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Study of the Brazilian literature on information behavior

Grazielle Magnólia Nogueira Ferreira[1] and Beatriz Valadares Cendón[2]

1 Master in Information Science. Graduate Program in Knowledge Management and Organization, School of Information Science, Federal University of Minas Gerais.
2 Professor, Graduate Program in Knowledge Management and Organization, School of Information Science, Federal University of Minas Gerais.

Abstract: Studies that analyze the set of international works on the topic of information behavior have been carried out to assess characteristics of the research and theoretical and methodological trends in the area. These assessments provide both a descriptive and a critical analysis of the research allowing scholars to direct their future work in an informed way. However, equivalent analysis of user studies conducted in Brazil are few and of limited coverage. The current work has empirically analyzed the Brazilian literature on information behavior to identify its characteristics, to verify if Brazilian literature follows trends observed in international research and to provide guidance for future works. A literature review and synthesis of international trends in this area was carried. Using the Proknow-C methodology, a bibliographic portfolio was selected containing 233 Brazilian studies on information behavior, published between 2000 to 2017. The works in this portfolio were analyzed regarding the volume of publications over the years; type of authorship, type of research, research approaches, research methods, data collection and data analysis methods, phases of the information behavior process and target user groups covered. The study shows a growing interest in the area along the 18 years analyzed, with the majority of the works concentrated in the last 6 years covered, a predominance of authors with academic background and of publications in academic journals. Results point in the direction of a majority of descriptive research, of mixed (quantitative and qualitative) research approaches, of major use of one research method, with some works using two or more methods, and of use of mostly questionnaires and interviews for data collection. Results demonstrate a focus on the information needs phase of the information behavior process. Another interesting finding was the great versatility of groups of users in the studies, including a variety of occupations, of age and interest groups, belonging to a variety of types of companies and institutions and using many different types of information and information systems. Results seem to indicate that Brazilian literature follows some of the international trends in studies on information behavior but differs in others. The study presents suggestions

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for Brazilian research on information behavior and for further research on the analysis of the literature.
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1. Introduction

Studies that analyze research conducted on information behavior to evaluate theoretical and methodological trends in the area are of great relevance to scholars, to inform and guide their future works. Julien and Duggan (2000) state that the literature analysis of an area of study is a useful tool, as it clarifies its purpose, the nature of its authorship and identifies deficiencies and gaps, generating opportunities for improvement. Julien, Pecoskie and Reed (2011) report that the progress of any discipline is formally assessed through an analysis of its literature. Works such as González-Teruel and Abad-García (2007), Vakkari (2008), Julien (1996); Julien and Duggan (2000); Julien, Pecoskie and Reed (2011) and Greifeneder (2014) have empirically collected data on the literature and performed such analysis on international level. However, similar studies for the Brazilian literature are few and of limited coverage (Araújo, 2009; Rodrigues and Cardoso, 2017). To fill this gap, the work presented here carried out a study of the Brazilian literature on information behavior. Studies, published between 2000 and 2017, were analyzed to identify their characteristics in terms of volume, annual distribution of output, authorship, type of publication, type of research, research approaches and methods, data collection and data analysis methods, as well as phases of the information behavior process and groups of users covered. The study also intended to verify if trends present in the international literature occur in the Brazilian literature and to provide guidance for future work in the area.

2. Information behavior

Wilson (2000) reports that the origins of the area today called information behavior are found in studies on library users. After 1990, the name of the field changed from "need and use of information" to "information behavior" in the chapters of the Annual Review of Information Science and Technology (ARIST), reflecting its conceptual evolution and a paradigm shift in research. The call for a transformation in the area was posed by Dervin and Nilan (1986), when analyzing the post-1978 literature on the need and use of information in the ARIST chapters. The authors observed a series of criticisms about the static forms that characterized the studies of "needs and uses" and highlighted the urge for new standards of research that took into account the dynamic, personal and contextual nature of information behavior as well as its multidimensional character that demanded the use of new methodologies and multiple research methods (Gasque and Costa, 2010).

Information behavior, although a natural process of the human being, requires a broad view by the researcher (Case, 2006). Gasque and Costa (2010) based on the studies of Wilson (1999) and Pettigrew, Fidel and Bruce (2001), emphasize

that the term "user study" can be understood in a more comprehensive way, inserting it in the field of human behavior and calling it "information behavior", as it refers to the activities of searching, using and transferring information to satisfy a person's information needs in different contexts of their lives. Information behavior can include, for example, behaviors that describe how people avoid information, manage their email, find information in a casual way, how students look for information for their assignments, or how people use a library catalog (Greifeneder, 2014).

Some studies have analyzed the scientific literature on search behavior longitudinally, to understand how it has evolved. Heidi Julien and co-authors carried out a series of studies (Julien 1996; Julien; Duggan, 2000; Julien, Pecoskie; Reed, 2011) on information behavior to assess the progress of research in this area. Taken together, the three studies analyze the characteristics of international literature over a period of 24 years (1990 to 2008). González-Teruel and Abad-García (2007) researched Spanish literature on information behavior from1990 to 2004. Vakkary (2008) analyzed the theoretical and methodological trends in information behavior research based on the papers accepted for The Information Seeking in Context (ISIC)[1] conferences from 1996 to 2008. And Greifeneder analyzed works on information behavior published, from 2012 to 2014, in the Journal of the Association for Information Science and Technology (JASIST), Information Research, the Journal of Documentation and the iConference proceedings.

3. Trends in international research on information behavior

This subsection used literature reviews or longitudinal studies on information behavior, that pointed out trends in the research. The selection of the works, included without the intention of comprehensiveness, sought authors recognized in the field, of different nationalities, to obtain an overview of the trends in international scientific literature. A broad chronological coverage of the literature in the area was also sought. These literature reviews and studies, as a whole, cover the evolution of the area between 1948 to 2014. To verify the scientific relevance of the works selected, the number of citations for each article was used, through a simple search for the title of each work in Google Scholar. Thus, the number of citations for each article was: Case (2006) with 201 citations; Courtright (2007) with 338 citations; Gasque and Costa (2010) with 88 citations; Greifeneder (2014) with 37 citations; Julien (1996) with 129 citations; Julien and Duggan (2000) with 134 citations; Julien, Pecoskie and Reed (2011) with 126 citations; Vakkari (2008) with 91 citations and Wilson (2000) with 2183 citations.

Next, trends identified in these works are presented, with the observation that for some of them, the authors do not show consensus.

[1] Now called The Information Behavior Conference.

a) *Person centered approach*. For Wilson (2000), early works in the field were focused on the use of information sources and systems, that is, the interest was in trying to determine how sources of information, offered by the systems, could be useful and how to persuade users to make better use of those sources. The big shift to a person-centered approach, according to Wilson (2000), was in the 1980s. Gasque and Costa (2010) point that the trend towards research targeted on the individual is among the seven most significant changes in the focus of works on information behavior. The shift towards the person-centered approach is also addressed by Case (2006) and Courtright (2007).

b) *Dialogue with other domains*. Dialogue with other domains (or interdisciplinarity for some author), means Library and Information Science is using concepts and theories from other sciences, such as Computer Science and Social Sciences. Case (2006) highlights that researchers are using concepts and theories from other disciplines (such as sociology, psychology, communication, organizational behavior and computer science). Other authors who identified evidences of continued adoption of ideas from other areas or increase in interdisciplinarity in their empirical research or literature reviews are Wilson (2000), Vakkari (2008), Gasque and Costa (2010), Julien (1996), Julien and Duggan (2000) and Julien, Pecoskie and Reed (2011).

c) *Predominance of qualitative methods over quantitative methods*. Regarding the research approach, Wilson (2000) points out that the change from the system to the person-centered approach in information behavior research, was followed by a shift from quantitative to qualitative methods. Vakkari (2008), Gasque and Costa (2010) and Greifeneder (2014) also highlight the expansion and/or predominance of qualitative studies in research. Julien, Pecoskie and Reed (2011) found the predominance of qualitative data collection methods, being written questionnaires and interviews the preferred techniques.

d) *Use of more than one research method*. Vakkari (2008) states that the use of more than one data collection and analysis methods is a general trend, being a positive aspect, as it increases the validity of the results. Courtright (2007) observed that the user-centered and context-based methodology has led to an increase in the use of multiple research methods, including ethnographic observation and interviews. Gasque and Costa (2010) highlights the use of multiple methods in research. Julien (1996), Julien and Duggan (2000) and Greifeneder (2014) demonstrates that the use of a combination of methods has increased.

e) *Use of other research methods*. Greifeneder (2014) in her analysis of the literature from 2012 to 2014 identified increase in the use of other research methods, such as Delphi studies, eye-tracking or log file analysis, participatory models (among them image stories or narratives), netnography, shadowing or geographic analysis techniques and cultural probes, a standard instrument in ethnography.

f) *Predominance of descriptive studies*. Along with the rise in qualitative approach, Vakkary (2008) observed the increase in descriptive studies which constituted 67% of the works submitted to ISIC in 2008. As he points out, although either qualitative and quantitative research methods can be utilized for exploratory, explanatory or descriptive research, quantitative approaches are more commonly used for explanatory studies while the qualitative approach is associated with descriptive works.

g) *Decrease in the use of or contributions to theory*. In spite of the ISIC Conferences stimulus to theoretical discussions (Courtright, 2007), Vakkari (2008) states that the investigations have become more empirical and less theoretical and methodological, considering this a negative aspect in the information behavior research. Vakkari (2008) also observed a reduction in the number of works "built on a solid frame connecting the study to the existing body of knowledge" as well as a diminished proportion of studies that contributed to the existing body of knowledge with empirical support, new categories or concepts, revision of existing models or new methodological approaches. Consistently with Vakkari (2008), Julien (1996), Julien and Duggan (2000) and Julien, Pecoskie and Reed (2011) also reported little attention to theory. However, some of the authors studied observed certain positive aspects regarding use of theory in information behavior research: Case (2006) points out that researchers are developing their own concepts and theories and Gasque and Costa (2010) considered that there was a greater theoretical consistency in ARIST research up to the year of 2008.

h) *Focus in parts of the spectrum of information behavior as a process*. Gasque and Costa (2010) identified, as one of the significant trends in the literature, the perception of information behavior as a process in which the person is always looking for and using information. However, Vakkari (2008) found that most research focused on information needs and search rather than on the whole spectrum of information behavior. Greifeneder also identified information search as a dominant topic of research and a decrease in research on information use.

i) *Research on new topics, user groups and countries*. Several authors highlight the emergence of new topics of research or studies on user groups that were previously not studied. Additionally, Gasque and Costa (2010) identify the rise in the number of studies emanating from a variety of countries. Case (2006) points out studies on information search by users of different occupations, by ordinary people looking for everyday life information and studies on information search on the internet and the World Wide Web. Vakkari (2008) mentions the increasing versatility of research topics, including information behavior of professionals, the search for information on the daily life of the citizen and information behavior in digital environments. Gasque and Costa (2010) mentions, as a trend, studies on groups of users other than scientists and technologists. The trends pointed out by Greifeneder (2014) in research up to

the year 2011 include the emergence of new research topics, mainly related to the search for information in daily life but also including information sharing, and information behavior for users with special needs, such as people with Alzheimer's disease or refugees, for example.

j) *Attention to context*. Since the late 1990's a shift in meta-theory from person-centered approach to person in context or situation-oriented approach was identified (Vakkari, 1997). Accordingly, Courtright (2007) observed that user-centered research faces the challenge of conceptualizing the influences of the context, due to the complexity of the context and of the users since the actors are embedded in complex, multiple, overlapping and dynamic contexts, which include society, culture, institutional rules and resources, technological changes and power relations. Although Vakkari (2008) found a greater number of individual-level research with little study of information behavior in the social context, other authors showed an increase in research that considers context. Case (2006) observed a greater attention given to context and to social influence. Gasque and Costa (2010) show, as significant trends, studies with a multifaceted approach, encompassing the socio-cognitive and organizational aspects. Greifeneder (2014), analyzing works from 2012 to 2014, identified as an emerging trend, the study of information behavior with the influence of the context "illustrated by the large number of studies that took place in the user's natural environment", including the search for information by people in their homes and the management of information in the workplace.

k) *Attention to cognitive and affective aspects.* Attention to users' cognitive processes and to affective aspects can be considered important aspects in researching information behavior, as the new approach is centered on the user and not on the system. However, Julien (1996) noted that only 24% of the articles in her sample considered users from a cognitive point of view. Julien and Duggan (2000), when replicating Julien's (1996) study demonstrated some increase in concern with users' cognition. Concerning the affective aspects, Julien and Duggan (2000) and Julien, Pecoskie and Reed (2011) showed that one third of the articles considered affective aspects in information behavior (emotion, mood, preference and evaluation).

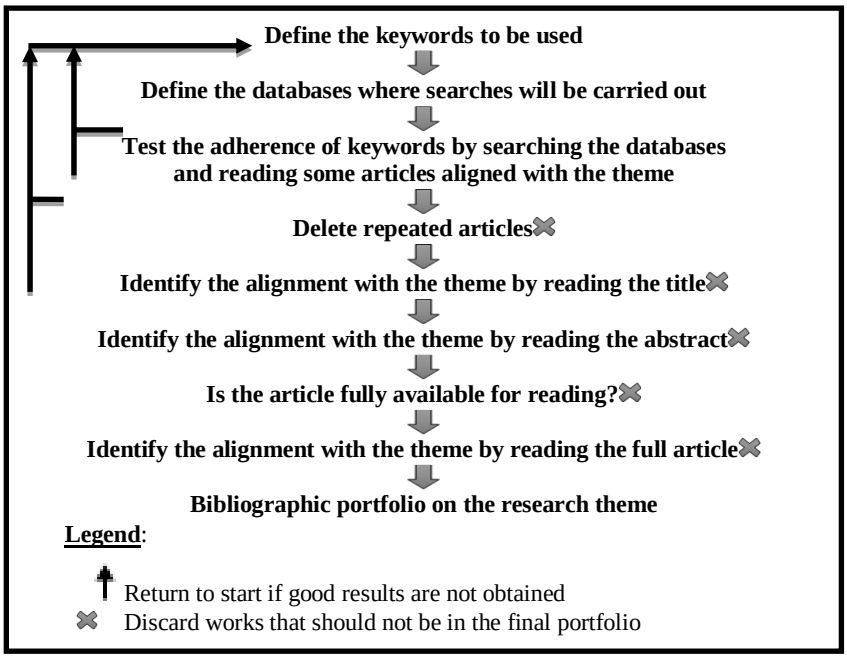
l) *Contribution to practice*. Vakkari (2008) shows a decrease in the explanation of the contribution of research results to practice or to existing knowledge. On the contrary, Julien and Duggan (2000), when replicating Julien's (1996) study found that there was an increase in interest in system design, which brings practical contributions. Along the same line of findings, Julien, Pecoskie and Reed (2011) showed that most studies they revised were concerned with the design of the system from the user's point of view.

4. Methodology

The present study carried out a descriptive analysis of research on information behavior published within the period of 2000 to 2017, in Brazilian scientific journals and conferences proceedings in the field of information science.

The methodology chosen for the selection of works to be analyzed was the Knowledge Development Process-Constructivist (Proknow-C), proposed by Ensslin and Ensslin (2007) and Ensslin et al. (2010a, 2010b, 2010c, 2010d). Figure 1 shows the Proknow-C methodology, adapted for the current work.

Figure 1 - The selection process of the bibliographic portfolio using the ProKnow-C knowledge construction methodology adapted to the current work



The articles were found by searching two Brazilian reference databases in the area of information science: PERI, created and maintained by the library of the School of Information Science at Federal University of Minas Gerais and BRAPCI, created and maintained by the Federal University of Paraná and Federal University of Rio Grande do Sul. These two databases, together, provide a comprehensive coverage of the information science literature published in Brazil. The articles were identified by searching all subject fields (title, keywords, abstract) for relevant terms in Portuguese that could characterize aspects of information behavior such as "need and use of

information", "user study", "information behavior"," information need", "information use", "information search behavior" "information seeking" and "information retrieval behavior". Theses and dissertations were disregarded, in addition to all works that did not fit in information behavior, and research that was not of Brazilian origin.

The set of articles selected formed a bibliographic portfolio that was analyzed using descriptive statistics. Longitudinal studies on international literature, especially Gonzáles-Teruel and Abad-García (2007), provided a basis for the development of the present study in a manner consistent with other international research on the same topic, for comparability.

The following variables were analyzed: a) year of publication; b) authorship (in publications with multiple authors, all were considered); c) type of publication (congress, meeting, seminar or scientific journal) d) research type (descriptive, exploratory or explanatory); e) research approach (quantitative, qualitative or mixed), f) research method (e.g. case studies, ethnographies, bibliographic studies, etc.), g) data collection method; h) data analysis methods; i) phase of the information behavior process addressed (information need, information seeking or search and information use) and j) groups of users surveyed. Regarding items d), e), f and g), which refer to research type, approach, and methods, data were recorded only for works that reported this information explicitly. No inference was made.

5. Results

The database searches resulted in 5.935 articles, of which 5702 were discarded (2.764 were repeated; 2719 were not pertinent to the research topic; 21 were not in agreement with the current work proposal; 164 papers were not aligned with the research theme, 17 articles were not fully available for reading, 17 were outside the stipulated chronological range). Finally, a total of 233 articles were selected for the bibliographic portfolio to be analyzed. The next paragraphs present the results of the analysis of the of the works selected.

a) *Year*. Figure 2 shows a growing interest in the area along the 18 years analyzed, with the majority of the works concentrated in the last 6 years covered. In the period from 2000 to 2005, output was 3 to 6 publications per year, resulting in 10,7% (n=25) of the total publications. From 2006 to 2011, 31,40% (n=73) of the publication occurred, with 9 to 12 publications per year. The period from 2012 to 2017 had 57,9% (n=135) of the publications and output jumped to 17 to 33 works per year.

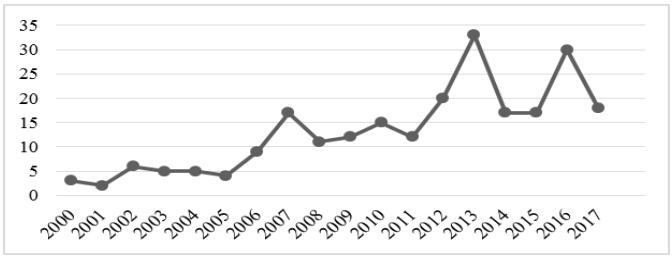
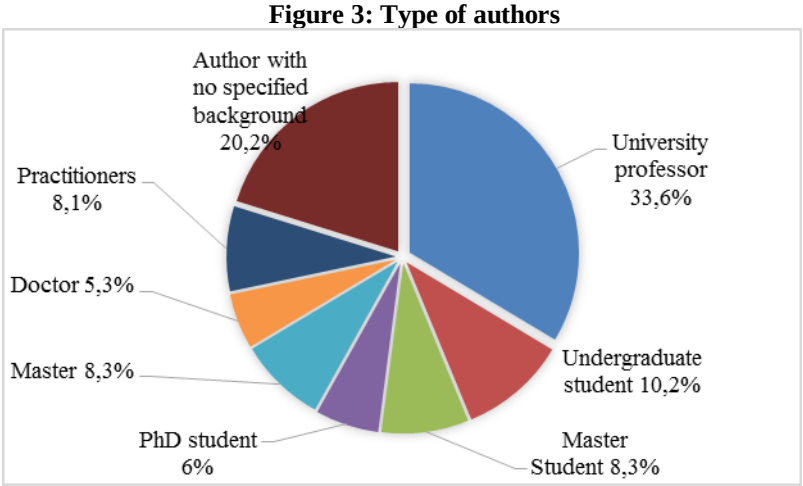


Figure 2: Number of publications per year
Source: Elaborated by the authors.

b) *Authorship*. The study found 530 different authors in works with single or multiple authors. There was a predominance of authors with academic background such as university professors, researchers and students, which, together, constituted 71,7% (n=380) of all authors. University professors were the type of authors with the highest number of publications (33,6%, n=178). Researchers, i.e. authors with an academic graduate degree, either master degree or doctorate, who did not specify institutional connection, comprised 13,6% (n=72) of the total. Students (undergraduate and graduate) were 24,5% (n=130) of the authors. The smaller proportion of practitioners (8,1%, n=43) seems indicative that the majority of the publications emanate from universities or research institutions. Of the authors, 20,2% (n=107) did not specify background. Figure 3 shows the percentage ratio of the number of publications for each type of author.

Figure 3: Type of authors



Source: Elaborated by the authors.

c) *Type of publication*. academic journals were the main means of publication for works analyzed, responding for 80,3% (n=187) of the publications. The Brazilian scientific journals with the largest number of publications were: Informação & Sociedade: Estudos (27 articles) and

Perspectivas em Ciência da Informação (26 articles), both of which receive the highest rank (A1) among Brazilian journals in the area. A total of 19,7% (n=46) of the publications were conference articles.

The main Brazilian conference in the area of Information Science (National Meeting of Research in Information Science[2] - ENANCIB) obtained 34 publications, being the event with the largest number of publications. Other events (Regional Meeting of Library, Documentation, Management and Information Science Students[3], National Seminar of University Libraries[4] and the Brazilian Conference in Librarianship and Documentation[5]) had 2% (n=4) of the publications, each. Table 1 shows the numbers for each type of publication and their respective percentage in relation to the total of 233 publications.

Table 1 – Type of publication

Type of publication	***N***	***%***
Journal articles	**187**	**80,3**
Conference papers	**46**	**19,7**
Total	**233**	**100**

Source: Elaborated by the authors.

c) *Type of research.* Of the 233 works, only 24,5% (n=57) specified the type of research. As shown in Table 2, for the works that reported this data, there was a predominance of descriptive studies which represented 56,1% (n=32) of the studies. It should be noted that no work characterized itself as explanatory, which are works that seek to explain the relationships or associations among factors or variables. However, it should be noted that some inferential statistics tests are reported in the item g) Data analysis methods, below, indicating the presence of explanatory works.

Table 2 - Type of research

Type of research	*N*	*%*
Descriptive	32	56,1%
Exploratory	25	43,9%
Total	57	100%

Source: Elaborated by the authors.

d) *Research approach.* Of the 233 papers, 34,8% (n=81) specified their research approach. The dominant type was mixed (quantitative and qualitative) with 45,7% (n=37) of the works. Of the works, 35,8% (n=29) were purely

[2] Encontro Nacional de Pesquisa em Ciência da Informação
[3] Encontro Regional dos Estudantes de Biblioteconomia, Documentação, Gestão e Ciência da Informação
[4] Seminário Nacional de Bibliotecas Universitárias
[5] Congresso Brasileiro de Biblioteconomia e Documentação

qualitative and 18,5% (n=15), quantitative. Table 3 highlights the research approaches reported.

Table 3 – Research approaches

Research approach	*N*	*%*
Qualitative	29	35,8
Quantitative	15	18,5
Quantitative and qualitative	37	45,7
Total	81	100

Source: Elaborated by the authors.

e) *Research Methods:* Of the 233 works, 65 (27,9%) specified the methods used. While 53 works used one method, 13 used two methods (for example, bibliographic research and field study; bibliographic research and ethnographic study, documental research and participatory observation), and one specified use of three methods (bibliographic research, documental research and field study). As shown in Table 4, bibliographic research (30,8%, n=24) predominated, which could indicate that many of the works were literature reviews. The second most used method was case studies (23,1%, n=18). The category "Other" included methods such as Karol Kulthau's Information Search Process (ISP) methodology, experimental research, flexible systems methodology, usability tests, timeline interview research method and action research.

Table 4 – Research methods

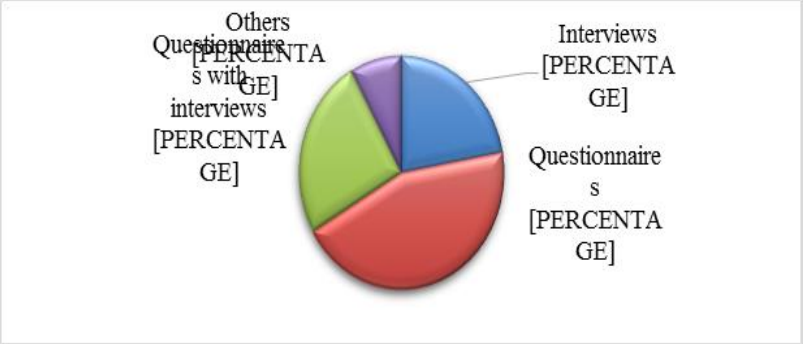
Research method	*N*	*%*
Bibliographic research	24	30,8
Case study	18	23,1
Documental research	10	12,8
Field study	9	11,5
Other	6	7,6
Critical incident	4	5,1
Netnography	2	2,6
Phenomenology	2	2,6
Observation	2	2,6
Ethnographic research	1	1,3
Total	78	100

Source: Elaborated by the authors.

f) *Data collection methods*. Regarding data collection, 73,4% (n=171) of the works specified their data collection method. Interviews and questionnaires stood out the most. Data showed that 22,2% (n=38) of the works used interviews; 44,4% (n=76) used questionnaires; 25,2% (n=43) used questionnaires with interviews and 8,2% (n=14) of the studies presented other techniques (such as analysis of discussion groups; social network analysis and

user test using eye tracking technology). Figure 4 shows an overview of the data collection methods.

Figure 4: Data collection methods

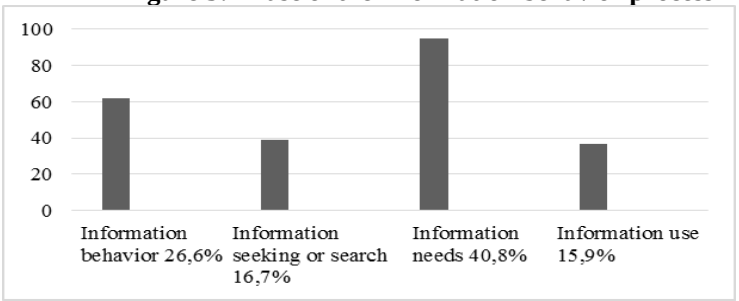


Source: Elaborated by the authors.

g) *Data analysis method.* Of the 233 works, only 13,7% (n=32) of the works specified their data analysis. Quantitative analysis methods reported consisted of descriptive and inferential statistical analysis sometimes mentioning use software such as Excel or SPSS. Two works (6,3%) mentioned statistical test such as Spearman rank correlation coefficient, Pearson Chi-square test and Fisher's exact test. Qualitative analysis included various qualitative data analysis techniques, sometimes conducted with use of software such as NVIVO, Freemind or AtlasTi. In the works that reported the data analysis method used, content analysis was the most mentioned in 21,9% (n=7) of the works. Other methods cited include Collective Subject Discourse Technique, Carol Kuhlthau's Information Search Process Theory (ISP), and categorization

h) *Phase of the information behavior process studied*. The study found 49 different types of objectives and they were grouped in four categories, showing the phase of the information behavior process addressed by the work, as displayed in Figure 5. While 26,6% (n=62) of the studies were on the process of information behavior as a whole; 16,7% (n=39) focused on information seeking or search, 40,8% (n=95) on information needs and 15,9% (n=37) on information use.

Figure 5: Phase of the information behavior process

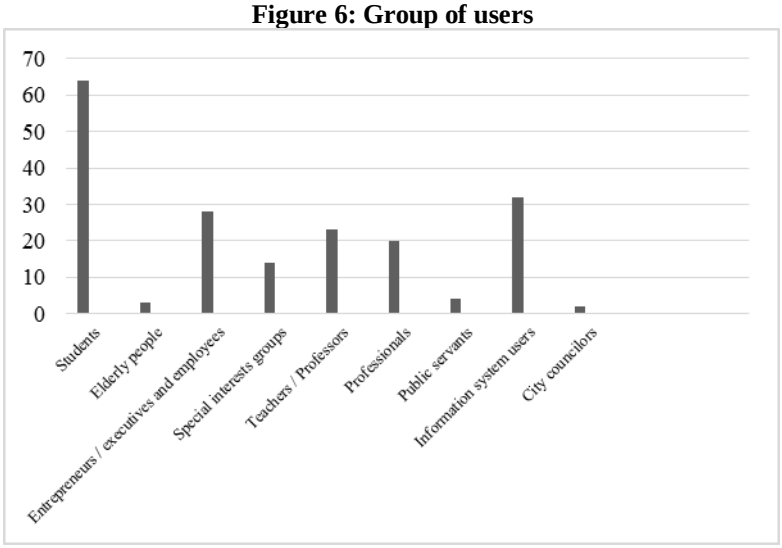


Source: Elaborated by the authors.

The information needs studies included works on information needs, user profile and identification of information habits, for example. The information search category included works on information seeking or search behavior; internet shopping behavior and information retrieval. Information use studies contained research on use of the Web, of the internet, of mobile devices, of e-books, of information technology; usability studies, studies on the use of information or information sources; on use and evaluation of information sources; on decision making, and on information sharing, among others.

i) *Groups of users*. The following categories of user groups were found in the works analyzed, as shown in Figure 6: students (33.68% , n=64); elderly people (1.58%, n=3); entrepreneurs, executives and employees (14,74%, n=28); ordinary people (7.37%, n=14); teachers and professors (12.11%, n=23); professionals (10.53%,n=20); public servants (2.11%, n=4); users of various types of information systems (16.84%, n=32); and city councilors, (1.05%, n=2).

Figure 6: Group of users



Source: elaborated by the authors.

Categories "Students", "Elderly people", "Teachers/ professors" and "City councilors" are self-explanatory. Types of users in the remaining categories are exemplified below:

Entrepreneurs/ executives/ employees include users connected to a variety of companies (technology-based, information technology, photography, furniture and wooden artifacts, antique dealers, poultry producers, electricity,

foundations, credit cooperative, small and large companies, governmental agencies; micro, small and medium-sized consulting companies, among others).

Special Interest groups include studies on women, pregnant women, consumers, activists of organized black movement, League of Legends players, users of fairs and subways, children and adolescents, candidates for graduate programs, parents of children with Down syndrome, among others.

Professionals include librarians, doctors, lawyers, software developers, journalists, electronic auction professionals, editorial system professionals, among others.

Public servants include university technicians; judicial system servants and military policemen, among others.

Information systems users include users of: health information systems, archives, arts museum; urban transport mobile applications, consumer sites, educational systems, web sites for the blind; bidding information systems, community internet rooms, social networks (Facebook, Instagram and Twitter), digital literacy actions system, purchasing and budgeting system, among others.

6. Final considerations

The current study analyzed 233 scientific works in the Brazilian literature on information behavior, published from 2000 to 2017. Results show a growing interest in the area along the 18 years analyzed, with the majority of the works concentrated in the last 6 years covered. There was a predominance of authors with academic background such as university professors, researchers and students, which, together, constituted 71,7% (n=380) of all authors. Publications occurred in academic journals (80,3%) and conference proceedings (19,3%).

Regarding research methods, many works did not report explicitly the research type, approach or methods used. The ones which did showed a predominance of descriptive research and few explanatory quantitative works; predominance of mixed (quantitative and qualitative) research approaches followed by purely qualitative works and a reduced number of quantitative studies. The majority of the studies used one research method only but there were studies that used a combination of 2 and even three research methods in one case. The most used methods for data collection reported were questionnaires and interviews, either as the sole method for data collection or combined. Very few works (13,6%) reported on data analysis methods, which limit suggestions about predominant tendencies in this variable. Most works focused on the information needs phase of the information behavior process followed by works that focused on the process as a whole. An interesting finding was the great versatility of groups of users in the studies, including a variety of occupations, of age and interest groups, belonging to a variety of types of companies and institutions and using many different types of information and information systems.

Regarding the comparison of Brazilian literature to the international trends, conclusions are limited by the fact the many works did not mention explicitly research type, approaches and methods. However, results obtained point in the direction that Brazilian research follows some of the trends observed in international scientific works in the area of information behavior while differing in others. Some works use more than one research method and more than one method for data collection with interviews and questionnaires being the most reported instruments. Less traditional methods such as netnography, social network analysis and user test using eye-tracking technology were reported. There is some evidence of a predominance of descriptive studies and few explanatory ones. Most works focused on parts of the information behavior process. As in the international studies, a variety of user groups were studied. Differently from international trends, there is indication that mixed (qualitative and quantitative approaches) predominate and that information needs (rather than information seeking), was the predominant nucleus of attention.

The results obtained can indicate that more attention should be given to studies, qualitative or quantitative, that are explanatory and to research on information behavior as a whole as well as to the information seeking and information use phases of the process. Results show that, although studies address a variety of user groups, there is a concentration of research on users in educational settings (students, teachers and professors). Therefore, another advice is to conduct research on other groups or subgroups, such as the elderly, that are currently less represented. Other recommendations are to diversify the methods of data collection, to maintain the trend in use of mixed approaches and to increase use of multiple research methods. Finally, it is recommended that the works enhance reports of the research characteristics, regarding type, method, data collection and especially data analysis, in their methodology section.

The present work did not collect data on trends identified in international literature with respect to interdisciplinarity, to use of and contributions to theory, to the predominance of the person-centered approach, to attention to context, cognitive and affective aspects and to contributions to practice. A suggestion for future studies of the Brazilian literature on information behavior is to analyze these aspects.

References

Araújo, Carlos A. A., (2009). Um mapa dos estudos de usuários da informação no Brasil. *Em Questão,* Porto Alegre, v. 15, n. 1, p. 11-26, jan./jun.

Case, Donald O., (2006). Information Behavior. *Annual Review of Information Science and Technology*, v. 40, p. 293-327.

Courtright, Christina, (2007). Context in information behavior research. *Annual Review of Information Science and Technology*, v. 41, p. 273-306.

Dervin, Brenda; Nilan, Michael, (1986). Information needs and uses. *Annual Review of Information Science and Technology*, v. 21, p. 3-33.

Ensslin, Leonardo; Ensslin, Sandra Rolim, (2007). *Guidelines for the preparation of scientific articles from LabMCDA-C* [Handout of the course Performance Evaluation of

the Postgraduate Program in Production Engineering at the Federal University of Santa Catarina]. Florianópolis, UFSC.
Ensslin, Leonardo et al., (2010a). *Bibliometric analysis process*. Technical process with registration patent pending with the INPI. Brazil.
Ensslin, Leonardo et al., (2010b). *Systemic analysis process*., Technical process with registration patent pending with the INPI. Brazil.
Ensslin, Leonardo et al., (2010c). *BiblioGraphic Portfolio Selection Process*. Technical process with registration patent pending with the INPI. Brazil.
Ensslin, Leonardo et al., (2010d). *ProKnow-C, Knowledge Development Process Constructivist*. Technical process with registration patent pending with the INPI. Brazil.
Gasque, Kelley Cristine Gonçalves Dias; Costa, Sely Maria de Souza, (2010) Evolução teórico-metodológica dos estudos de comportamento informacional de usuários. *Ciência da Informação*, Distrito Federal, v.39, n.1, p.21-32.
González-Teruel, A .; Abad-García, M. F., (2007). Information needs and uses: an analysis of the literature published in Spain, 1990–2004. *Library and Information Science Research*, v.29, n. 1, p. 30-46. Available at: <www.sciencedirect.com>. Access on: Oct. 10, 2016.
Greifeneder, Elke, (2014). Trends in information behavior research. *Information Research*, v. 19, n. 4. Available at: <http://curis.ku.dk/ws/files/137513587/Trends_in_information_behaviour_research.htm> . Access on: Oct. 10, 2016.
Julien, Heidi, (1996). A Content Analysis of the Recent Information Needs and Uses Literature. *Library & Information Science Research*. v. 18, p. 53-85.
Julien, Heidi; Duggan, Lawrence. J., (2000). A longitudinal analysis of the information needs and uses literature. *Library & Information Science Research*, v.22, n. 3, p. 291-309.
Julien, Heidi; Pecoskie, Jen J. L .; Reed, Kathleen, (2011). Trends in information behavior research, 1999–2008: A content analysis. *Library & Information Science Research*, v.33, n.1, p.19-24.
Pettigrew, Karen E.; Fidel, Raya; Bruce, Harry, (2001). Conceptual frameworks in information behavior. *Annual Review of Information Science and Technology*, v. 35, p. 43-78.
Rodrigues, Virginia L.; Cardoso, Ana Maria P., (2017). O campo de estudos de usuários na ciência da informação brasileira: uma revisão sistemática da literatura. *Em Questão*, Porto Alegre, v. 23, n. 2, p. 234-251, maio/ago.
Vakkari, Pertti, (1997). Information seeking in context: a challenging metatheory. In: Pertti Vakkari; Reijo Savolainen; Brenda Dervin, (Eds), *Information seeking in context: proceedings of an International Conference on Research in Information Needs, Seeking and Use in Different Contexts*, (pp. 451-464). London: Taylor Graham.
Vakkari, Pertti, (2008). Trends and approaches in information behavior research. *Information Research*, v.13, n.4, p. 47-55.
Wilson, Tom D., (1999). Models in information behavior research. Journal of Documentation, v. 55, n. 3, p. 249-270.
Wilson, Tom D., (2000). Human information behavior. *Informing Science*, v. 3, n. 2, p. 49-55, 2000