The Role of Purpose, Approach-Avoidance, Self-Efficacy, Intolerance of Uncertainty, and Locus of Control in Undergraduates' Source Selection

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ABSTRACT
The primary objective of this research study poster is to explore differences in sources selected by undergraduate students in relation to two factors: 1) purpose of search, and 2) scores on the Problem-Solving Inventory (PSI) based on sources undergraduate students select for both course-related and everyday-life information-seeking purposes. Also considered are differences in self-efficacy, intolerance of uncertainty, and external locus of control scores reliant upon sources selected initially during a search process. Two main research questions were the focus of this study. First, what types of information sources do undergraduates tend to use first during an everyday-life or course-related search, and is context important? Second, do certain user characteristics influence the selection of the first source selected during information searches? A series of chi square and one tailed t tests were performed to examine these research questions in depth. The overarching goal of this research is to use these results to better understand and structure information services for undergraduates.

Keywords
Information-seeking; everyday-life information-seeking; source selection; undergraduate students; approach/avoidance self-efficacy; intolerance of uncertainty; external locus of control

INTRODUCTION
Searching for information—whether for course related assignments or everyday-life purposes—is of enduring relevance to the lives and experiences of undergraduate students. With a myriad of types and modes of resources available, undergraduates have an almost inexhaustible amount of materials to select from when performing an information search. Also important to consider are the factors that influence what those source selections are.

This investigation considers the ways in which the Problem-Solving Inventory Assessment, self-efficacy, intolerance of uncertainty, and locus of control result in variations in source selection among undergraduate students searching for course-related and everyday-life information purposes. The two main research questions examined within this study include:
1) What types of information sources do undergraduate students choose to use first in different contexts? Does a context affect the choice: that is, do students choose to use different types of sources depending on different contexts (e.g., course-related vs. everyday life contexts)?
2) Do user characteristics (including some specific variables/factors) influence the selection of the first source selected?

BACKGROUND
Literature Review
A variety of approaches have and continue to be utilized to explore issues related to undergraduate information-seeking in innumerable contexts. These may include examining correlations between variables such as discipline, gender, user experience, the role of everyday-life information-seeking, and cognitive factors (Ford et al. 2005; Kim 2001, 2007; Savolainen 1995; Whitmire 2001, 2002). There is a wide selection of research available on the cognitive impacts on information-seeking as well as the relationship between undergraduate information-seeking and many factors and variables. This poster specifically uses research that relies upon both factorial influences on information-seeking and psychology studies involving Approach/Avoidance, Self-efficacy, Locus of control, and Intolerance of uncertainty as an underlying methodological framework.

Rotter (1966) substantiated the basis for internal and external locus of control studies through his construction of the I-E (Internal-External) scale. Specifically this involves a measure of internal locus of control versus external locus of control personality types. Dollard and Miller (1939; 1950) provide the contextual background for examining Approach-Avoidance (AA). Bandura's (1997) work focuses on self-efficacy.

Fields' (2005) investigation explores perceptions of self-efficacy in relation to gender as well as a comparison within specific research contexts.

Definitions

For the purposes of this study, course-related searches are those related to course assignments. As described in the survey, these may include assignments such as essays, reports, review papers, or another respondent identified activity. Everyday-life information searches are those that are performed for personal reasons as indicated by the survey respondent; in the survey, these are defined as personal searches that are not related in any way to course assignments.

The Problem-Solving Inventory (PSI) assessment is comprised of three areas, including Approach-Avoidance (AA), Personal Control (PC), and Problem-Solving Confidence (CON). AA is considered within this study and refers to a general tendency of individuals to approach or avoid problem-solving activities; a low score indicates that an individual is more comfortable approaching problem-solving activities.

'Intolerance of uncertainty' refers to the tendency to perceive ambiguous situations as a source of threat; the higher the score, the higher the intolerance of the individual (Frenkel-Brunswik 1949). 'Self-efficacy' is defined as the belief "in one's capability to organize and execute the course of action required to manage prospective situations" (Bandura 1997: 2). The higher the score, the higher self-efficacy is rated.

METHODS

The purpose of this study is to search for significant differences in source selection based on the following characteristics: 1) Problem-Solving Inventory Assessment scores; 2) General self-efficacy test scores; 3) Intolerance of uncertainty test scores; and 4) locus of control test scores. The study was conducted using a survey method; the survey was made available to students via a mass emailing service. The survey was constructed using Qualtrics Software. A total of 577 students participated in the survey, although a smaller number of 133 students participated in completing the Problem-Solving Inventory Assessment test in addition to the survey.

Analysis

Chi square tests and one-tailed t tests were performed on course related and everyday-life survey responses with a set alpha of .05. Chi square tests looked for significant differences in source selection based on academic versus everyday-life information-seeking purposes. One-tailed t tests were utilized because the hypotheses constructed suggested that scores on the PSI and self-efficacy, intolerance of uncertainty, and external locus of control tests were higher in some cases based upon the source type indicated by respondents. Where variances were unequal, pooled variance was used, and t tests were performed on samples that were relatively similar in size.

RESULTS & DISCUSSION

Of the tests performed, both the chi square and t tests resulted in statistically significant differences. Chi square tests indicate that undergraduates select significantly different information sources based on the context of the search when comparing everyday-life information-seeking and course-related information-seeking. Results are reported below and demonstrate that the first and second sources selected by undergraduates varied at significant levels based on search purpose alone.

Source Selection Step	Chi square	Degrees of Freedom	p value
1	106.21	3	p<.0001
2	149.65	6	p<.0001
3	202.205	6	p<.0001

Table 1. Course vs. Everyday-Life Information Source Selection

At each of the first three source selection steps, undergraduates selected statistically significantly different pathways for information based upon search purpose.

Three particular t tests resulted in statistically significant differences: two one-tailed t tests performed for course related searches and the Problem-Solving Inventory and a single one-tailed t test of everyday-life information search and self-efficacy.

For Step 1 of a course related search, participants who tend to avoid problems selected online materials as their first source selection more often than their 'approacher' counterparts, who selected print resources first, with the one-tailed p= .03361. This indicates that, at a statistically significant level, those who select online materials first are more likely to be 'avoiders' than those who select print first, who are more likely to be 'approachers.'

Results indicate that those who have the tendency to avoid problem-solving activities are more likely to select online resources initially during an information search process. This result supports the avoider personality, or 'blunting' behavior (Miller and Mangan 1983). Heinström also refers to monitoring as a way of "actively responding," and blunting or avoidance as a way of coping with a threatening situation (2010, 140-141). Applied to information seeking, there is a clear balance between actively approaching an information interaction versus avoiding information overload, and individuals achieve this through a balance of approach/avoidance styles. Avoiders seem to prefer to use

online resources because they are more easily accessible than going through the process of searching for, locating, and utilizing a print resource.

Additionally, participants who selected online sources as the first step in course-related information-seeking scored significantly higher in 'intolerance of uncertainty' than those who selected print resources, with $p= 0.00167$. Because a higher score indicates that individuals are more likely to perceive uncertainty as a threat, this can be used to infer that those who are more likely to perceive uncertainty as a threat are also more likely to use an online resource than a print one at the initial step of a course related search.

Self-efficacy, as a measure of belief in one's ability to manage prospective situations, is supported in the t test results for everyday-life information-seeking. Participants who scored higher in self-efficacy chose to ask other people for assistance first when compared to those who selected print resources first. This demonstrates that those who do feel more confident in managing situations may also feel more confident in face-to-face interaction as opposed to selecting print sources directly.

When searching for information for everyday-life purposes, participants who sought another person for assistance as their initial source selection scored significantly higher in general self-efficacy when compared to those who utilized print resources as the first step in a personal search, with $p=.00135$. As Heinström asserts, "seeking or not seeking information is for confident persons mainly a question of what is needed to solve a problem" (2010, 125). As a result, information seekers who have a high self-efficacy are more comfortable in a variety of contexts and situations; the results within this study support this for everyday-life information-seeking.

CONCLUSION

These preliminary results are indicative of important relationships between personality characteristics and the sources selected by undergraduates during both academic and everyday-life information search processes. First, the results of this study indicate significant differences in source selection during an information search based on whether or not the search is course-related or every-day-life information related. Additionally, this study demonstrates that there are significant differences in Approach/Avoidance and Intolerance of Uncertainty in course-related source selection at the beginning of an information search process. When performing everyday-life information searches, self-efficacy scores are significantly higher for participants who utilized other people as resources rather than online sources at the beginning of a search process.

Implications of this study are twofold. First, the cognitive approach of undergraduates when seeking information (whether for course-related or everyday-life purposes) merits extensive consideration for information literacy instruction at universities. Differing levels of approach/avoidance, self-efficacy, and intolerance of uncertainty result in variation in source selection among undergraduate students. Exploring these differences will allow for reconfiguration of instructional tools for undergraduates. Overall, students tend to make use of online resources unless their self-efficacy scores are very high; in this case, students feel more comfortable consulting others for assistance. Thus, certain factors (self-efficacy, intolerance of uncertainty, and approach/avoidance) are important in determining at least the initial source selection for undergraduate students. Context is also an extremely important factor when deciding which sources to select as evident by the chi square test results.

Second, this study reveals the variability in undergraduates' approaches to information resources during the search process and therefore the need for a flexible approach in offering information sources to undergraduate students. Because personality characteristics play a significant role in source selection, it is important that libraries and information centers continue to be aware of and provide resources in a variety of formats.

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