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Information Behaviour Research: Where Have We Been, Where Are We Going?

La recherche en comportement informationnel : D'où nous venons, vers quoi nous nous dirigeons ?

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Abstract: A quantitative content analysis of recently published research in information behaviour is compared with previous analyses to create a 30-year profile of work in the field. Variables of particular interest include research methods employed, user groups studied, relative interdisciplinarity, theoretical frameworks applied, attention to affect, and attention to systems design.

Keywords: information behaviour, information-seeking, research evaluation, research methods, content analysis

Résumé : Une analyse quantitative de contenus de recherches sur le comportement informationnel publiés récemment a été comparée à des analyses réalisées précédemment afin d'aboutir à un profil sur trente ans du travail accompli dans le domaine. Les variables offrant un intérêt particulier comprennent: les méthodes de recherche utilisées, les groupes d'utilisateurs étudiés, l'interdisciplinarité relative, les cadres théoriques appliqués, l'attention aux affects, et l'attention aux conceptions de systèmes.

Mots-clés : comportement informationnel, recherche d'information, évaluation de la recherche, méthodes de recherche, analyse de contenus

Introduction

In addition to the kind of comprehensive and descriptive survey of research in information behaviour that has been provided by Case (2012), another important way in which a research field can assess its direction is through more quantitative approaches. By occasionally taking stock of a field's predominant variables and methods, as well as indicators of scholarly progress such as relative interdisciplinarity and thematic focus, researchers within and outside the field can assess longitudinal trends and development. The analysis and assessment of research has a

long tradition (Feehan et al. 1987; Kuhn 1962; McClure and Bishop 1989). The body of research in information behaviour has been analysed previously (Julien 1996; Julien and Duggan 2000; Julien, Pecoskie, and Reed 2011; McKechnie, Julien, Genuis, et al. 2008; McKechnie, Julien, Goodall, et al. 2005; McKechnie, Julien, Pecoskie, et al. 2006) and has been criticized for theoretical weakness, for conservative methodological approaches, and for failure to translate results for the benefit of information professionals and for application to systems design. As a response to these critiques, this area of scholarship has been examined from broad and inclusive perspectives (Julien 1996; Julien and Duggan 2000; Julien, Pecoskie, and Reed 2011) and also in narrower slices, by geographical region (Jeong and Kim 2005) or specific theme (McKechnie, Julien, Genuis, et al. 2008; McKechnie, Julien, Goodall, et al. 2005; McKechnie, Julien, Pecoskie, et al. 2006), or as represented in a sub-set of literature (Hider and Pymm 2008; Petti-grew and McKechnie 2001; Vakkari 2008). Focusing on information behaviour research published in the Information Seeking in Context conference proceedings between 1996 and 2008, Vakkari (2008) concluded that, contrary to calls for greater use of theory in the area, it was actually declining. He also noted an increase in qualitative methods. Fisher and Julien (2009) noted the expansion of information behaviour research, as evidenced by a growth in focused monographs and conferences.

This study is the most recent in a set of longitudinal analyses of informa-tion behaviour research, beginning with work published in 1984; thus, taken together, the studies, published in 1996, 2000, and 2011, in addition to the cur-rent study, show trends in this area over nearly 30 years. The preceding study in this series (Julien, Pecoskie, and Reed 2011) suggested that survey methods remain predominant in information behaviour research, that the application of theory to this research has remained consistent over time, and that attention to affective variables has also remained relatively consistent. In light of multiple calls for increased diversity in methods, increased integration of theory, and in-creased attention to affect, it would be disheartening to find that no improve-ments have occurred since the last analysis; these questions are what the current study addresses. Of equal interest is determining whether there remains a gap between the profile of research published by practitioners versus researchers, and whether interdisciplinarity in this research area continues to increase. These analyses have been conducted to characterize and evaluate progress in the area. The study addresses two primary research questions:

- How has the literature in information behaviour changed over the past 30 years?
- What are the opportunities for improvement in information behaviour scholar-ship?

The results of these analyses have implications for information behaviour scholars, for practitioners seeking to apply research results, for systems designers seeking to create useful information systems, and for educators of information professionals.

Method

For consistency's sake, the method used in this study mirrored that used in the previous studies in this series (Julien 1996; Julien and Duggan 2000; Julien, Pecoskie, and Reed 2011). The literature in information behaviour published from 2009 to 2013 and indexed under "information needs" and "information uses" in the database Library Literature and Information Science Fulltext was examined using quantitative content analysis (White and Marsh 2006). Only full-length feature articles in English were included in the sample (i.e., no book reviews or editorials). The variables analysed were those included in the previous studies in the series:

- authorship (first author only): researcher (faculty members in academia or research institutes) or practitioner (librarians or other information workers or managers);
- article type: commentary (opinion, no research), report of service (description of activities in information services), or research study (reporting systematic collection of data for a particular purpose);
- interdisciplinarity (as evidenced by citations outside information studies);
- research methods: experiment, questionnaire, interview, ethnography, transaction log analysis, citation analysis, mixed methods;
- journal type: professional (primarily intended for practitioners, discussing practical issues) or scholarly (publishing articles addressing theoretical issues and reports of research);
- theoretical frameworks used (derived inductively);
- user groups considered (derived inductively); and
- degree of attention to users' cognitive processes, to systems design, and to affective/emotional aspects of human information behaviour.

Attention to users' cognitive processes and to systems design were included as variables from the beginning of this series of studies because of claims made by Hewins (1990) that the information behaviour literature paid significant attention to these. Systems design is of particular interest because of criticism that information behaviour research is insufficiently adept at translating findings for practical systems development (Fisher and Julien 2009). Affect has been more recently included as a variable in these analyses because of increasing calls to attend to emotional aspects of information behaviour (Julien, McKechnie, and Hart 2005; Nahl and Bilal 2007).

Results and discussion

A total of 721 articles met the sample criteria. The largest proportion of articles included in the sample were research studies (86%, n = 615). Commentaries constituted 12% (n = 84), and only 3% (n = 20) of articles were reports of service. Figure 1 shows that proportionally more research studies have been included in the sample over time.

Researchers authored 65% (n = 465) of the articles in the sample, while practitioners authored 33% (n = 235). The affiliations of the remaining 3% of authors could not be determined. Figure 2 shows that the proportions of scholars
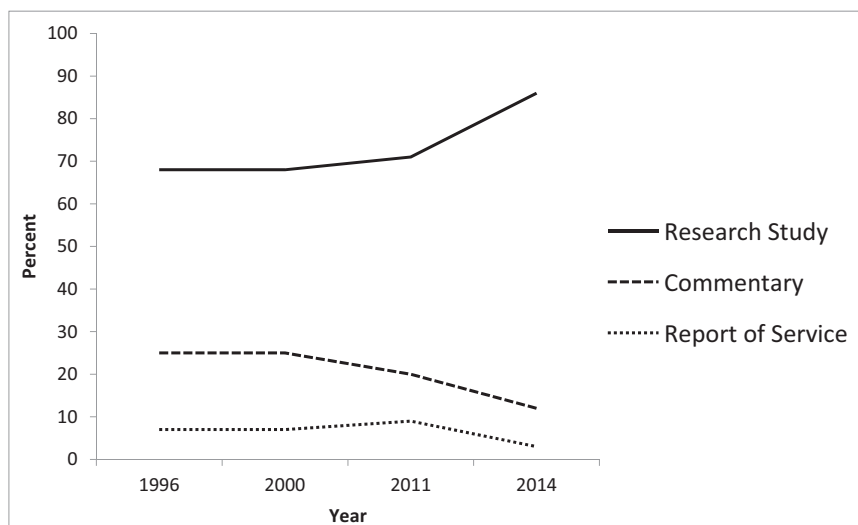
Figure 1: Article type over time

and practitioners have switched over time, so that now the largest contribution to the literature comes from scholars rather than practitioners.

Proportionally, the literature is published more in practitioner-oriented journals than in scholarly journals (63%, *n* = 456 vs. 37%, *n* = 263, respectively). This has shifted over time, as shown in Figure 3.
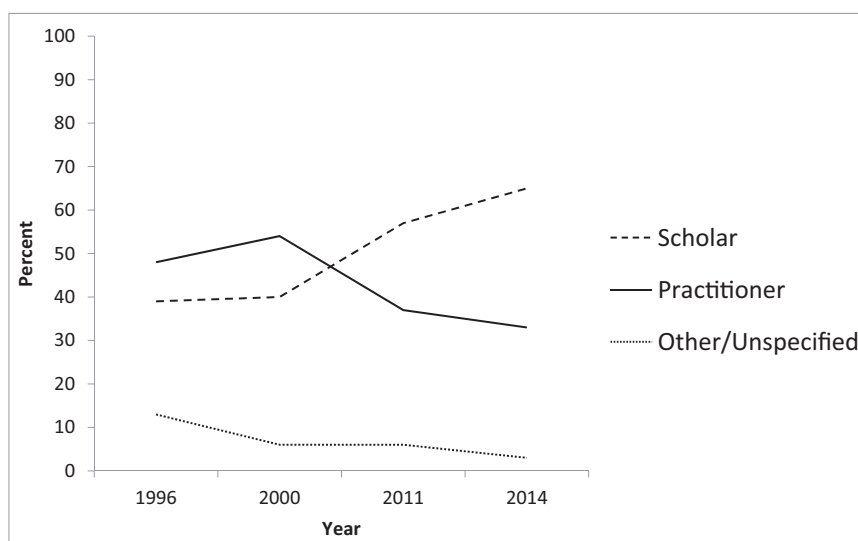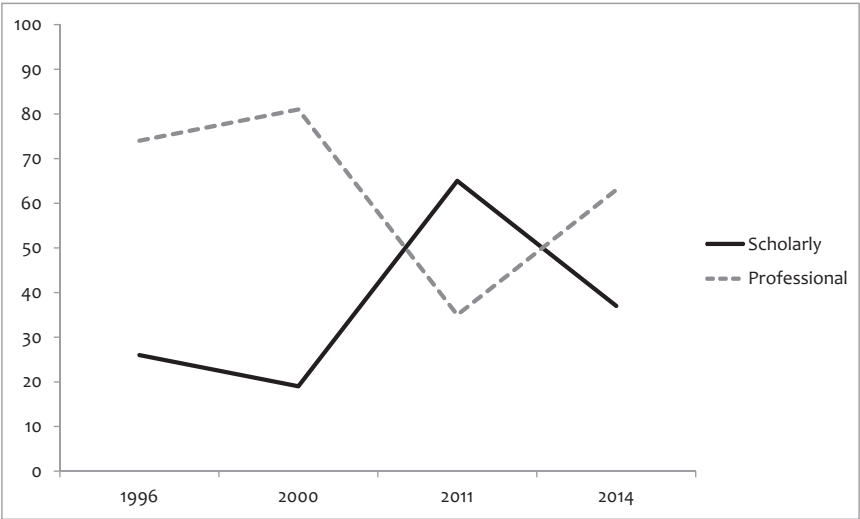

Figure 2: Authorship over time

Figure 3: Journal type over time

Research methods used in empirical studies included interviews (49%, *n* = 303), multiple methods (14%, *n* = 87), citation analysis (12%, *n* = 73), questionnaires (9%, *n* = 58), transaction log analysis (6%, *n* = 36), experiments (4%, *n* = 24), ethnography (4%, *n* = 23), and other (3%, *n* = 19) (Figure 4).
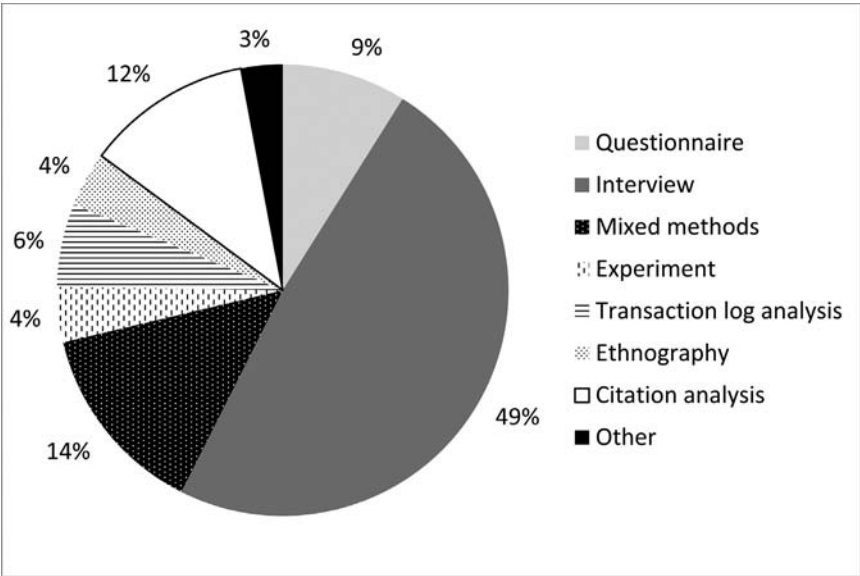

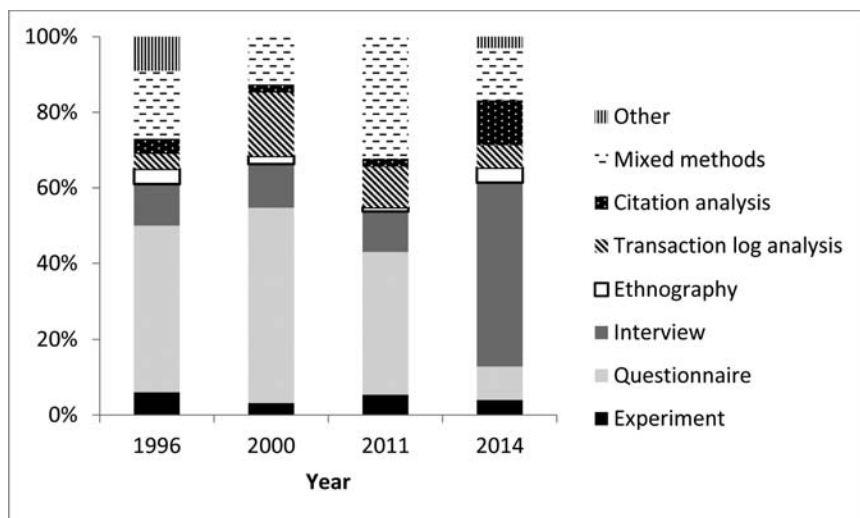*Figure 4:* Methods used in empirical research

Figure 5: Methods over time

In this study, "multiple methods" refers to the use of one or more methods to gather data. Fidel (2008) laments the relative lack of mixed methods approaches (defined as combining qualitative and quantitative approaches) in library and information science (LIS), indicating that research in other social science disciplines uses mixed methods much more commonly. Fidel's (2008) analysis found that 5% of empirical research studies in LIS (i.e., in the field as a whole, represented in four major journals) used mixed methods. As Fidel points out, mixed methods strengthen research by increasing triangulation, an outcome which is also achieved by the use of multiple methods, regardless of type.

It is apparent from Figure 4 that the methods used in empirical research in information behaviour have remained relatively traditional despite the introduction of a range of innovative approaches (e.g., photovoice; Julien, Given, and Opryshko 2013). At the SIG USE Symposium in 2012, a keynote presentation by Lisa Given, a methodologist working in information behaviour, promoted a range of creative approaches to research in the area, including auto-ethnography and mapping (Mon and Williamson 2013). Little change is evident over time as well (Figure 5).

A similarly disappointing result was found for the use of theory. The largest proportion of empirical articles were atheoretical (76%, *n* = 544), despite an earlier finding that information behaviour researchers employed theory to a greater extent than other LIS researchers (Pettigrew and McKechnie 2001). In addition, Kim and Jeong (2006) found that information-seeking research used theory more than other fields in LIS. Very little change is evident in the use of theory over time (Figure 6).
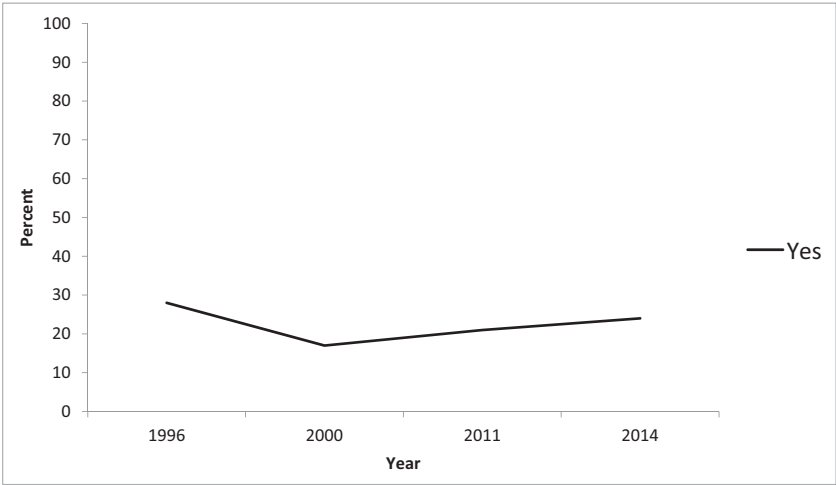
Figure 6: Use of theory over time

The user groups studied in empirical research in this data set included non-professional workers (36%, *n* = 214), scholars (20%, *n* = 120), the general public (15%, *n* = 88), students (14%, *n* = 83), other (7%, *n* = 41), professionals (5%, *n* = 31), and unspecified (4%, *n* = 24) (Figure 7). There are changes evident over time in the types of users studied, as shown in Figure 8. What is particularly striking is the reduced proportion of unspecified research participants (surely evidence of improved scholarship), as well as a marked increase in attention paid to non-professional workers.
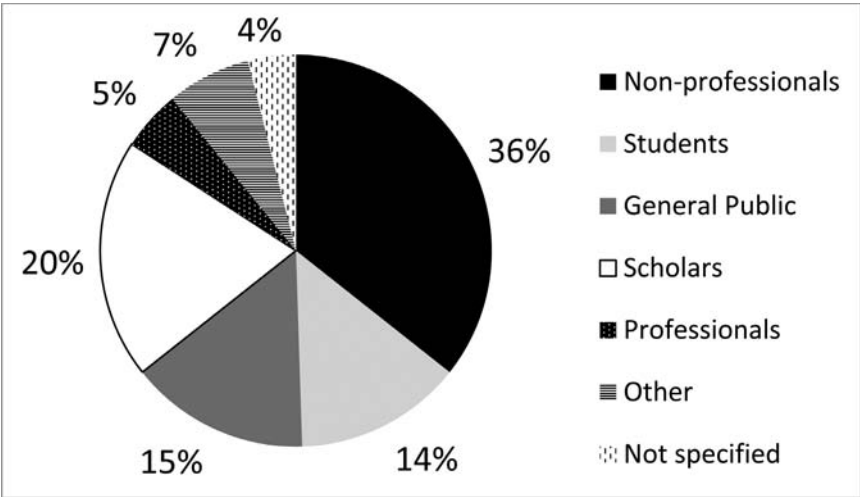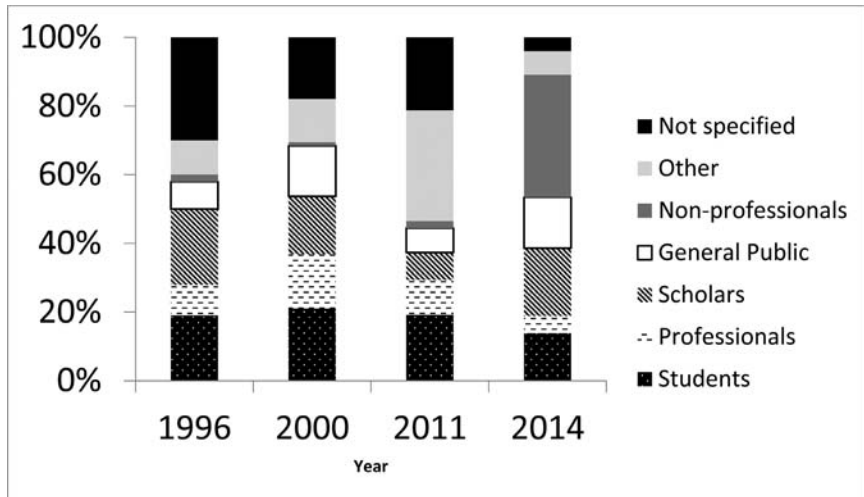

Figure 7: User groups studied

Figure 8: User groups studied over time

In terms of the other variables examined, 63% (*n* = 456) of articles considered users' cognition, which represents a sharp increase from levels below 30% in the previous studies. Only 29% (*n* = 209) of articles considered systems, which is a slight increase over what was found in the 2011 study but a marked decrease from the 1996 study, which found that over half of articles considered systems. Despite the calls for information behaviour research to make explicit connections to systems design, it seems that most empirical work in this area does not reference systems. There remains, apparently, a distinct lack of connection between this area of research, which intuitively ought to have implications for systems, and work in the systems field. Recently, Sawyer and Huang (2007, 1445), in their conclusion to an analysis of the conceptual connections between information science and information systems literature, stated that

> cross-disciplinary collaboration is possible, but may be hard to do without more explicit efforts to bridge these two academic spaces. It seems that this translational, or boundary-spanning, research needs to become a focus (or a companion element) of cross-disciplinary scholarship.

Only 34% (*n* = 241) of articles considered affect, a proportion that has remained relatively flat over time; this is a finding that runs counter to increasing calls for attention to affect (Fourie and Julien 2014; Julien and Given 2013).

Relationships in the data were sought, and some were found to be significant. Researchers were found to use theory more than practitioners (χ^2 = 14.141, df = 2, Cramér's V = .140, *p* < .001), researchers consider cognition more than practitioners (χ^2 = 7.752, df = 2, Cramér's V = .104, *p* < .05), and researchers consider affect more than practitioners (χ^2 = 8.742, df = 2, Cramér's V = .119, *p* < .05). Interestingly, however, consideration of affect is more
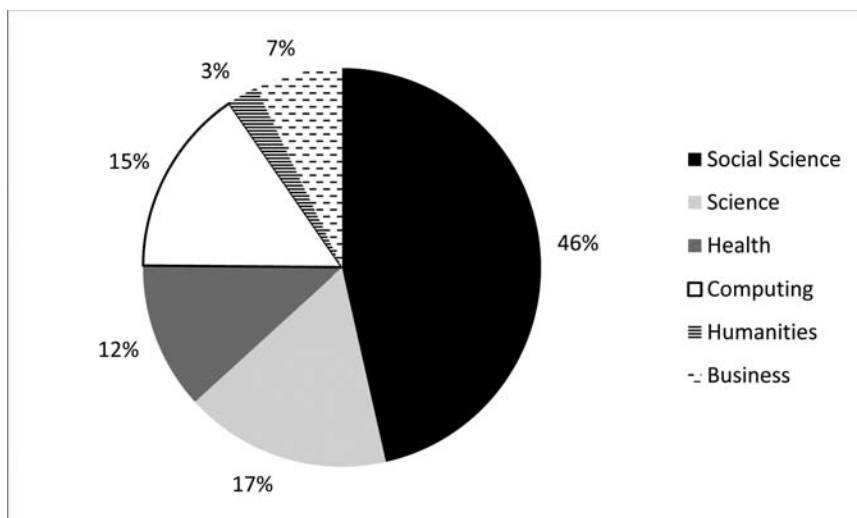
Figure 9: Citations of works from outside library and information science

likely to be found in articles published in professional journals (χ^2 = 14.141, df = 2, Cramér's V = .140, p < .001), and articles using theory are more likely to be found in professional journals (χ^2 = 4.655, df = 1, Cramér's V = .080, p < .05). Thus, there is certainly a different pattern to the literature published by scholars versus that published by practitioners, regardless of the type of venue, suggesting that in some ways the gap between research and practice continues, as lamented by Wilson (2008). That said, it seems that information behaviour work that is relatively more theoretical, and that considers cognition and affect more intently, is more likely to be found in professional journals, intended primarily for practitioners. It is possible that researchers are placing their work in these venues to make it more easily accessible for practitioners, but this finding seems to be at odds with academic expectations to publish in scholarly venues.

Proportionally, interdisciplinarity has actually decreased, from about half of all citations to only 35%. This represents a step backward in terms of intellectual growth for the area of information behaviour.

Figure 9 shows the disciplines from which authors in information behaviour are drawing, demonstrating the intellectual influences in the area. Previous data reported by Julien, Pecoskie and Reed (2011) show similar relative proportions. One noteworthy exception is that the influence of the management/business area appears to be dwindling.

Huang and Chang (2011) report that in information science, interdisciplinarity has increased over time and that most citations outside of LIS were to publications in the fields of general science, computing science, engineering, and medicine. These findings are not surprising, given that the area of analysis was information science generally (as represented in journals that publish little

information behaviour research). The data reported here for the information be-
haviour sub-field, however, appear to contradict the trend toward increasing in-
terdisciplinarity for the field as a whole.

Conclusions

In sum, the longitudinal trends identified by this study include the following:
the recent information behaviour literature is authored proportionally more by
scholars than practitioners, survey methods (i.e., traditional methods) remain
predominant, there is an increase in interest in the information behaviour of
non-professionals and the general public, the use of theory has remained rela-
tively consistent over time, and attention to affective variables has also remained
consistently low. In addition, interdisciplinarity appears to be in decline.

These results have implications for scholars working in the area who are
striving to improve research in theoretical and methodological terms. Informa-
tion behaviour scholarship, if it is to have greater impact beyond the borders of
information science, must ground empirical work on appropriate theoretical
foundations, must attend to significant variables such as affect, and must expli-
citly articulate the ways in which findings have value for information systems.
Those who design systems may find the data presented here of help to identify
information behaviour work that can inform their efforts in practical ways. The
study results also have implications for practitioners who may wish to improve
information services on the basis of information behaviour research. For those of
us charged with educating the next generation of information professionals, anal-
yses such as those presented here may be helpful to unmask the assumptions so
easily made about the nature of information behaviour research, to provide
empirical evidence that reveals our chosen research problems and methods and
that exposes ongoing gaps and weaknesses, among other aspects of our schol-
arship. Fundamentally, there is significant potential for improvement in this
research area.

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