Selecting quality sources: bridging the gap between the perception and use of information sources

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Abstract
This study investigated undergraduates' source selection behaviour: what sources they use frequently, what criteria they consider important for source selection, how they perceive different sources, and whether their source selection behaviour is related to what they know about selection criteria. Semantic differential rating scales and correspondence analyses were used to capture the participants' perception of source characteristics. Five hundred and seventy-six undergraduate students from a public university participated in the study. The study found discrepancies between what students know and what they do regarding source selection. Spearman's rank correlation results imply that participants did not apply the criteria they considered important (e.g., accuracy, currency) frequently when selecting sources. Sources perceived to be "accessible" in economical, physical, and psychological senses tended to be used often. Suggestions were made to refine information literacy programs to support the selection of quality sources.

Keywords
source perception; source selection; source use; source evaluation criteria; undergraduates; information literacy education

1. Introduction
Today, more information becomes directly available to the public through a wide range of channels. Users can acquire information not only through the traditional, printed sources, but also sources in various formats through the Internet [1, 2]. Sources, especially the open Web sources lacking quality assurance mechanisms, offer information in unfiltered forms with varying qualities. As such, evaluating and selecting quality sources have become more crucial than ever. One of the major challenges librarians and educators are now facing is to help users choose sources offering quality information.

Information literacy (IL), defined as “a set of abilities enabling individuals to recognise when information is needed and have a capacity to locate, evaluate, and use effectively the needed information” [3], has become a "survival skill" in the information age, and IL education has become an important part of library services. In the higher education sector, the Association of College and Research Libraries (ACRL) in the United States set out the Information Literacy Competency Standards for Higher Education, which lists important competencies including "evaluate information and its sources critically" [4]. Recognizing the importance of IL, similar actions have been taken in other countries as well [5-7]. Through IL education, librarians have introduced users to the important criteria and strategies for evaluating information and its sources [8]. Despite such efforts, research suggests that users do not necessarily choose sources that
provide accurate information [9, 10]. Undergraduate students, for example, still rely on Web sources even though such sources are often found to be unreliable [11-13]. This seems to be a pattern consistently found among users in various contexts [10, 14, 15].

These findings raise a question - what makes users select sources that are not accurate or reliable? Is it because users are unaware of important evaluation criteria? Is it due to users’ misperception of information sources? Or, is it simply because users are trying to save time and effort? The answer to this question will help refine IL education programs. For example, if users are found to have biases towards certain quality materials, IL programs may need to put an emphasis on reshaping users’ perception of such sources.

Focusing on undergraduates working on course related academic research, this study aims to understand their source selection behaviour from the users’ perspective. The study first investigates what sources the students use frequently. It examines what criteria the students consider important for source selection. This can help understand whether students are aware of the evaluation criteria promoted in IL training. Then, the study maps out students’ perceptions of different sources and analyzes whether there exist source characteristics that are likely to lead to the source selection. Findings of the study will help to understand how students' perception and knowledge are influencing their source selection behaviour, and to offer suggestions to hone IL programs to support the selection of quality sources.

2. Source selection behaviour and information literacy

Today, nearly two billion people worldwide use the Internet [16]. In the United States, about 90% of online adults use search engines and other resources on the Web [17]. Undergraduates are also found to be heavy users of Web resources [15, 18]. Since the early days of the Web, undergraduates’ dependence on unreliable Web resources has concerned educators and librarians [19]. Studies suggest that undergraduates either neglect the evaluation of information quality [20] or have an overly positive perception of Web sources [13]. The Library and Information Science (LIS) community has long spearheaded training initiatives to enhance students’ skills in selecting quality information sources.

While students are increasingly exposed to IL instructions, their choices of information sources still worry many. Undergraduates rely on the open Web even for their academic work [21-23]. The use of Web resources per se is not necessarily a problem [24], however, as an increasing number of quality resources are being made available through the open Web with open access publishing [25] and open data movements [26]. What is more troublesome is the users’ neglect of source evaluation, particularly in terms of the accuracy and reliability of sources. This leads us to question the effectiveness of IL training, especially one-time training, on students’ source selection behaviours [12]. To continually update and improve IL education, it is critical to understand the reasons behind undergraduates’ reliance on resources seemingly of lesser quality. One reason might be that students are unclear about what good information sources look like, and how to evaluate the quality of sources. That is, they might not have the knowledge necessary for effective source selection. For example, many undergraduates do not understand the value of peer-reviewed resources [27]. They do not even seem to understand the term “information literacy.” The students also incorrectly assume that growing up with computers has provided them with skills necessary for being a successful information seeker [28]. The lack of factual knowledge and understanding was especially common in the early days of Internet. The “checklist” approach, which introduces evaluation criteria to students, was in part a response to addressing this lack of knowledge. Such lack of knowledge for source selection may be relatively easier to tackle. A more challenging situation would be that searchers simply neglect source quality in favour of convenience. Individuals tend to prefer to use a source that does not require much effort or risk-taking from them, even if that means the quality of information acquired is compromised [29]. Users tend to be more interested in minimizing losses rather than maximizing gains. The “principle of least effort” is commonly used in information seeking [30-32]. It is hoped that students, in their prime time of pursuing knowledge, would engage in rigorous research for their academic work. Research shows that students do agree that source quality is a more important criterion for their class assignments than for their everyday life information seeking [28]. Unfortunately, different from scholars who place quality of sources over accessibility as the decisive source selection factor [33], undergraduates still exhibit a tendency to settle for “good enough” sources. Martin found that 52% of the two hundred education major students claimed they would use a source because “it is convenient to use even though it is not the best source on my topic” [12]. Many undergraduates seem to care more about the quick and easy way of finding information than the quality of the retrieved information [34]. Such behaviour based on the “least-effort” principle is more difficult for librarians to combat alone. One approach to addressing this is to make IL an explicit and core assessment requirement in the students’ regular curriculum [35]. The call for more collaboration between librarians and university faculty may be recognition of such needs [36, 37].
Also difficult to tackle is students’ affective and perceptual biases towards certain types of sources. Students may have misconceptions about library resources, for example. One of the key topics in communication and marketing literature is changing individuals’ perception and attitude about an issue or a product [38, 39]. Attitude change about information sources can be an effective solution for users’ bias toward sources, but it is less discussed in IL education. If it is unavoidable that humans have a tendency to favour certain selection criteria, LIS professionals may want to actively promote quality sources emphasizing some of their characteristics appealing to users.

3. Study

3.1. Research questions

The study focuses on five aspects related to the source selection: (1) What are the sources frequently used by undergraduates? (2) What are the source characteristics that undergraduates consider important as selection criteria? (3) How are different sources perceived by undergraduates? (4) What are the common characteristics of the frequently used sources? and (5) Is there a relationship between the source characteristics undergraduates consider as important selection criteria and those undergraduates actually use when selecting sources?

3.2. Methods

The survey method was used to collect data. A call for participation was emailed to undergraduate students in a public university via a student emailing list. Students were invited to fill out an online survey voluntarily. The questionnaire included questions on the participants’ demographic background and their perception and use of information sources. The survey questionnaire used in the study was developed based on related literature and finalized through pilot tests. To uncover how different information sources were perceived by participants, this study applied a set of semantic differential rating scales [40]. Semantic differential is an established technique in attitude measurement. Participants were presented with a series of 7-point scales. Each scale is anchored with a pair of bipolar adjectives describing source characteristics. For example, a scale includes the adjective ‘good’ on one end of the 7-point scale, and ‘bad’ on the other end. In this study, each participant rated thirteen pairs of characteristics for each of nine information sources. Adjectives included in the survey were selected from related studies and then through factor analyses of the pilot test results. The survey questionnaire was made available through the Web, using LimeSurvey (www.limesurvey.org).

3.3. Participants

A total of 576 undergraduate students from a public university participated in the study. About 65% of them were female and 35% male students. While participants were from all class levels, sophomores and juniors constituted the majority of the participants: freshmen (15%), sophomore (32%), junior (44%), and senior (9%). Regarding their academic background, 34% of the participants were from social sciences, 30% from science and engineering, and 27% from humanities. Most of the participants had received some sort of IL training, either through one-time workshops or courses that include a section introducing the library resources and information search strategies.

3.4. Limitations

The study has some limitations that need to be addressed. First, the sample used in the study cannot be considered as representative of all undergraduates. A convenience sampling method was used to select participants. In the resulting sample group, sophomore and junior level students were overly represented. While the study provides insights into undergraduate students’ source perception and selection behaviour, findings of the study should be generalized with caution. Second, the study focused on broad categories of resources. For example, “Web sites/portals,” a type of source used in the study, may include various types of Web sources, such as Wikipedia and even social media (e.g., Facebook). Recent study shows that Wikipedia is gaining popularity, and emerging as one of the major Web sources [18, 41]. In this study, broad categories were used to reduce the possibility of respondent fatigue. In future studies, “Website/portals” category may be further divided into specific source types (e.g., Blog, Course site, Web Dictionary / Encyclopaedia). This study can serve as a test of the applicability of semantic differential rating and CA in the research of source perception and selection behaviour. Larger-scale projects that include a representative sample and specific source types can then be conducted after the utility of these methods has been demonstrated in this study.
4. Findings

4.1. Frequently used sources

Participants were asked to report how often they use different sources. The top five sources include: (1) *Web search engines*, (2) *Websites/portals*, (3) *online journal databases (DB)*, (4) *books*, and (5) *online catalogues (OPAC)*. Similar to previous findings, Web sources were the most frequently used ones. It is worth noting that *book* is the only source in print that made the top-five list. Although some worry about the demise of print materials in the digital age, print books were still frequently used by the participants.

<table>
<thead>
<tr>
<th>Table 1 - Frequently used sources</th>
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<tbody>
<tr>
<td><strong>Mean</strong></td>
</tr>
<tr>
<td>Web Search Engines</td>
</tr>
<tr>
<td>Websites/Portals</td>
</tr>
<tr>
<td>Online Databases and Online Journals</td>
</tr>
<tr>
<td>Books (Print)</td>
</tr>
<tr>
<td>OPAC</td>
</tr>
</tbody>
</table>

* Used daily (6); Not used (0)

When the overall source use was examined across different disciplines, students in humanities tended to use sources relatively more frequently, whereas those in science and engineering less frequently. A couple of exceptions exist, however. *Website/portals* were used more frequently by those in social sciences. *Librarians* were consulted more frequently by those in social sciences and also in science and engineering.
4.2. Source characteristics considered important as selection criteria

Participants were asked to rank source characteristics based on the importance as selection criteria. The five most important characteristics to use as selection criteria include: (1) accurate/trustworthy, (2) accessible, (3) easy to use, (4) free, and (5) active/updated.

An encouraging result is that accuracy was considered the most important. Participants also rated accessibility highly because obviously they can only make use of the sources that are physically accessible. It seems that the other two criteria are also related to the “accessibility” in different senses: easy-to-use sources can be easily accessed psychologically whereas free ones are accessible with no economic burden. Active/updated was another important criterion. This may be due to the recognition that, in this digital era, events change rapidly and information may become obsolete quickly. The currency (i.e., active/updated), along with the accuracy, is one of the key criteria that IL education has emphasized.

Table 2 - Important source characteristics as selection criteria

<table>
<thead>
<tr>
<th>Source Characteristics</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accurate/Trustworthy</td>
<td>3.42</td>
<td>1.86</td>
</tr>
<tr>
<td>Accessible</td>
<td>2.76</td>
<td>1.97</td>
</tr>
<tr>
<td>Easy to use</td>
<td>1.55</td>
<td>1.67</td>
</tr>
<tr>
<td>Free</td>
<td>1.34</td>
<td>1.71</td>
</tr>
<tr>
<td>Active/Updated</td>
<td>1.33</td>
<td>1.63</td>
</tr>
</tbody>
</table>

* Ranked first (5); ranked fifth (1)

When the results were compared across disciplines, a prominent difference was found between those in science and engineering and the rest: students in science and engineering tended to value active/update and free as selection criteria more than others did.
4.3. Perceived characteristics of different sources

Using the semantic differential technique, the study collected a large matrix of perception data (576 participants x 9 information sources x 13 attributes). Correspondence analysis (CA) is applied to analyze the data and generate perceptual maps. CA is a multivariate dimension reduction technique that is increasingly gaining attention, especially in marketing research. It is used to examine the association between categories of variables in a contingency table; in this study, the association between information sources and source characteristics. CA used chi-square value as the basis for deriving a similarity measure. This similarity measure is then used to estimate dimensions, and to plot the categories as points on a perceptual map. Different from other multiple dimensional scaling techniques, CA can be used on data that are nominal or exhibit nonlinear relationships.

Figure 3 presents the resultant perceptual map. The two dimensions of the map accounted for 80% of the total inertia (i.e., variance in the correspondence table). Information sources are denoted as circles and source characteristics as squares. Points with higher similarity are mapped closer to each other. The Symmetrical Normalization method - a method for examining the relationship between two different variables - was used for this analysis. As such normalization processes involve averaging data values, it is recommended to interpret the relative positions of the points, rather than making precise statements on the exact distance between points [42].

Figure 3 - Correspondence map: Sources and perceived characteristics

Three clusters can be identified from the perceptual map. A cluster is located near the lower left corner (referred to as Cluster 1 hereafter), which consists of friends/family as a source mapped closely with characteristics familiar and interesting. Another cluster (Cluster 2) is located on the left side of the map, slightly above Cluster 1. In Cluster 2, open Web sources (Web search engine and Websites/portals) are placed near the characteristics related to “accessibility,” including accessible, free, and easy to use, as well as efficient.

On the right side of the map, there exists Cluster 3 comprising most of the characteristics that are recommended as selection criteria in IL education. These characteristics include accurate/trustworthy, organized, comprehensive, and objective. More generic positive attributes such as good and strong are also found in this cluster. Various library-related sources, including librarians, online DBs, and OPACs, are found around the characteristics in Cluster 3. Worth noting is that librarians are mapped closely with good and comprehensive. Printed journals are located slightly above while print books are below Cluster 3.
The open Web resources, while perceived as accessible, are positioned apart from accurate, organized, and objective. This is encouraging as it reflects that students are aware of the issues that many Web sources have and that they are discerning about the drawbacks of open Web resources.

4.4. Common characteristics of frequently used sources

To identify common characteristics of frequently used sources, only those sources used at least weekly were selected. Their characteristics were analyzed by examining how the participants rated these sources on the semantic differential scales. The frequently used sources could be best described as: (1) accessible, (2) free, (3) familiar, (4) easy to use, and (5) comprehensive.

Table 3 - Common perceived characteristics of frequently used sources

<table>
<thead>
<tr>
<th></th>
<th>Mean*</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accessible</td>
<td>6.29</td>
<td>1.15</td>
</tr>
<tr>
<td>Free</td>
<td>6.05</td>
<td>1.49</td>
</tr>
<tr>
<td>Familiar</td>
<td>6.05</td>
<td>1.29</td>
</tr>
<tr>
<td>Easy to use</td>
<td>6.00</td>
<td>1.29</td>
</tr>
<tr>
<td>Comprehensive</td>
<td>5.91</td>
<td>1.21</td>
</tr>
</tbody>
</table>

* Extremely agree (7); Extremely disagree (1)

4.5. Relationship between what they know and what they do in source selection

As presented previously, the five most important characteristics that participants claimed to use as selection criteria are: (1) accurate/trustworthy, (2) accessible, (3) easy to use, (4) free, and (5) active/updated. Characteristics of frequently used sources, which can be interpreted as the criteria that participants often used when selecting sources, are best described as: (1) accessible, (2) free, (3) familiar, (4) easy to use, and (5) comprehensive. Two of the important selection criteria – accurate/trustworthy and active/updated – were not found in the characteristics of frequently used sources. Instead, familiar and comprehensive were among those describing the frequently used sources. The study further tested whether students actually applied the selection criteria they considered as important when selecting sources. Using Spearman's rank correlation, two sets of 13 ranked characteristics were compared: ranks of those characterizing frequently used sources (reflecting the selection criteria often used), and ranks of those considered as important selection criteria (reflecting the selection criteria considered important). The resulted Spearman's correlation coefficient was not significant: \( \rho = .245 \) \( (p = .42) \). That is, when selecting sources, participants did not necessarily apply the selection criteria that they claimed to be important.

5. Discussion and implication

This study found that Web sources (including search engines and Web sites, portals) were the most frequently used among undergraduates, which confirms other study findings [12, 13, 15, 23]. The CA results imply that this might be because the Web sources are perceived as accessible, free and easy to use (See Figure 3). These “accessibility” related characteristics (i.e., physical [accessible], economical [free], and psychological [easy to use] accessibility) appeared consistently among the top five characteristics that undergraduates regarded as important selection criteria, and also among those best describing frequently used sources. Apparently, these properties are attractive enough to make users value them as important selection criteria and to apply them when selecting sources to use. Although not as popular as Web sources, it is encouraging to see that quality online search tools (including DB and OPAC) were also among the frequently used sources. The CA results show that DB and OPAC (Cluster 3) are distant from the characteristics associated with Web sources, such as accessible, free, and easy to use (Cluster 2). The two search tools are even further apart from familiar and interesting (Cluster 1). These suggest that more effort is needed to improve IL education and also the usability of the OPAC and DB.
The distance between familiarity and OPAC/DB has an important implication for IL education. One-time training sessions for IL may not be as effective in changing students’ source perception and selection behaviour. IL programs will need to provide users with more opportunities for them to be exposed to and also to try quality sources more often, until they become comfortable using the sources, and gain positive experiences with them. One of the best approaches to this might be the IL education embedded in actual courses and integrated into the curriculum. Embedding IL in the foundations of coursework will encourage students to value the importance of IL skills in their own subject area and will motivate their learning [43]. Furthermore, it will help students to have repeated and meaningful experiences with information sources and search processes [44]. Eventually, students will become more comfortable and familiar with quality sources, which may encourage them to use such sources more often. This approach to IL education would require strong collaboration among faculty and librarians, an area that has room for improvement. A study by DaCosta [37], for example, revealed that while an overwhelming majority of faculty acknowledged the importance of students’ IL skills, about 40% of them did not actually incorporate activities in their courses to help students develop such skills. An integrated IL education supported by both faculty and librarians is called for.

The distance from ease of use may imply that the interface of DB and OPAC also needs a continual improvement. Research suggests that OPACs are still difficult to use even after the three decades-long effort of enhancement [45, 46]. In order to make their resources easier to search, many libraries have incorporated federated search engines that enable searching across different sources in OPACs and DBs [47, 48]. Online Computer Library Center (OCLC) has also actively incorporated more resources in WorldCat. One can search WorldCat for bibliographic records of journal articles (through FirstSearch databases) and for open access resources (through the OAIster database). These are helpful, especially for the users who do not know where to start. A number of libraries have also implemented faceted OPACs (e.g., http://www.lib.ncsu.edu/endeca/), which facilitate searching and displaying of information. More recently, efforts have been made to incorporate user-contributed metadata into library catalogues [49]. For example, several libraries have started making use of metadata from LibraryThing (http://www.librarything.com/) as well as other social features (including tagging, list-making, annotation, ratings and reviews) and having them available using interesting and dynamic interfaces (e.g., tag cloud) [50, 51]. These are some exemplary efforts that should continue.

The frequent use of the Web could also be due to its perceived efficiency: through search engines and portals, users can search and access all sorts of resources connected to one another. Recent research shows that users prefer the Web because the Web allows users to access various kinds of information, including reviews, up-dated news, interactive forum, etc. [10]. As revealed in the CA results, Web search engines and portals are placed near source characteristic efficient within the same cluster (Cluster 2). While similar to the Web search engines/portals in the sense that they allow access to other resources, DBs and OPACs are more limited because they are neither as seamlessly connected to others nor reaching to such diverse sources as the Web search engines and portals are. Again, the usability and accessibility of DB and OPAC should be improved to reach as high a level of efficiency as the Web sources offer.

In terms of selection criteria, participants ranked accuracy as the most important one to use. This is encouraging because students seem to be aware of the criterion promoted in IL training. Unfortunately, the findings suggest that a gap exists between what users think they should do and what they actually do for source selection. That is, when selecting sources, users tend to apply certain set of criteria that are different from what they think they should. For example, participants often used the sources that were perceived as less likely to offer accurate information although they knew that accuracy was the most important criterion for source selection. This finding in itself is not too surprising. Extant research shows that users seldom check the accuracy of information found online [52], and rarely conduct a rigorous evaluation of the information quality [53, 54]. What is revealing is that the participants ranked accuracy as the most important criteria for source selection. This implies that their source selection behaviour is less of an issue related to knowledge required for source selection. Barriers in selecting quality sources seem to be rather related to the behavioural (e.g., choosing to use accessible sources) or perceptual (e.g., perceived inaccessibility of library sources) issues.

This gap between what users know and what they do has implications for IL education. The most familiar approach to teaching the evaluation of information quality might be the “checklist approach.” A set of important evaluative criteria is developed and used to guide users through the evaluation process. Users are often asked to use a list of questions designed to cover each criterion. Some argue, however, that this approach requires a great deal of time and effort from users, and that it is not effective or meaningful as users almost never apply it systematically [24, 55]. Alternative approaches have been introduced. Meola, for example, proposes a “contextual approach” with three evaluation techniques: (1) promoting and explaining reviewed resources, (2) comparing information collected from different sources, and (3) corroborate. He contends that the contextual approach promotes library resources, teaches information literacy, and encourages reasoned judgments of information quality [24]. Others believe that adopting
different approaches alone would not make IL education effective. Many agree that IL education must be fully embedded and integrated within the curriculum [6, 56-58].

Based on the study findings, a two-step approach is suggested, which can complement the integrated IL education. The checklist approach can be the foundation and first step to IL training. It is important for students to understand the important selection criteria and how to evaluate the quality of various information sources. Once such a guideline is conveyed to the user, the second step will focus on addressing perceptual and behavioural issues.

It seems the tendency towards using accessible and familiar sources is a natural one that is difficult to change. People are known to behave based on the “principle of least effort” [34, 59, 60]. That is, individuals tend to pursue a “satisficing” path instead of an optimal one, requiring less time and effort [61]. In the source selection, a “satisficing” path seems to involve relying on “accessibility” related criteria, rather than other recommended criteria such as accuracy. Assuming that this tendency is difficult to change, librarians can consider formulating strategies to take advantage of such a tendency. For advanced users who already know important selection criteria, IL training may refocus on framing the accessibility, ease of use, and comprehensiveness of quality library sources.

The goal of the second step is to adjust users’ perception of sources. The findings on students’ source perception are encouraging: the undergraduates still appreciate the value of traditional library sources on specific aspects including their accuracy and objectivity. However, it is also true that such quality sources were often perceived as rather inaccessible and difficult to use. IL librarians should devote more effort to targeting specific criteria and helping users overcome these perceptual barriers. They may consider using attitude measurement techniques to better understand users’ perception of sources. Based on the findings, the librarians can fine-tune their IL programs and marketing strategies. In the IL session, librarians can capitalize on the strengths of quality sources, and explicitly target and address the weaknesses of such sources perceived by users. For example, if OPAC is scored high on organization, and low in accessibility, the IL program can highlight how much a well-organized source can facilitate the retrieval of quality information and thus help save users’ time and effort. It can also incorporate activities to help users see how easily an OPAC can be accessed through various channels.

6. Conclusion and future studies

Librarians and educators have made a great deal of effort to enhance students’ IL skills, and have made significant progress. Compared to earlier studies, recent research suggests more promising results in terms of students’ recognition of evaluation criteria and their citing behaviours [62]. By adopting diverse approaches to understanding and teaching users, IL librarians may now take a more proactive role in shaping students’ perception of sources, thus working towards positive behaviour change.

This study has shed light on what undergraduates know about source selection and what influences their source selection behaviour. In general, users seem to prefer immediate benefit over long-term investment for a bigger gain. Perhaps it is time that IL education should address this common tendency of information users, and adopt more innovative and forceful approaches. Adopting marketing strategies for promoting certain quality sources, and for changing perception or attitude toward certain sources might be an example. A concerted effort between librarians and educators is also needed to have IL education fully integrated in the curriculum, and this can help students become more motivated and learn IL in a meaningful way.

The study can make some contributions to the information behaviour research. Methodologically, it tested and demonstrated the usefulness of semantic differential scales and CA in the research of source perception. These two methods can help us better understand how users perceive different sources and how the perception is related to the source use. Findings of the current study also informed a few directions for the future research. The study found disciplinary differences in source selection and use. Further research on individual differences and their impact on the source perception and use would yield useful information that can help refine IL programs. The current study examined the source selection only in the context of course related research. Similar studies in different contexts (e.g., entertainment, shopping, and other everyday life situations) and with different tasks [63] will provide a more complete picture of source selection behaviour. Finally, future research may attempt to identify the types of information needs and tasks that a source or a type of source can most effectively fulfill. Findings from such research will help develop and refine guidelines for users who are not aware of the wide gamut of quality information sources available today.
References


