Integration of Information Behavior into Reference and Information Services Education: A Syllabus Study

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Information behavior is an important area of conceptual knowledge for reference service providers, as it provides structure for understanding users' information seeking and use. This study explores the extent to which information behavior theories, models, and concepts have been integrated into professional education for reference and information service (RIS) through a syllabus study and textbook review. In addition, the study identifies specific information behavior theories, models, and concepts used in introductory RIS courses. Syllabi for introductory RIS courses taught at North American library and information science programs were analyzed for information behavior content, as were the textbooks required by the syllabi. Results show that about two-thirds of introductory RIS courses include instruction in information behavior theories, models, and concepts. Overall, the most impactful information behavior theories and models from the literature are introduced.

Keywords: information behavior, information seeking, professional education, reference service, theory

Reference and information service (RIS) work is multi-faceted, relying on many knowledge and skill areas, including information retrieval, information organization, instruction, communication, and management and leadership. Fundamental to the work is a good understanding of the information behavior of users. Understanding how people think about and articulate their information needs and how they search for and use information is fundamental to helping them meet their information needs, regardless of the RIS context.

Acknowledging both the importance of information behavior knowledge for RIS and the competing demands of other knowledge

KEY POINTS:

- Despite the importance of information behavior knowledge for reference service, only 40% of RIS courses substantially or moderately integrate information behavior.
- The most frequently mentioned information behavior model overall was Kuhlthau's information search process model; it was by far the most frequently mentioned model in the syllabi.
- The most frequent information behavior theories, models, and concepts that appear in RIS syllabi reflect the most impactful theories and models from the literature.

and skills, we designed a multi-phase project to explore how information behavior theory, models, and concepts are integrated into professional education for RIS. The study reported here is a content analysis of syllabi and textbooks used in the foundational reference courses in library and information science (LIS) programs in North America. The following phases of the project will include interviews with instructors (VanScoy, Julien, & Harding, 2022), and finally a survey of instructors. The research questions for this syllabus study are as follows:

- To what extent are information behavior theories, models, and concepts integrated into syllabi and textbooks for basic reference courses in North America?
- Which information behavior theories, models, and concepts are students in these reference courses being exposed to?

Literature review

Information behavior is a broad area of study relating to people's seeking and use of information. In their comprehensive text on the topic, Case and Given (2016) define it as

> information seeking as well as the totality of other *unintentional* or *serendipitous* behaviors . . ., as well as purposive behaviors that do not involve seeking, such as actively *avoiding information*. The term also includes the broader context of how individuals "deal with" information in their lives, so accounts for situation, time, affect, culture, geography, and other contextual elements in understanding people's IB. (p. 6)

This conceptual knowledge is foundational to providing good reference service. Bawden (2007) suggests that information behavior, along with information seeking and information retrieval, should form the basis of the "information curriculum" (p. 126). Saunders (2019) connects information behavior knowledge more directly to reference service, arguing that "reference professionals and other front-line service staff could use knowledge of information behaviors to understand their patrons and better support them in their research" (p. 19). It is not only scholars who see the value of information behavior, but practitioners as well.

Practice documents, while tending to focus on the actions of the RIS service provider, acknowledge that these actions are a response to users' information behavior, as in this excerpt from the Reference and User Service Association's (RUSA, 2008) definition of a reference transaction: "to help others to meet particular information needs." Common tenets of RIS have their basis in information behavior, such as the RUSA (2013) behavioral guideline for approachability, which offers the following rationale: "to make the patron feel comfortable in a situation that can be perceived as intimidating, confusing, or overwhelming."

Despite the importance of information behavior for RIS, research shows that information behavior theories, models, and concepts are not well integrated into RIS practice. Two studies have looked for evidence of information behavior concepts in documents related to RIS practice. Kingrey (2002) studied library-related trade publications and found that information-seeking concepts were not present. Hicks and VanScoy (2019) studied library-related professional associations' RIS-related competency standards. They found that information behavior knowledge was generally not included as an area of expertise for RIS. The lack of information behavior theories, models, and concepts in RIS practice is not surprising, given scholars' lack of attention to translation of theories to practice. McKechnie,

Julien, Genuis, and Oliphant (2008) analyzed the papers presented at ISIC: The Information Behavior Conference and any subsequent publication of these papers in journals. They found that only 49% of authors included implications for practice in their papers.

Some research has examined the importance of information behavior as a component of professional education. Saunders' (2019) survey of faculty and practitioners found that fewer than half of respondents (43%) felt that "knowledge of user information behaviors" was "core" to an MLIS (p. 11). Core was defined as "all MSLIS graduates should have a strong foundation regardless of area of concentration/career path" (p. 9). There was no significant difference in ranking of information behavior knowledge between faculty and practitioners. Three studies of RIS professional education have studied which topics are considered important for RIS courses in particular. Broadway and Smith (1990) and Powell and Raber (1994) surveyed RIS course instructors and found that 77% and 79% of courses, respectively, featured information behavior content. More recently, however, O'Connor's (2011) study of RIS courses showed a "surprising" reduction in the number of courses with information behavior content (p. 333): only 43% of courses included it. O'Connor does not speculate on the reason for this decline but notes that "reference instructors are overwhelmed with trying to cover more aspects of theory and practice than ever" (p. 334). None of the three studies explored the information behavior content in detail, so it is not known which specific concepts were taught in these courses.

No research makes claims about which information behavior theories, models, and concepts are most critical for the practice of RIS. The literature comes to some consensus, however, on which might be considered the most impactful. Pettigrew and McKechnie (2001) studied the use of theory in information science. Several theories key to information behavior were highly cited in the information science literature, including Dervin's (1992) sense-making, Belkin, Oddy, and Brooks's (1982) anomalous states of knowledge, Bates's (1989) berrypicking, Taylor's (1968) information need, and Kuhlthau's (1991) information search process. Among other findings, McKechnie, Goodall, Lajoie-Paquette, and Julien (2005) identified the most-cited information behavior papers in the information behavior literature from 1993 to 2000, which included Kuhlthau (1993), Wilson (1999), Schacter, Chung, and Dorr (1998), and Ellis, Cox, and Hall (1993). Lund (2019) studied the most highly cited information behavior theories, resulting in a familiar list of theories and models: Kuhlthau's information search process, Bates's berrypicking, Taylor's information need, Ingwersen and Järvelin's (2005) integrative framework, Ellis's information-seeking model, and Dervin's sense making. In McKechnie et al.'s (2008) study of papers that had implications for practitioners, the most frequent theories were Kuhlthau's information search process, Dervin's sense making, and Savolainen's (1995) everyday life information seeking. These findings seem to indicate a canon of information behavior models and theories from which RIS courses might draw.

Methods

This study uses content analysis of syllabi and their required textbooks to determine the extent to which information behavior content is addressed in introductory RIS courses and which information behavior theories, models, and concepts are addressed. Content analysis of syllabi has been used to determine not only course content but also instructor thinking and values

(Afros & Schryer, 2009; Campbell, 2016; Parkes & Harris, 2002; Waggoner Denton & Veloso, 2018). Syllabus studies are a common way to study course content in LIS (e.g., Jones & VanScoy, 2019; Saunders, 2015; VanScoy & Oakleaf, 2008). In this study, the accompanying reading lists and required textbooks for each course were included as documentary evidence of course content. Syllabus studies have their limitations, as the syllabus provides incomplete information about the content in a course. Lecture topics and readings, for example, do not indicate how an instructor will discuss or apply them, and instructors may choose to introduce additional topics after the syllabus is finalized. However, syllabi convey the intended content for the course and thus provide some valuable initial findings upon which researchers can build.

The unit of analysis was a theory, model, or concept from the field of information behavior that was used as course content. Therefore, it was not necessary to determine whether such content was specifically a theory or a model, for example, or whether the concept originated in the field of information behavior. The theories, models, and concepts could be referenced directly, such as "Kuhlthau's information search process model," or referenced indirectly by citing a relevant source, such as Kuhlthau's (2004) book *Seeking Meaning: A Process Approach to Library and Information Services*.

A challenge for this study was precisely identifying "information behavior content," as no comprehensive list of information behavior theories, models, and concepts exists. In lieu of a comprehensive list, the researchers compiled an initial list of common information behavior theories, models, and concepts using the tables of contents of *Theories of Information Behavior* (Fisher, Erdelez, & McKechnie, 2005) and Chapters 5 and 7 of *Looking for Information: A Survey of Research on Information Seeking, Needs, and Behavior* (Case & Given, 2016). These sources are fundamental texts by well-known information behavior scholars. Therefore, the content of these sources was expected to cover a substantial amount of the information behavior content in the syllabi. The researchers decided that if any concepts or readings were encountered that were not on the initial list, the index and bibliography of the Case and Given (2016) text would be checked for these concepts and readings. If they were included in the Case and Given text, they would be counted as information behavior content.

An overview of the content analysis process is provided in Figure 1. Using publicly available websites, a list of introductory RIS courses taught in 2019 in North American, ALA-accredited MLIS programs was compiled. Ninety-eight course sections were identified. The titles of the courses varied, but each was the introductory course in the program at least partially focused on RIS. Examples of courses included in the study that were considered partially focused on RIS included "Reference and Instruction" and "Information Resources, Services, and Collections." Some courses were required for their program, and some were electives.

Ten of these courses had publicly available syllabi, which were downloaded. For the 83 courses that did not have publicly available syllabi, an email was set to the instructor, explaining the study and requesting a copy of the syllabus. For five courses, instructor contact information could not be found. Forty-five instructors replied with a copy of their syllabus. A total of 55 syllabi (including those downloaded and those received via email) were included in the study. Once the syllabi were obtained, the textbooks required for the courses were identified. The 55 syllabi required ten different textbooks. Physical copies of the textbooks were obtained from the researchers' personal collections and via interlibrary loan.

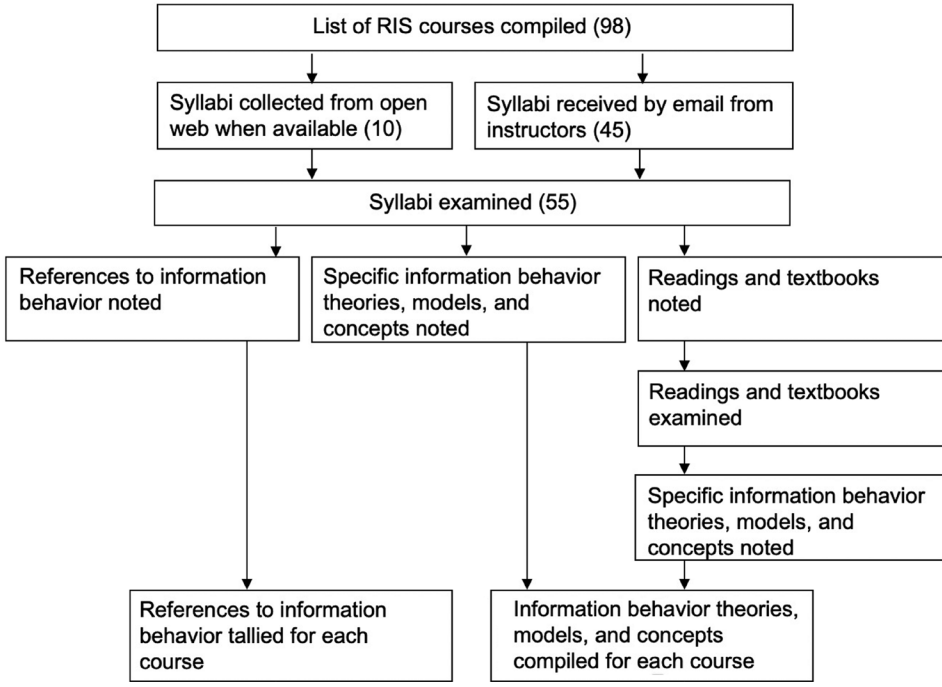

Figure 1: Overview of the content analysis process

Content analysis was used to identify the amount and location of information behavior content in the syllabi. Each syllabus was examined for related terms:

- information behavio(u)r/behavio(u)rs,
- information practices,
- human information interaction,
- user behavio(u)r/behavio(u)rs, and,
- information-seeking.

Each syllabus was also examined for specific information behavior theories, models, and concepts. The section of the syllabus in which the information behavior content appeared was noted, such as "course title" or "topic in week two." Initially, each researcher analyzed a subset of the syllabi. Coding was compared to come to a consensus. Another subset was coded by each researcher, which achieved an acceptable 85% rate of intercoder reliability (Connaway & Radford, 2017). The remaining syllabi were divided between the researchers for analysis.

To determine which theories, models, and concepts were addressed in the courses, each unique information behavior theory, model, or concept identified by scanning the syllabus and readings lists was noted. Next, the textbooks were analyzed in a similar manner

to syllabi. The tables of contents and indexes (if any) were examined for the information behavior–related terms in the bulleted list above and relevant sections read to look for specific information behavior theories, models, or concepts. In addition, the index and further reading lists were examined for mention of specific information behavior theories, models, or concepts, using the initial list and the Case and Given (2016) text as a reference, as explained above. If an information behavior theory, model, or concept appeared more than once in a course—for example, as a weekly topic and in the course's textbook—it was counted only once for that particular course.

Results

Integration of information behavior into RIS courses

Two-thirds of the 55 syllabi examined contained some content relating to information behavior. In the 55 total syllabi, there was no reference at all to information behavior in 32% (n = 18). The remaining 67% (n = 37) of syllabi that had information behavior content were further categorized by how extensively the information behavior content was integrated into the course (see Figure 2). Fifteen percent (n = 8) of syllabi included a term relating to information behavior or mentioned a specific theory, model, or concept in multiple ways throughout the semester, for example in the learning outcomes, as a course topic for multiple weeks, and as a component of a major assignment. These courses were categorized as courses where information behavior was "substantively integrated." In 25% (n = 14) of the

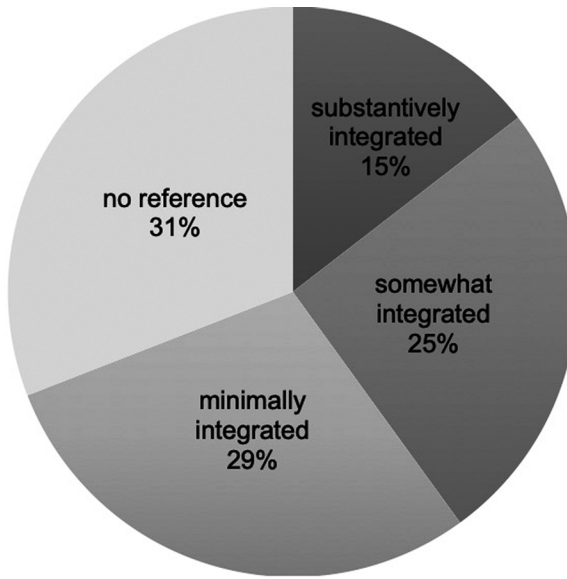

Figure 2: Extent to which information behavior was integrated into courses

Table 1: Sections of the syllabus where information behavior content occurred

Section of the syllabus	Proportion of syllabi
Course readings	47% (*n* = 26)
Weekly topic	38% (*n* = 21)
Course description	31% (*n* = 17)
Course objectives/learning outcomes	31% (*n* = 17)
Assignments	16% (*n* = 9)
Course title	13% (*n* = 7)
Other (e.g., professional standards)	2% (*n* = 1)

courses, information behavior was "moderately integrated"; for example, it was the topic of a lecture early in the semester and a few information behavior readings were included. In 29% (*n* = 16), information behavior was minimally treated; for example the term may have appeared in the course title or course description, but there were no course topics, readings, or assignments on information behavior.

Information behavior content appeared in different sections on the syllabi (see Table 1). References to information behavior were most frequently found on syllabi as topics for a course week: 38% of syllabi included a week or two on information behavior. Three syllabi featured information behavior content in five of the sections listed in Table 1; no syllabi mentioned information behavior in more than five sections. Where information behavior occurred as a weekly topic, it usually appeared in an early week of the semester and information behavior readings were typically listed there. When information behavior was mentioned in the course description, it was not always reflected by course content, as measured by course topics, assignments, or readings.

Ten books were listed as required texts in the various courses (Table 2). Four of the required texts were not classic textbooks but rather customer service or searching manuals (Brown & Bell, 2018; Toronto Public Library, 2012; Upson, Hall, & Cannon, 2015; Weinzweig, 2004). Of the six titles that were RIS-related textbooks, the amount of information behavior content varied. Information behavior content tended to be included in initial chapters related to fundamental concepts for RIS or in chapters related to serving children or diverse populations. Table 3 shows the number of unique information behavior theories, models, and concepts in each RIS textbook.

Specific information behavior concepts in courses

Table 4 shows the theories, models, and concepts most frequently mentioned in both the syllabi and textbooks. The most frequently mentioned information behavior model overall was Kuhlthau's information search process model; it was by far the most frequently mentioned model in the syllabi. In the textbooks, Taylor's information need and Dervin's

Table 2: Textbooks listed in RIS syllabi

Textbook author(s) and date	Textbook title	Number
Smith & Wong (2016)	*Reference and Information Services: An Introduction* (5th ed.)	18
Cassell & Hiremath (2018)	*Reference and Information Services: An Introduction* (4th ed.)	17
Brown & Bell (2018)	*Librarian's Guide to Online Searching: Cultivating Database Skills for Research and Instruction* (5th ed.)	3
Bell (2015)	*Librarian's Guide to Online Searching: Cultivating Database Skills for Research and Instruction* (4th ed.)	2
Ross, Nilsen, & Radford (2019)	*Conducting the Reference Interview* (3rd ed.)	2
Upson, Hall, & Cannon (2015)	*Information Now: A Graphic Guide to Student Research*	2
Bopp & Smith (2011)	*Reference and Information Services: An Introduction* (4th ed.)	1
Hirsh (2015)	*Information Services Today* (2nd ed.)	1
Toronto Public Library (2012)	*The Research Virtuoso: How to Find Anything You Need to Know*	1
Weinzweig (2004)	*Zingerman's Guide to Giving Great Service*	1

Table 3: Number of information behavior theories, models, and concepts in the RIS-related textbooks

Textbook	Unique information behavior theories, models, and concepts
Hirsh (2015)	23
Bell (2015)	22
Cassell & Hiremath (2018)	13
Smith & Wong (2016)	10
Bopp & Smith (2011)	4
Ross, Nilsen, & Radford (2019)	5

sense making were the most frequently mentioned. Simon's (1955) bounded rationality and Chatman's (1991) gratification theory appear relatively high on the list due to one heavily used paper (Connaway, Dickey, & Radford, 2011). Case and Given's (2016) text also had a large influence on the data set due to the frequent inclusion of Chapters 5 and 7 on reading lists. Gross's (1995) imposed query was not mentioned frequently enough in the syllabi to

Table 4: Most frequently mentioned information behavior theories, models, and concepts

Information behavior content	Total	Syllabi	Textbooks
Kuhlthau's (1991) information search process	20	17	3
Savolainen's (1995) everyday life information seeking	14	9	5
Taylor's (1968) information need	13	7	6
Dervin's (1992) sense making	12	6	6
Belkin's (1982) anomalous states of knowledge	10	8	2
Chatman's (1996) information poverty	9	7	2
Simon's (1955) bounded rationality	8	5	3
Chatman's (1991) gratification theory	8	5	3
Wilson's (1981) model	8	6	2
Wilson's (1999) revised model	8	7	1
Bates's (1989) berrypicking	7	7	0
Ellis's (1989) model	7	5	2

appear in Table 3; however, it was discussed in four textbooks. The syllabus with the greatest number of unique information behavior theories, models, and concepts had 20.

Discussion

Reference courses bear an increasingly heavy load of content. Despite the pressure of competing topics, in two-thirds of courses, students appear to be introduced to information behavior content. Looked at another way, however, only 40% of courses substantially or moderately integrate information behavior. From this perspective, many students will not learn fundamental concepts about user information needs and behaviors that are fundamental to RIS.

Three of the courses mentioned information behavior in the course description or learning outcomes but did not cover information behavior in a weekly topic or readings. This finding highlights a limitation of the study: A syllabus is only partial information about a course. We acknowledge that instructors may introduce information behavior content during lectures or ask students to address it in discussion board posts, but these behaviors are not apparent from examining a syllabus. In addition, the syllabi offer varying details of detail. Some syllabi were lengthy and detailed, while others were brief and lacked detail. We have followed up this syllabus study with interviews with instructors to investigate other ways in which information behavior may be introduced; those data are being prepared for publication.

Similarly, tallying numbers of theories, models, and concepts may not be the best way to measure students' exposure to information behavior content. In examining which information behavior content was introduced, a theory, model, or concept introduced in a reading on a Further Reading list in a textbook had the same weight as one that was listed as a lesson topic, for example. Considering that students are more likely to pay attention to a lecture than do the further reading, future studies on the topic may want to weigh different types of exposure: highest for information behavior incorporated into an assignment, next a lecture, next readings, and so on.

The findings highlight a fundamental discussion about the function of the introductory RIS course, and of professional education for librarianship in general: whether courses should focus on practical skills, teaching competencies that librarians use on the job, or on conceptual knowledge, helping students understand why practices tend to be done in a certain way. The recognition that students may apply their MLIS knowledge and skills in fields beyond librarianship suggests that professional education should focus more on transferable concepts. With this broadening of perspective, instructors must contextualize their RIS content differently, presenting advanced searching skills as an important information literacy concept rather than as a behavior that happens at a reference desk, for example. In addition, the introductory RIS course must react to the continuing discussion in the profession about the value of the MLIS and what it offers students who already have experience working at a reference service point. MLIS courses need to shift away from skills and competencies and use the MLIS as an opportunity to learn the fundamental structures and frameworks that provide students with the knowledge they need for leadership, innovation, and evidence-based decision making across a range of possible professional contexts.

An additional limitation to this study was that the context of the reference courses was not examined. The research team studied each syllabus for what it contained but did not look at how it fit into its overall program. Although the research team was already aware of this limitation, one of the instructors who shared a syllabus for the study rightly insisted that we acknowledge this context. After the content analysis, we gathered information about whether programs offered a prerequisite, core, or elective course on information behavior. In eight of the courses studied, a prerequisite course in information behavior existed and could have affected the amount of information behavior content that an instructor felt they needed to introduce. This additional information has informed our further research that examines the context and decision making of RIS course instructors.

The specific information behavior theories, models, and concepts covered in the introductory RIS courses include those ranked highly in studies about the use of information behavior theories and models in the literature (see Table 5). This similarity suggests that instructors are including information behavior content that has been found to be most important in information behavior research. As Lund (2019) has argued, these theories and models may not necessarily be the most important, but simply the oldest and most well known. The interview phase of the study (VanScoy et al., 2022) provides an opportunity to investigate the rationale behind instructors' choices.

Table 5: Comparison of information behavior concepts present in RIS course syllabi with highly ranked theories and models in the reviewed literature

	Pettigrew & McKechnie (2001)	McKechnie et al. (2005)	McKechnie et al. (2008)	Lund (2019)
Kuhlthau's (1991) information search process	5	1	1	1
Savolainen's (1995) everyday life information seeking			3	
Taylor's (1968) information need	4			3
Dervin's (1992) sense making	1		2	5
Belkin's (1982) anomalous states of knowledge	2			
Chatman's (1996) information poverty				
Simon's (1955) bounded rationality				
Chatman's (1991) gratification theory				
Wilson's (1981) model				
Wilson's (1999) revised model		2		
Bates's (1989) berrypicking	3			2
Ellis's (1989) model		4		4

Implications for professional education

Instructors who are interested in integrating more information behavior content into their RIS course can use the list of theories, models, and concepts in Table 2 as a starting point. These particular theories, models, and concepts were the most frequently chosen by instructors, but this list is not exhaustive. Fifty unique information behavior theories, models, and concepts were found in the syllabi and textbooks.

As Agosto, Rozaklis, MacDonald, and Abels (2010) point out, the breadth of content expected from the foundational reference course is large and instructors must make hard choices when designing courses: "Over and over again these faculty identified the broad content of reference and information services—including the reference process, user behaviors, reference sources, and more—as too much to cover effectively in just one course" (p. 183). This study's premise that information behavior is important content

for an introductory RIS course could provoke frustration among instructors that yet another content area is being expected of an already overburdened course. However, this study might offer an opportunity for reflection and discussion about the role of information behavior concepts in the introductory RIS course. Instructors who currently integrate these concepts into their courses may be willing to share their strategies for including information behavior content. Our ongoing research will explore these strategies. In addition, faculties may want to consider an information behavior course as a prerequisite for the introductory RIS course, as some programs already do, so that the RIS course can refer to or build on existing information behavior knowledge, rather than introduce it.

Implications for information behavior scholars

The finding that Kuhlthau's (1991) information search process model is the most used information behavior content in introductory RIS courses suggests that information behavior scholars themselves may have an influence on how their work is used in the classroom. Kuhlthau wrote extensively about how to apply her work in reference practice. The reason that her information search process model has been so successfully incorporated into practice may rest partly on the clear and detailed advice she provided to practitioners about how to accomplish that (e.g., Kuhlthau, 2004). In general, information behavior scholars are not adept at making their research accessible to practitioners (McKechnie et al., 2008). When scholars make deliberate connections between their research and practice, when they collaborate with practitioners to communicate the relevance of their research, and when they disseminate their work via practitioner-oriented conferences and publications, integration of theory into practice is more likely. Responsibility for overcoming the gap between theory and practice lies with scholars, in addition to practitioners (Nguyen & Hider, 2018). Perhaps a stronger and more collaborative relationship between information behavior scholars and RIS instructors would help to integrate theories, models, and concepts into RIS courses and, ultimately, into RIS practice. Such an outcome would also make information behavior scholarship more impactful.

Conclusion

A syllabus study provides a limited view of course content, but it provides some information about concepts covered in a course. The findings indicate that many students receive some instruction about information behavior in their introductory RIS course, but this instruction is limited. For the majority of students, information behavior content is not fully integrated into their introductory RIS course. Furthermore, while the list of information behavior theories and models compiled from introductory RIS courses reflects the most impactful theories and models from the literature, even the most highly regarded theories and models are introduced to only a small fraction of students. To build on these initial findings, we have conducted interviews (VanScoy et al., 2022) and a survey to fill in the gaps remaining from the syllabus study and to better understand instructors' intentions and decision making regarding information behavior concepts in their courses.

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