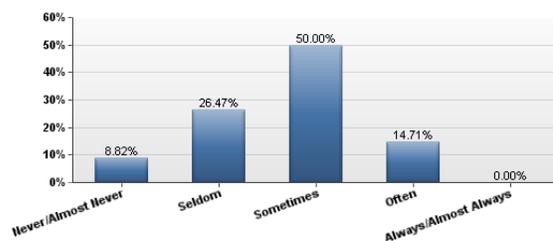

Table 1. Users encountering problems with PIM while searching for information online

Twenty-eight (56%) of respondents reported problems with PIM of material encountered online that they were not searching for (See Table 2).
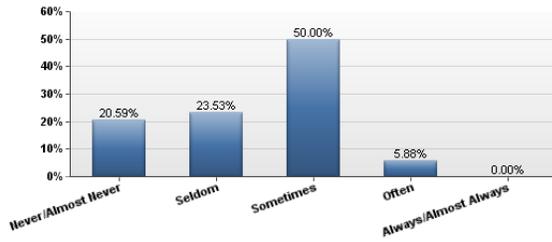

Table 2. Users encountering problems with PIM of information encountered online

Are students interested in learning personal information management skills?
Twenty-five (50%) of respondents reported that they would be interested in learning more about tools and skills that would assist them in PIM of information found online.

What tools do students currently use to manage information they find or encounter online?
Thirty students (60% of total participants) responded to the open-ended question regarding the ways in which they manage information they encounter online. These thirty students provided forty-four text responses. Five of these responses (12%) indicated that they do not currently manage the information they find online. The primary ways respondents indicated they manage the information they find online is by using bookmarks (32%), recording information to assist in later retrieval (29%), and by opening new browser tabs (16%; See Table 3).

Respondents which indicated they recorded information to assist them in returning to the information they encountered, noted a variety of methods for recording information, including saving citations or URLs in the form of word documents (14%), "notes" (10%), sending e-mails to themselves (2%), as well as printing off a paper copy of the materials (2%; See Table 3).
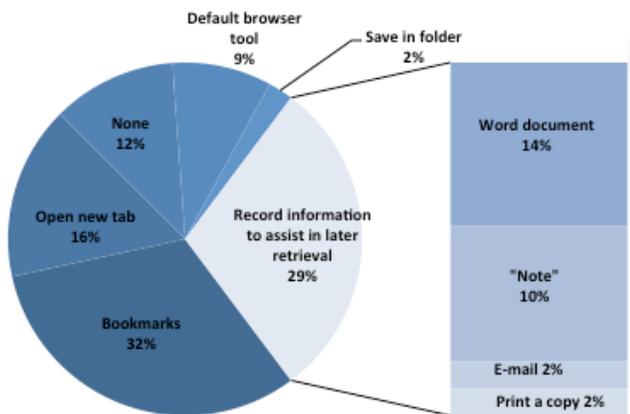

Table 3. PIM methods used by participants to capture information found online

DISCUSSION AND CONCLUSION
The findings of this study show that the undergraduate students enrolled in this information literacy class have problems managing the information they find and encounter on the Internet and that they are interested in improving their information management skills. This study also found that students in this class are using tools to manage information found and encountered online.

Bookmarking, note taking, and opening new browser tabs were the primary methods that students used in order to capture information online. This is in opposition to the findings of Jones et al. (2001) study on KFTF. In the study by Jones et al. (2001; 2002; 2003), they found bookmarking to be the least frequently used tools by their participants. Additionally, self-addressed e-mails and document files were found to be the most common method of PIM used by their participants, the opposite of what was found in this study of undergraduate students, where only 4% of respondents reported using self-addressed e-mails and document files to capture information online. Whether the differences in the results of our study are the result of our participants' demographics or the time (it has been almost a decade since the KFTF study), was not something this study investigated but may be worth looking at in the future.

PIM skills are important for students to have in this world where they actively and passively acquire information. While information can be readily found, if students are unable to store and organization this information efficiently, this information will not be returned to for future use. Information literacy skills assist in reducing information overload by helping students sift through information they've sought, but it does not help them in the case of encountered information, since it was not solicited in response to an information need.

Recognizing the potential future uses of information is only a part of the equation; users also need to be able to store information for later retrieval and use. By incorporating information encountering and PIM into the current information literacy models, teachers could promote a more holistic view of information literacy that would broaden students' awareness of naturalistic research processes and emerging trends in information storage and retrieval.

Limitations and future research
Limitations of this study include the timing of survey distribution. The survey was distributed during the last week of classes, thus class attendance was lower than it may have been at a different time in the semester. Although information management is not something taught in the information literacy course that participants were enrolled

in, their enrollment in this class may have heightened their awareness of information practices.

This research provides a preliminary examination of the data management information encountering of college students in order to inform future research into problems with PIM. In future work, the authors intend to further examine PIM behavior and factors that impact the PIM skills of individuals.

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