Information Horizons of College Students: Source Preferences and Source Referrals in Academic Contexts

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ABSTRACT
An information horizon (IH) is a mental map where individuals position various sources according to their preferences in specific contexts. IH not only highlights the roles of contexts, situations, and social networks in individuals’ information behavior, but also emphasizes the importance of examining the relationships among sources used by individuals. This study investigates undergraduate students’ source use preferences in academic contexts—course-related, program-related, and coursework-related moral-support situations. The study also investigates the referral networks among sources used by students. Interviews were conducted with twenty undergraduate students. Each participant was also asked to draw their IH maps. Based on existent IH literature, the study used innovative methods to analyze and present the data. Results show that students had different source preferences in different situations in academic contexts. While peers were consulted across all situations, most of the other sources were typically consulted only in certain situations. As to source referrals, interpersonal sources (e.g., peers) were more likely to direct students to other sources than to receive referrals from other sources, and experts tended to direct students to a wide range of sources, especially to official sources. The findings suggest that universities should facilitate students’ use of both official sources and experts as academic sources.

Keywords
Information horizons, information use, information behavior, undergraduate students.

INTRODUCTION
Using academic resources effectively is essential for all college students to successfully attain their degrees (Astin, 1993; Gonzales, 2010; Pascarella, & Terenzini, 1991). Learning how undergraduate students use various academic sources can help us understand how to facilitate students’ use of certain sources for their academic success. Information horizons (IH) as a theoretical framework proposed by Sonnenwald (1999) refer to mental maps where individuals position various sources according to their preferences in specific contexts. This framework focuses on individuals’ source use preferences and emphasizes the importance of investigating how contexts, situations, and social networks shape individuals’ information behavior, as well as the relationships among sources used by individuals. Based on IH, this study examines undergraduate students’ source use preferences and the referral networks among sources used by students in academic contexts, including (1) course-related, (2) program-related, and (3) coursework-related moral-support situations. Research questions of this study include:

1. How do undergraduate students position information sources (i.e., online and printed sources such as search engines and course materials) and interpersonal sources (e.g., professors, peers, etc.) on their IH maps in course-related, program-related, and coursework-related moral-support situations?

2. What information and interpersonal sources are preferred only in a specific situation in academic contexts, and what are preferred across different situations?

3. Do certain official/unofficial sources and experts/non-experts direct students to other sources? Which sources possess this quality of directing students to other sources?

METHOD
Interviews along with participant-drawn IH maps were used to collect data for this study.

Participants
Twenty undergraduate students at a large public university participated in this study. Although most participants were female (n=13), there were equal numbers of underclassmen...
and upperclassmen. Most participants were white, but three were Asian and three were Hispanic. There was only one African American student.

Data Collection
Based on Sonnenwald’s work (1999, 2001, 2005), the interview guide included mainly questions soliciting students’ academic source preferences. During each interview session, participants were asked to draw their IH maps. Students were asked to recall a recent incident where they needed information for course-related issues (e.g., writing a final paper), and to place all information and interpersonal sources they used in three zones according to their preferences. Participants were then asked to recall other recent incidents where they needed information for program-related issues (e.g., selecting courses for a new semester) and for coursework-related moral support (e.g., being stressed with coursework), and to re-position sources on their IH maps.

Data Analysis
All interviews were recorded and transcribed for data analysis. IH maps were first organized into participant-sources matrices, as suggested by Sonnenwald (2001). Savolainen and Kari’s (2004) method were then adopted to calculate weighted scores for each source based upon the number of times a source appeared on students’ IH maps: zone 1 (innermost circle; the most preferred) sources were weighted by 3, zone 2 (the second-most preferred) sources by 2, and zone 3 (outer circle; the least preferred) sources by 1. A combination and variation of Savolainen and Kari’s (2004) and Huvila’s (2009) techniques were used to present the IH maps. The IH maps were further illustrated with different font sizes representing the number of times a source appeared on students’ IH maps. Font size was determined based on the ordinal rank of number of times sources appeared in a specific zone (Figure 1).

Since the concept of situations was emphasized by IH, the study took a step further to analyze source stability across situations. The change ratios for each source across the situations were calculated based on its weighted scores on course-related, program-related, and moral-support IH maps.

Finally, all incidents regarding source referrals mentioned by the participants were recorded. Source referral networks were analyzed based on the numbers of outgoing and incoming links to each source. For instance, the number of times students mentioned peers directing them to other sources and the number of times other sources directing students to peers were both recorded. Source referral types were then identified based on Sonnenwald et al. (2001) (see Table 2).

FINDINGS
Information Horizons Across Situations
Figure 1 summarizes students’ IH maps in course-related, program-related, and moral-support situations. While some sources appeared across different situations in academic contexts, others appeared only in a certain situation. Peers were consistently placed in the most preferred zone across all situations; professors and TAs were typically placed in the second-most preferred zone; parents were typically placed in the least preferred zone except for coursework-related moral support. Personal collections, search engines, and library resources appeared specifically in course-related IH; advisors and other online resources in program-related IH; parents and other non-experts in moral-support IH.

![Figure 1. Students’ Academic Information Horizon Maps.](image)

*Note: Sources were placed in different situations according to preferences. The most preferred zone for each situation is in the center.*
**Source Stability Across Situations**

The concept of situations is one of the important elements in IH. In order to systematically examine source stability of each source across the three situations in academic contexts, the change ratio for each source was calculated based on its weighted scores in different situations. The smaller the change ratio, the more situation-independent the source. Only sources that appeared on the IH maps for at least two different situations were given a change ratio.

As shown in Table 1, peers and mentors were the most situation-independent sources because they were consistently placed on the IH maps across all situations. Personal collections and library print resources were highly situation-specific: they were placed only in course-related situations. Almost all the other sources can be identified as situation-specific sources. Among these situation-specific sources, two subgroups can be identified. While most information sources (e.g., library online resources, search engines) and experts (e.g., professors) tended to be consulted for course-related and program-related situations, non-experts (e.g., peers) were typically consulted for moral support.

<table>
<thead>
<tr>
<th>Source Status</th>
<th>Information Sources</th>
<th>Interpersonal Sources</th>
<th>Typically Used Situation(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Situation-independent</td>
<td>N/A</td>
<td>Peers, mentors</td>
<td>All</td>
</tr>
<tr>
<td>Situation-specific</td>
<td>Library (online resources), search engines, other online resources, course/university websites</td>
<td>TAs, advisors, professors</td>
<td>Course-related and program-related</td>
</tr>
<tr>
<td>Highly situation-specific</td>
<td>Personal collections, Library (print resources)</td>
<td>N/A</td>
<td>Course-related</td>
</tr>
</tbody>
</table>

**Table 1. Sources Stability Across Situations in Academic Contexts.**

*Note. Highly situation-specific sources only appear in one situation. A change ratio > 2 is considered situation specific; a five sources with five or more unique outgoing links included professors, TAs, parents, peers, and articles; and the top five sources with five or more unique incoming links included online resources, professors, articles, TAs, and the library. Based on the numbers of outgoing and incoming links to each source, five node types were identified according to Sonnenwald et al. (2001) (Table 2). Most interpersonal sources were either starting sources with no incoming links, or recommending sources with more outgoing than incoming links. Most information sources were either focusing sources with more incoming than outgoing links, or ending sources with no outgoing links.

When examining how official/unofficial sources, experts, and non-experts directed students to other sources, we found that search engines and most non-experts were starting sources; many official sources were ending sources; both experts and non-experts can be recommending sources. Nevertheless, compared to non-experts, experts tended to direct students to a wider range of sources, especially to various official sources.

<table>
<thead>
<tr>
<th>Node Type</th>
<th>Information Sources</th>
<th>Interpersonal Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Starting [no incoming links]</td>
<td>Search engines</td>
<td>Parents, friends, high school teachers, roommates, significant others, mentors, siblings</td>
</tr>
<tr>
<td>Recommending [more outgoing links]</td>
<td>N/A</td>
<td>Professors, TAs, peers, advisors</td>
</tr>
<tr>
<td>Balancing</td>
<td>Personal collections, course/university websites</td>
<td>N/A</td>
</tr>
<tr>
<td>Focusing [more incoming links]</td>
<td>Articles, online resources (e.g., Wikipedia, Government statistics, practice exams), books</td>
<td>Experts</td>
</tr>
<tr>
<td>Ending [no outgoing links]</td>
<td>Library, campus resources (e.g., Writing Center, campus tutorial services), databases</td>
<td>Senior students</td>
</tr>
</tbody>
</table>

**Table 2. Sources Directing Students to Other Sources in Academic Contexts.**

*Note. Node types based on Sonnenwald et al. (2001).*
CONCLUSION
The study reveals that peers were the most preferred source across different situations in academic contexts. And experts (e.g., professors and TAs) tended to direct students to a wide range of sources, especially to official sources. These findings imply that in addition to experts (especially professors and TAs) as academic sources, influences from peers can be crucial to undergraduate students. The study suggests that universities and academic libraries should not only foster students’ exchange of information but also facilitate students’ use of official sources and experts for academic issues. Through peer mentoring programs, students have more opportunities to support and learn from one another; through orientation programs with an emphasis on information literacy, students can be guided to available campus resources (including official sources and experts) and trained to efficiently consulting various information and interpersonal sources. This helps students easily adjust to the academic parts of college life and better use various sources for their academic success. Overall, this study advances IH research by exploring essential elements in this theoretical framework, including source preferences across situations and referral networks among sources. The study also provides practical implications for professionals. In order to provide effective orientation programs for all undergraduate students as well as students in need, future studies can further examine the information seeking patterns of students with different backgrounds.

REFERENCES