An overview of scientific productions on information architecture in the context of Information Science

Ferreira, Elanna Beatriz Americo

Universidade Federal de Pernambuco – UFPE, Brasil

Siebra, Sandra de Albuquerque

Universidade Federal de Pernambuco – UFPE, Brasil

ORIGINAL

Abstract

Objective. Provide an overview of the scientific production on Information Architecture in the context of Information Science. **Method.** It is characterized as an exploratory and qualitative-quantitative study which used bibliometric techniques and content analysis. The scientific productions were retrieved from the Information Science Database (BRAPCI) and SCOPUS, as they bring together a significant quantity of productions on IA in the Brazilian and international contexts, respectively. **Results.** As a result, bibliometric indicators are presented (main authors and means publications, authors' countries of origin, recurring keywords and number of publications per year), and the thematic categories of the productions analysed are highlighted. We highlight the productions that mention IA, but focus on other discussions such as Usability, Accessibility and Findability, pointing out the relevance of IA as complementary to these other studies. Besides the productions with proposal, analysis, or evaluation of digital environments, where it is employed the systemic approach of IA and it was possible to observe that, in the Brazilian context, the applications focus on academic environments and, in the international context, on corporate environments. **Conclusions.** We conclude that the analysed productions collaborate with the social function of IC, demonstrating concern with the users of information, besides being relevant in the context of the post-custodial paradigm of Information Science, where the dissemination, access and use of information are valued, and, consequently, it is necessary that such information be organized and presented in a suitable way for its target audience.

Keywords

Panorama de la producción científica sobre Arquitectura de la Información en el contexto de la ciencia de la información

Resumen

Objetivo. Presentar una visión general de la producción científica sobre Arquitectura de la Información en el contexto de la Ciencia de la Información. **Métodos.** Esta es una investigación exploratoria cuali-cuantitativa que utiliza la bibliometría y el análisis de contenido como técnicas para analizar las producciones científicas sobre Arquitectura de la Información. Se utilizaron la Base de Datos en Ciencia de la Información (BRAPCI) y SCOPUS, ya que reúnen un conjunto significativo de producciones sobre la temática estudiada en el contexto brasileño e internacional, respectivamente. **Resultados.** Como resultado, se presentan los indicadores bibliométricos (principales autores y medios de comunicación, países de origen, palabras clave recurrentes y número de publicaciones por año) y se destacan las categorías temáticas de las producciones analizadas. Las producciones que mencionan la AI, pero se centran en otros debates como la Usabilidad, la Accesibilidad y la Encontrabilidad, destacando la relevancia de la AI como complemento de estos otros estudios. Además de las producciones con propuesta, análisis o evaluación de entornos digitales, donde se emplea principalmente el enfoque sistémico de AI y se pudo observar que, en el contexto brasileño, las aplicaciones se centran en entornos académicos y, en el contexto internacional, en entornos corporativos. **Conclusiones.** Concluimos que las producciones analizadas colaboran con la función social de la CI, demostrando preocupación con los usuarios de la información, además de ser relevantes en el contexto del paradigma postcustodial de la Ciencia de la Información, donde se valora la diseminación, el acceso y el uso

de la información y, consecuentemente, es necesario que dicha información sea organizada y presentada de forma adecuada para su público objetivo.

Palabras clave

Arquitectura de la Información; Producción científica; Estudios bibliométricos; Ciencia de la Información; praxis de la Arquitectura de la Información; enfoques de la Arquitectura de la Información

Um Panorama das Produções científicas sobre Arquitetura da Informação no contexto da Ciência da Informação

Resumo

Objetivo. Apresentar um panorama da produção científica sobre Arquitetura da Informação no contexto da Ciência da Informação. **Método.** Esta é uma pesquisa exploratória e quali-quantitativa que faz uso da bibliometria e da análise de conteúdo como técnicas para análise das produções científicas sobre Arquitetura da Informação. Foram utilizadas a Base de Dados em Ciência da Informação (BRAPCI) e a SCOPUS, por reunirem um quantitativo significativo de produções na temática estudada no contexto brasileiro e internacional, respectivamente. **Resultados.** Como resultado, são apresentados indicadores bibliométricos (principais autores e veículos de comunicação, países de origem, palavras chaves recorrentes e quantitativo de publicações por ano) e destacadas as categorias temáticas das produções analisadas. Destacam-se as produções que citam a AI, mas focam em outras discussões tais como Usabilidade, Acessibilidade e Encontrabilidade, pontuando a relevância da AI como complementar a esses outros estudos. Além das produções com proposta, análise ou avaliação de ambientes digitais, onde é empregada principalmente a abordagem sistêmica da AI e foi possível observar que, no contexto brasileiro, as aplicações focam em ambientes acadêmicos e, no contexto internacional, em ambientes corporativos. **Conclusão.** Conclui-se que as produções analisadas colaboram com a função social da CI, demonstrando preocupação com os usuários da informação, além de se mostrarem relevantes no contexto do paradigma pós-custodial da Ciência da Informação, onde a disseminação, acesso e uso da informação são valorizados, sendo, por consequência, necessário que tal informação seja organizada e apresentada de forma adequada para seu público alvo.

Palavras-chave

Arquitetura da Informação; Produção Científica; Estudos bibliométricos; Ciência da Informação; práxis da Arquitetura da Informação; Abordagens da Arquitetura da Informação

1 Introduction

The word 'architecture' has its origin in Greek, derived from the word 'architect' or 'arkhitektôn', which refers to the idea of the main builder or 'master builder'. In fact, the terminology 'architecture' originated related to the aspects of construction, modeling, or design of physical environments, including the elaboration, development, and planning to achieve a certain desired product. Gradually, the terminology was used for various applications, in contexts that did not necessarily refer to the construction or planning of physical environments, but permeated the planning, elaboration and design of digital environments, informational environments or, more recently, of complex informational ecologies (Oliveira and Vidotti, 2016). Especially due to the increasing amount of information that started to be generated, triggering the need for reflections on the ways of organizing, presenting, and disseminating this information in digital informational environments.

One of the first records for the term 'Information Architecture' was made by Richard Saul Wurman, in 1997, who defined it as the science and art of creating instructions for organized spaces (Wurman, 1997). However, the concept of Information Architecture has gained more notoriety due to the informational explosion phenomenon and the more intensive use of digital informational environments, caused by the emergence of the World Wide Web (WWW), which brought about growing concerns with the systematization and access to knowledge (Macedo, 2005).

In the context of Information Science (IC), the discussions about Information Architecture (IA) were initiated by Rosenfeld and Morville, in 1998. These authors defended the idea of librarians and information professionals acting within the parameters proposed by them for IA, because the discussions developed by theoreticians from

other areas of knowledge, such as Design and Computer Science, were not able to meet the existing demands related to the structuring of information in digital information environments, paying attention to the requirements of the subareas of Information Organization and Information Retrieval. This is also argued by Oliveira, Vidotti (2012), Souza and Silva (2016). Moreover, authors such as Siqueira (2016) and Alvarez, Brito and Vidotti (2020) consider IA as a scientific discipline within Information Science.

Authors such as Borko (1968), Belkin (1980) and Robredo (2011) point out, among the problems of study of Information Science (IC), the effectiveness and efficiency of the transfer and communication of the desired information between its generator and the target audience that will make use of it. And for this, they mention the study of the means of information processing, to contribute to a maximum of accessibility and usability. In this way, IA studies are relevant, because, based on Rosenfeld and Morvile (2006) and Rosenfeld, Morville and Arango (2015), IA is understood to think about the shared structural design of information environments, adding in its composition organization, navigation, labeling and search systems.

It is observed that the Information Architecture studies play a relevant role in the discussions that permeate the post-custodial paradigm of Information Science (Silva and Ribeiro, 2011), since, through it, is valued the dissemination, access, and use of information, being necessary that such information is organized and presented in a suitable way for its target audience (Silva, 2015).

In this scenario, it is relevant to check the panorama of scientific production on IA, in the context of IC, both to identify production indicators, such as the most significant authors, the most used media, the historical number of publications per year and the main associated keywords, as well to gain an insight into the thematic approaches used in IA research. Both of these can guide the work of researchers and make it possible to identify new research possibilities.

The general objective of this article is to present an overview of scientific production on Information Architecture in the context of Information Science. The specific objectives are to map scientific production on IA in Brazil and internationally, to identify production indicators from the mapped publications, and to categorise the themes of the discussions held in the scientific productions.

This study is relevant because it provides an understanding of the epistemological, theoretical, and practical construction of Information Architecture in Information Science, as well as the approaches used in this field of activity.

2 Information Architecture

Rosenfeld, Morville, and Arango (2015) report that IA enables reasoning about information presentation problems, from the perspective that information spaces need to be carefully planned and structured to be presented to users to provide effective findability. To this end, they believe that it is extremely necessary to observe three dimensions: content, context, and user. The content dimension seeks a deep understanding of the content that will be made available to users, its format, structure, so that it can be organized to be retrieved and presented in the best way. The users dimension focuses on knowing who the users are, their needs, experiences, vocabularies, to verify if the informational structure of the content makes sense to them. And, finally, the context dimension portrays the need to start an investigation of informational environments starting from the context of the organization (purpose, culture, etc.).

Oliveira (2014) and Oliveira, Vidotti and Pinto (2015) dialogue with the theory presented by Rosenfeld and Morvile (2006) and discuss the existence of four approaches for IA, being these, the architectural approach, the systemic approach, the informational approach, and the pervasive approach, which are characterized through the evolution of the discussions that have been developed over time, within the scope of IA.

The Architectural Approach is one of the first approaches and it incorporates and aggregates the vision of traditional architecture to informational environments. In fact, authors such as Wurman (1997) started to discuss about a science to design informational spaces that would be composed of elements from traditional architecture

and design and that would be materialized in dialectic between function and beauty. Thus, the author proposed an architecture that aimed at the best ways to organize and present information in digital and non-digital spaces, with the purpose of solving the anxiety developed in users immersed in the informational chaos. According to the author's vision, information anxiety "is caused by the growing gap between what we understand and what we think we should understand," being considered a chasm between the available data/information and the knowledge that could be generated, which ends up arising when this data/information does not bring what the user would like to know (Wurman, 2001: 14).

The Systemic Approach, grounded in General Systems Theory and Information Systems, is characterized by a systemic rationality for dealing with information environments. It is understood as the approach that holds the classic study of IA, since studies on the area apply this type of rationality to treat information environments, in most cases (Oliveira, 2014). This view is also seen by Oliveira and Vidotti (2012) when they state that studies and research on digital information environments aligned with IA, apply systems thinking, treating environments as based on a set of systems1, such as the organization system, navigation system, labeling system, and search system (Rosenfeld and Morville, 2006).

Aligned with the evolution of the discussions about IA in the context of Information Science comes the so-called Informational Approach. This approach encompasses the components of the systemic approach: the organization, labeling, search, and navigation systems, which are conceptual cores elaborated by Rosenfeld and Morville (2006), but aligns them with elements proper to Information Science that are used as techniques, theoretical apparatuses, and instruments in order to build an architecture for digital information environments in a consistent manner, both in the organization and structuring of data, and in the representation, retrieval, and concern with access to information by users, concerns that are considered some of the driving forces of Information Science. In this approach, IA, according to Vidotti, Cusin, and Corradi (2008:182), focuses on the organization of information content and the forms of storage and preservation (organization systems), representation, description, and classification (labeling systems, metadata, thesaurus, and controlled vocabulary), and retrieval (search systems), aiming to create an interaction system (navigation systems) in which the user should interact easily (usability), with autonomy in the access and use of content (accessibility) in the digital information environment.

Finally, the Pervasive Approach to IA maintains intense dialogues with Ubiquitous Computing and Service Design. This type of approach is characterized by the aspects arising from the need to generate solutions for digital information environments immersed in a context of pervasiveness and ubiquity. The technological evolutions occurring on a large scale bring with them the emergence of several technological resources directed to communication and, consequently, full of information to be properly structured and arranged, meeting the specific requirements of each support. With this, it is understood that the same digital information environment can go through various formats, to be presented on various devices, and, for these structures to be equivalent to reality; this new perspective of IA is then worked on.

3 Methodology

With an exploratory approach, this research is a quantitative and qualitative study of scientific production on information architecture. In terms of technical procedures, a bibliometric study was carried out, as it allows objects such as documents, journals, disciplines, authors, areas, fields, and vehicles of scientific communication to be analyzed in order to identify parameters, domains of interest, the intrinsic relationships between these domains and how authors communicate in this process (Macias-Chapula, 1998; Araújo, 2006). So, bibliometric studies were used as a strategy for measuring research and productivity indices.

The main authors were analyzed, as well as the most used media outlets, the historical number of publications per year, the authors' country of origin, and the main associated keywords.

In addition, a content analysis of the productions was conducted based on Bardin (2011), to find out about the thematic developments of studies on information architecture in the context of Information Science.

For the study, the Database in Information Science (BRAPCI) was selected, for being a database in Information Science, developed in Brazil, which indexes the scientific journals in the area; and SCOPUS (Elsevier), for being a database with worldwide representativeness and a significant coverage period, besides having one of the largest amounts of indexed journals.

The search for material in the BRAPCI and SCOPUS (Elsevier) databases used the search term "Information Architecture" in Portuguese and English, which was searched in the title, abstract and keywords. We opted for scientific productions such as journal articles and articles in the annals of events, provided they were published and accessible. It is worth pointing out that access to some of the full texts indicated by these databases was only possible through the Capes Periodicals Portal2. As for the period, the starting year of the study period was not defined, to have a historical view of the evolution of scientific production on the theme. However, the final year was limited to "until the year 2021", to have a vision that encompassed the 12 months of each year of the evaluation period.

In the SCOPUS database, for being a multidisciplinary database that indexes journals from several areas of knowledge, unlike BRAPCI, which only indexes scientific productions from the Information Science area, it was necessary to apply filters to restrict the productions to the IC area. Thus, we first used the "Social Science" knowledge area filter. Next, we used the filter to select only the sources of the papers (Source Title) related to the IC area. For this, in each of the sources of the retrieved productions, its subject area was verified (Subject Area), selecting only those that had the area "Social Science: Library and Information Science" exclusively, or among the areas listed.

Thus, the quantitative returned in the SCOPUS database, following the refinement reported, was 230 scientific productions. The BRAPCI data collection returned 212 scientific productions. After this identification of the productions, the duplicate materials were first eliminated (exclusion criteria) within the same database and, later, between the two analyzed databases. Then, those productions were eliminated that, after reading the title, abstract, keywords, and words indexed by their respective databases, ran away from the theme proposed by this bibliometric analysis (eligibility criteria).

Thus, in SCOPUS, of the 230 productions retrieved, after the initial analysis, a repeated production was excluded, leaving 229 productions as the research corpus. At BRAPCI, 212 productions were retrieved, there was a duplication and after the initial reading, one of the productions returned referred only to a kind of memory of a scientific event that presented, in only two pages, a Brazilian Meeting of Information Architecture, so it was discarded. Nevertheless, we still identified 25 duplicated scientific productions between the two databases. These duplicates were removed, for having been published in Brazilian journals, from the SCOPUS corpus. Thus, the research corpus obtained a total of 414 scientific productions, 210 from BRAPCI and 204 from SCOPUS. The data from these productions were organized in an Excel spreadsheet. All the scientific productions were downloaded, and the material was explored, both through extensive and objective readings, and through bibliometric techniques (Araújo, 2006), in order to generate the defined production indicators.

In addition, a meticulous reading of the selected productions was carried out in order to categorize them thematically and identify the work approaches: theoretical (for research with purely bibliographic dialogues, such as literature reviews), applied theoretical (for research that uses the theory presented to propose something), or practical (for research that puts the theory presented into practice in a given context).

Bardin's (2011) content analysis was used for thematic categorization by the procedures specified by Franco (2005). Thus, in the first reading, thematic categories related to IA were outlined (pre-analysis). Subsequently, the productions were reviewed and fitted into one of the thematic categories created (exploration of the material).

Finally, the treatment of results and interpretations (Bardin, 2011) aligned with bibliometric studies (Araújo, 2006) was carried out. All these steps were carried out in the period from October/2021 to February/2022.

4 Results

In this section, the scenario of the 210 scientific productions on IA in CI, in the Brazilian context, obtained through the BRAPCI database, is presented; subsequently, the international scenario is presented based on the 204 productions obtained from the SCOPUS database and, finally, an overview of all the scientific productions analyzed.

4.1 Scenario of the scientific prodution on IA in the Brazilian database

By analyzing the papers by year of publication (Image 1), it is possible to observe the temporal evolution of studies on IA in the Brazilian context. The productions have grown over the years, especially from 2010 on, with oscillations over time, with a peak production in 2017. No works were found before the year 2000, which may be directly related to the development of Information and Communication Technologies (ICT), whose popularization and expansion of use in the Brazilian context only came to occur from the early 2000s, bringing with it the need for studies to improve the interaction of users with digital information environments that have become, increasingly, part of the daily lives of users, in addition to the need to improve the findability of information.

Also, according to Image 1, it is possible to verify some peaks of scientific production on IA. The first peaks are found in the years 2011 and 2012, with 14 and 13 published productions, respectively. This first growth is linked to the interest aroused by the publication of the book by Rosenfeld and Morville (2006) and the beginning of the application of the ideas brought therein. Another growth is perceived from 2015 on, coincidentally the year of the release of the book by Rosenfeld, Morville and Arango (2015), an updated version of the previous book. Therefore, the increase in production may be due to the link that researchers have started to make between IA and topics related to improving the interaction between users and systems, such as usability and user experience, as well as the inherent link between findability studies and IA.

It is noteworthy that the drop in the number of productions in the years 2020 and 2021 may have been caused by the moment experienced worldwide, with the Covid-19 pandemic that caused social isolation, moving researchers away from universities and from the conviviality with their collaborators and students, also impacting, many times, their motivation and productivity.

Image 1. Number of scientific productions by year of publication - BRAPCI
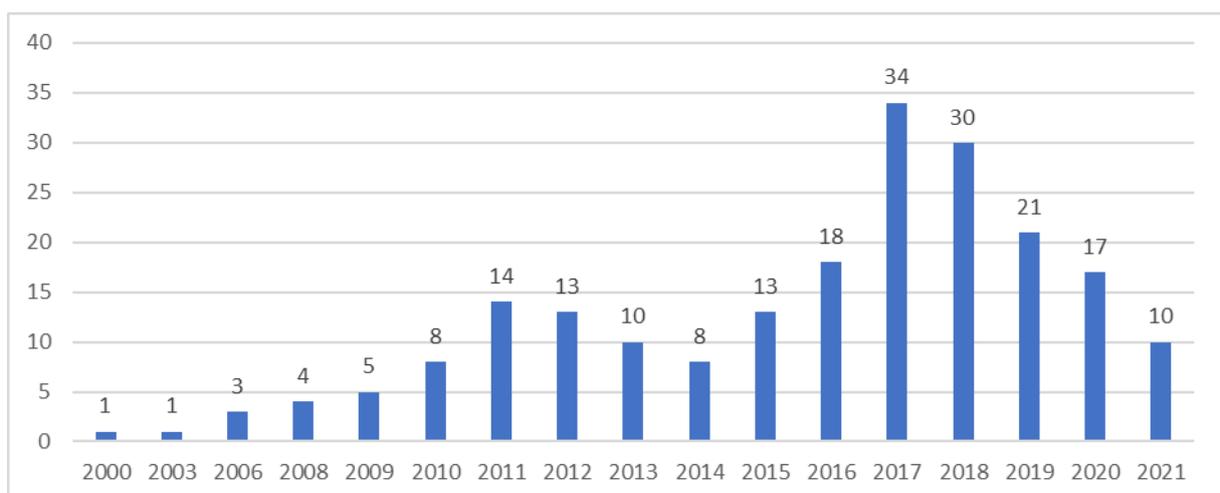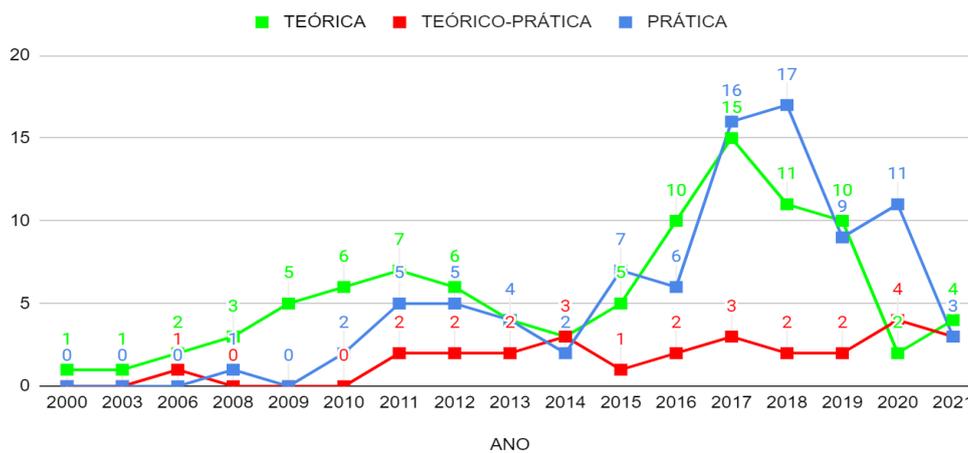

Source: Research Data (2022).

The years 2017 and 2018 represented the highest peaks of production, with 34 and 30 productions, respectively. It is noteworthy that 24 of the 64 productions in this period applied the Information Architecture studies in some digital information environment, which reinforces the previously mentioned of a greater concern of researchers with improving access to information by users. Other 11 productions worked on the relation of IA with other

subareas of knowledge of Information Science, such as Knowledge Organization and Information Representation, besides there were also productions that worked on the relation of IA with Semiotics and with Digital Curatorship. The remaining productions were diluted in other areas explained below.

Still about the annual behavior of the productions, we analyzed the classification of these researches in theoretical, theoretical-practical, or practical (Image 2). It is possible to observe from Image 2 that from 2000 to 2003 only two theoretical studies on IA were published, where the first one was about the Librarian as information architect (ESPANTOSO, 2000) and the second one about the concepts that guide the procedures of Information Architecture (LARA FILHO, 2003). Only after 2006, which again coincides with the release of Rosenfeld and Morville's book (2006), studies with a more theoretical and practical approach appear. The first of them, in 2006, was a production containing discussions about an information architecture proposal for customizable digital libraries (CAMARGO; VIDOTTI, 2006). It is only in 2008 that one can verify a production that applies IA studies in information environments, from the analysis of IA on the website of a Virtual Health Library (SILVA; DIAS, 2008).

It is verified between 2000 and 2011 that the theoretical productions deal with the elements of IA and the relationship that these have with Librarianship and CI, precisely because the theme was beginning to be discussed in the area. Only from 2011 began to appear, in increasing numbers, productions that addressed instruments, models, guidelines and tools of IA that, in general, assist in the creation and/or analysis of diverse information environments, focusing on structuring the information and improving access to it.

Image 2. Annual overview of surveys regarding the framework

Source: Research Data (2022).

In the sequence, it was verified in which scientific communication media, the productions on IA were being published the most, being presented in Table I the five main ones. The five scientific communication vehicles in Table I cover 37.62% of the scientific productions on IA. The remaining productions are diluted in other journals, such as: Revista Folha de Rosto and Em Questão, with 8 productions each and Biblionline, Informação e Tecnologia, Múltiplos Olhares em Ciência da Informação, Perspectiva em Ciência da Informação, Pesquisa Brasileira em Ciência da Informação e Biblioteconomia, Revista Digital de Biblioteconomia & Ciência da Informação, and Revista Ibero-Americana de Ciência da Informação, each of these with 6 productions. Besides the journal Tendências da Pesquisa Brasileira em Ciência da Informação which is responsible for 5 of the productions. It is noteworthy that there are also 30 other journals in Information Science that presented between 4 and 1 of the total number of scientific productions.

**Chart I - The five scientific communication vehicles with more productions about IA in BRAPCI**

Scientific Communication Vehicles	Quantity of Productions	Representational Percentage
Encontro Nacional de Pesquisa e Pós-graduação em Ciência da Informação – ENANCIB (proceedings)	23	10,95%
Informação & Informação	19	9,05%
Perspectivas em Gestão & Conhecimento	14	6,67%
Informação & Sociedade: Estudos	12	5,71%
Encontros Bibli: Revista Eletrônica de Biblioteconomia e Ciência da Informação	11	5,24%

Source: Research Data (2022).

Interestingly, the first place refers to the annals of the National Meeting of Research and Graduate Studies in Information Science (ENANCIB), one of the most relevant events in the area of Information Science in Brazil. We infer that the quantity may be related to the willingness of researchers, professors, masters and doctoral students to present their work to their peers and have the opportunity to discuss their findings. We emphasize that the number of productions at ENANCIB would have been higher. However, due to the context of the Covid-19 pandemic, the event, traditionally face-to-face, did not take place in 2020, only occurring again in 2021 remotely, with a smaller membership, perhaps because of its format.

Regarding the authors who work with the topic of IA, Image 3 shows those with four or more published scientific papers, especially because there are many authors with three or fewer papers. Among the latter, there are 13 authors who published three articles each; 35 authors who published two articles each; and 260 authors who published only one scientific article each. In total, 325 authors were found publishing either individually or collaboratively with their peers on the theme.

Image 3. Authors who most produce on the thematic of IA found in BRAPCI
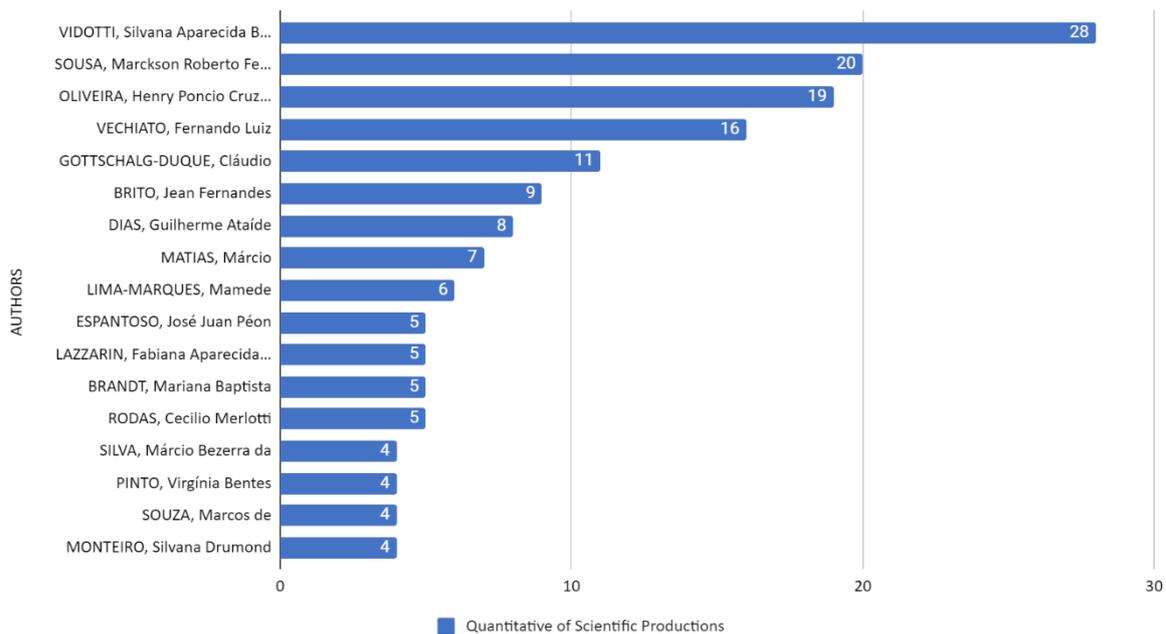
Among the most productive authors are: 1) Silvana Aparecida Borsetti Gregório Vidotti from Universidade Estadual Paulista "Júlio de Mesquita Filho" (UNESP), with 28 published works. Silvana Vidotti has a productivity scholarship from the National Council for Scientific and Technological Development (CNPq) and her prominence as a researcher on the topic of IA, in the Brazilian context, had already been highlighted in the work of Cruz, Siebra e Silva (2021), which also pointed out the influence of authors Morville and Rosenfeld in her work. The referred author transits between the several approaches of IA, from traditional to pervasive in her productions. 2) Marckson Roberto Ferreira Sousa from the Federal University of Paraíba (UFPB), with 20 published productions. This researcher has been dedicated, besides IA, to several themes related to the improvement of human-system interaction, such as usability, accessibility, and user experience. His work transits between the systemic approach to IA and the informational approach. And 3) Henry Pôncio Cruz de Oliveira, also a professor at UFPB, with 19 published works. Henry Oliveira is part of the collaborative network of researcher Silvana Vidotti and has published jointly with her several scientific productions. The productions published by Henry Oliveira give greater emphasis to the pervasive approach to IA, a theme that has been researched by the author since his doctoral thesis.

4.2 Scenario of the scientific prodution on IA in the internatinal context

This section presents the analyses regarding the scientific production on Information Architecture in the context of Information Science performed from the 204 productions retrieved from the SCOPUS database. Image 4 shows the number of productions per year in this database.

Image 4. Number of scientific productions per year of publication – SCOPUS
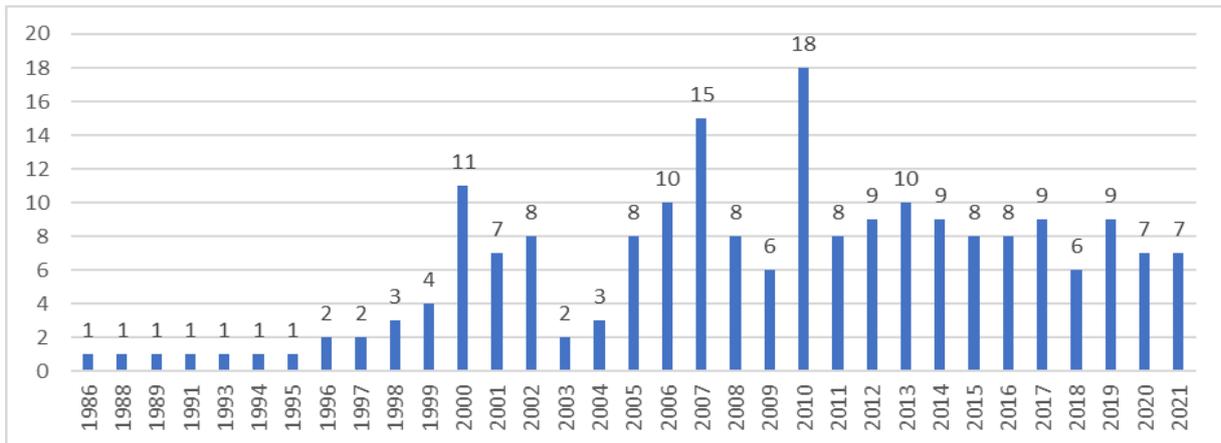
The scientific productions about IA begin to be identified in the international scenario since the year 1986. The first identified production dealt with IA as a method that can contribute to the construction of interactive information systems (BRANCHEAU; WETHERBE, 1986). The number of productions over time remained almost constant until the mid-2000s. We infer that, as in the BRAPCI production scenario, this increase was derived from the needs arising from the evolution and more intensive use of Information and Communication Technologies, especially the Web. The productions had a significant drop in the years 2003 and 2004, growing again afterwards, remaining between 6 and 10 productions per year, with two growth peaks, one in 2006 with 15 productions and another in 2010 with 18 productions. Making a comparison of the international scenario (obtained in SCOPUS) with the Brazilian scenario (obtained in BRAPCI), in terms of productions, it can be seen (Image 5) that, despite the productions in Brazilian journals having started 14 years after the first production on the topic of IA in international journals, the relevance that the discussions and research on IA have been reaching in the Brazilian scenario can be seen, demonstrated by the number of productions higher than the international scenario in several years, especially in the years 2017 and 2018.

Image 5. Comparison of the number of productions per year between SCOPUS and BRAPCI
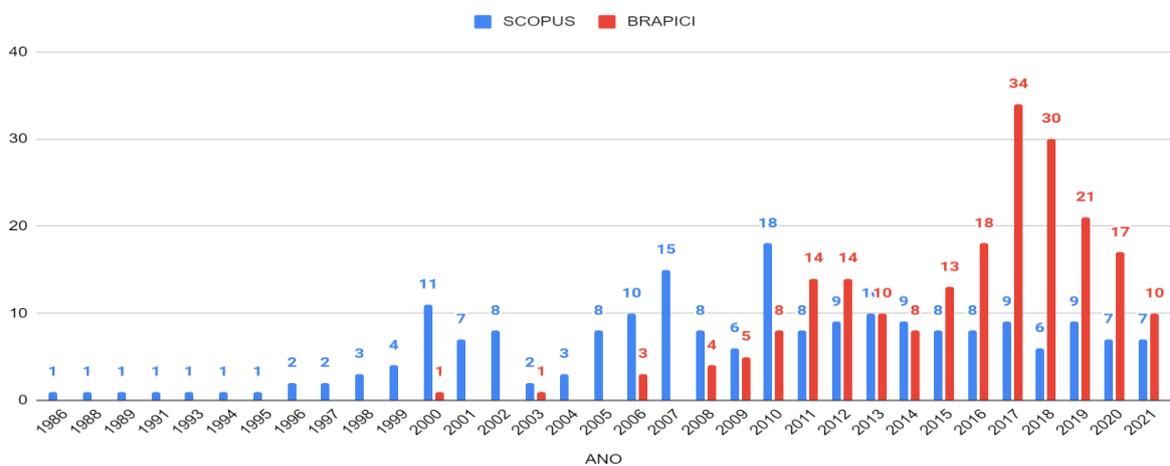
Continuing the analysis of the international scenario, about the research framework (Image 6), theoretical research occupies a large part of the scientific productions in the international context, and that the productions that present practical applications maintain a certain consistency in the number of productions.

Image 6. Annual Overview of Research Classification in SCOPUS
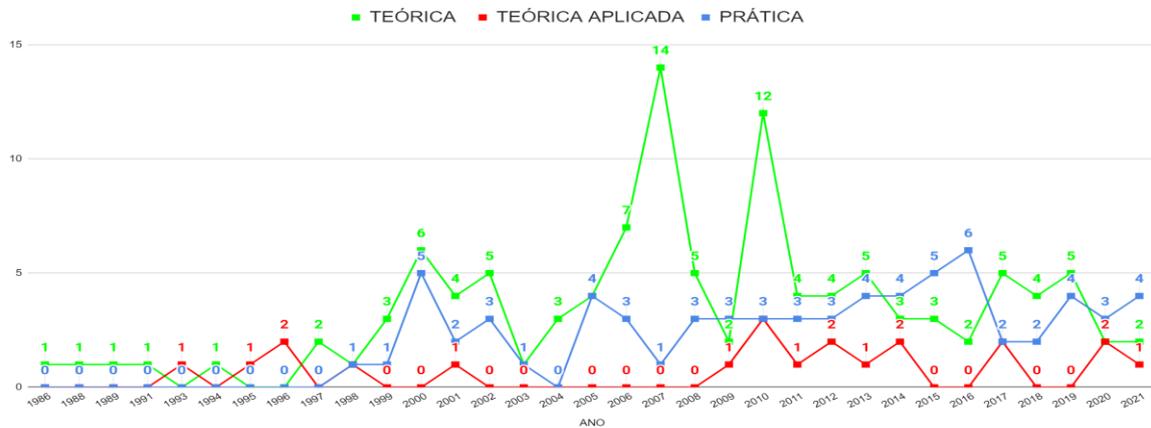
Source: Research Data (2022).

Regarding the journals where the productions on the topic of IA have been published, it was noticed that, despite the existence of a larger quantity of productions in some specific journals, such as the five listed in Table II, which hold 24% of the total productions, in general, the production on IA is diluted in about 82 scientific journals, the one with the largest quantity being the journal Profesional de La Informacion, with 18 productions.

Chart II - The five scientific communication vehicles with the most articles on IA in SCOPUS

| Scientific Communication Vehicles	Quantity of Productions	Representational Percentage
Profesional de La Informacion	18	9%
Bulletin of the American Society for Information Science and Technology	9	4%
International Journal of Information Management	9	4%
Bulletin of the American Society for Information Science	9	4%
Journal of Web Librarianship	7	3%

Source: Survey data (2022).

It is noteworthy that, by excluding the 25 scientific productions duplicated between the two bases of the SCOPUS corpus, the Brazilian journals indexed in SCOPUS were not considered for the construction of Table II. They were: Informação & Sociedade: Estudos (with 9 productions); Biblios (with 5 productions); Perspectiva em

Ciência da Informação (with 5 productions); Transinformação (with 3 productions); Encontros Bibli (with 2 productions) and Ciência da Informação (with one production). Considering the number of Brazilian journals, it is verified that the journal Informação & Sociedade: Estudos, with 9 scientific productions indexed in both databases, would integrate Table II, if they had been considered. Thus, it can be considered a representative journal for productions on the thematic of IA in the Brazilian scenario, since it holds the third largest number of productions on IA among the Brazilian journals (with 12 productions indexed in BRAPCI) and would be among the 5 journals with more productions on the thematic in the international scenario (with 9 productions indexed in SCOPUS).

Regarding the authors who publish on the topic of IA, the international scenario differs from the Brazilian scenario, with no major author. In fact, it is verified that there is a greater balance between the number of productions per author (Image 7). The four most productive authors are Burdord, Fox, Shieh and Codina, with four productions each. Then there are four authors who published three papers and 398 authors who published two or fewer papers.

Image 7. SCOPUS Authors who have most produced on the topic of IA found in SCOPUS
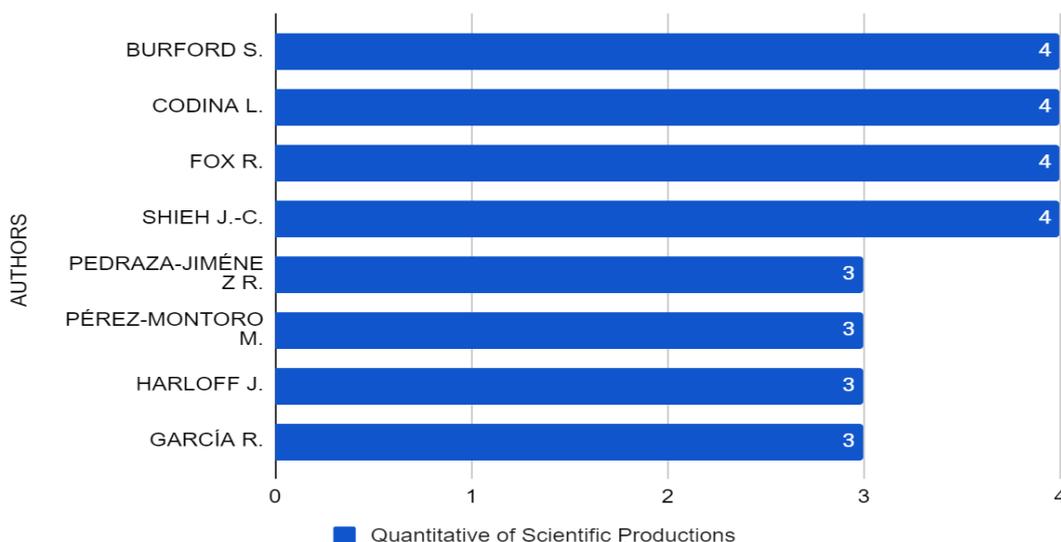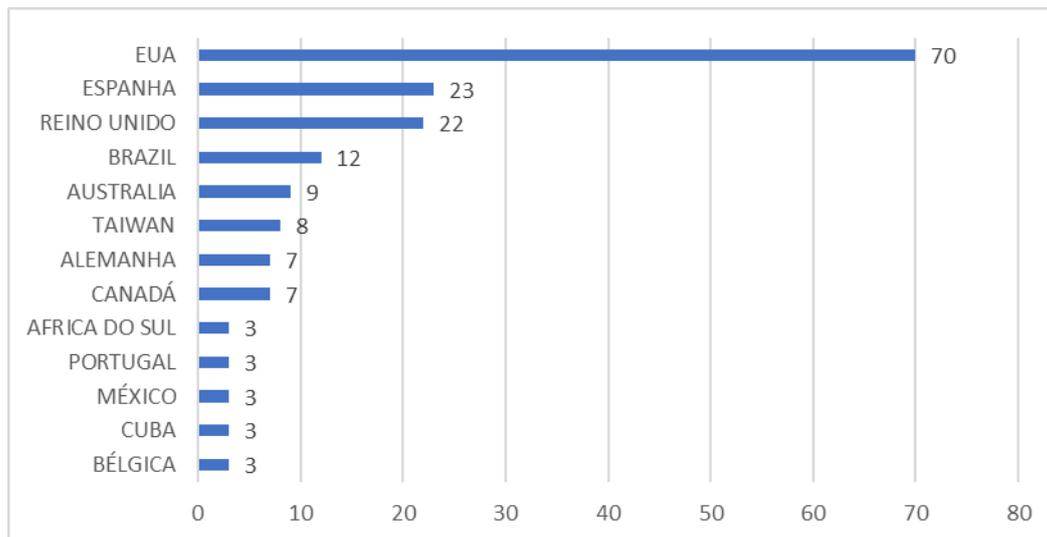

Source: Research Data (2022).

Sally Burford is a lecturer in the Faculty of Arts and Design at the University of Canberra in Australia. The author has focused her publications on IA in the context of websites, highlighting that their information architecture, structure, and information design is an important criterion for the successful use of this type of online environment by users. His publications focus on the systems approach to IA. Robert Fox is Senior Programmer/Analyst at University Libraries of Notre Dame, Notre Dame, Indiana-USA and his publications focus on the application of IA in repositories and digital libraries using the informational approach of IA. Jiann-Cherng Shieh is a professor at the Graduate Institute of Library & Information Studies, National Taiwan Normal University and his research related to IA focuses on its relationship with Usability and in particular with Information Findability in library websites. Luis Codina is a professor at Universitat Pompeu Fabra in Barcelona, Spain. His research focuses on analyzing and designing efficient systems for navigation and access to information on websites, as part of the IA project. One can identify in his productions the systemic approach of IA.

If the 25 productions excluded from the SCOPUS corpus were considered, the scenario in Image 7 would change, since the researcher Silvana Vidotti would become the most productive author in the IA theme, both in the Brazilian scenario (with 28 productions indexed in BRAPCI), and in the international scenario (with 6 productions indexed in SCOPUS). It is considered, therefore, that this author has been dedicating herself to research on the theme and collaborating with several other authors/researchers on the subject.

Regarding the countries that have most contributed to the development of discussions on IA in Information Science (Image 8), in first place is the USA, responsible for most of the contributions, followed by Spain, the UK and Brazil. It is noteworthy that the USA is the country of origin of Louis Rosenfeld, and the UK of Peter Morville, authors of one of the most popular books on IA (Morville and Rosenfeld, 1998).

It is worth pointing out, again, that without the removal of the 25 repeated productions between the two bases, which were all Brazilian productions, the position of Brazil in Image 8 would be different. Brazil would become the second most productive country, with 37 productions at SCOPUS (12 non-repeated + 25 productions removed from the corpus due to repetition at BRAPCI), endorsing the interest that the theme has raised among Brazilian researchers.

Image 8. Number of scientific productions per country

Source: Research Data (2022).

The other countries with 2 or less productions that were not highlighted in Image 8 were: Bangladesh, China, Colombia, India, Iran, Italy, Malaysia, Netherlands, Norway, Singapore, Sweden, Chile, Cyprus, Denmark, France, Hungary, Iceland, New Zealand, Nigeria, Pakistan, Poland, Russian Federation, Saudi Arabia, Thailand and Uruguay. Thus, even in a more discrete way, discussions about IA have been held in several countries, always associated, in some way, with the greater presence of ICTs in people's daily lives and the need for organization, access and findability of information in digital environments, to facilitate interaction with them.

4.3 Thematic Categories of the Productions

The analyzed productions were framed into thematic categories established based on their content, as described in the methodological procedures, aiming to analyze how the topic of IA has been addressed in scientific productions in IC (Tables III and IV).

In the context of BRAPCI (Table III), most of the productions did not effectively approach IA in their content, they only mentioned or defined it and related it to other themes, such as user experience, accessibility, taxonomies, ontologies, digital curation, human-computer interaction, metadata, etc., and it was these other themes that were effectively discussed in the productions. Or they referred to studies about scientific productions and, in this context, they cited or framed IA. Therefore, 53 productions were framed in the category "Cites Information Architecture but focuses on Other Discussions". This is the case of Steimer and Luz (2015), who discuss the development of a taxonomy for e-commerce and explain and highlight the Information Architecture in the navigational taxonomy (front end). Also, the study of Fonseca and Vitullo (2017) that performs a thematic mapping on the scientific production of Information Science and among the productions they highlight those focused-on discussions about IA. Among the discussions of other themes held in this category, it is worth

mentioning the discussions about Usability, relating it to IA, often placing these themes as complementary (6 productions); and the productions that work issues of Findability and relate it directly to IA (9 productions).

In in odio sit amet justo sodales suscipit. Maecenas posuere sapien sed tortor ornare, et sodales enim blandit. In quis accumsan nibh. Fusce et tristique velit. Sed in porta mi. Vestibulum porta mi sit amet dolor mattis, ut imperdiet justo rutrum. Integer eleifend turpis at neque commodo interdum.

Chart III - Quantity of Productions in each of the BRAPCI Thematic Categories

Categories Afterwards	Quantity of Scientific Productions
Cites Information Architecture, but focuses on Other Discussions	53
Proposal, Analysis or Evaluation of Digital Environments	48
Theoretical Relationships of Information Architecture with Other Areas of Knowledge	30
Tools Developed for Application in the Context of Information Architecture	21
Theoretical Discussions and Innovations in Information Architecture	19
Pervasive Information Architecture	12
Information Architecture and Information Science	9
User Studies and Information Architecture	8
Information Professionals and the Information Architecture	8
Information Architecture and Findability	3
Literature review on Information Architecture	1
Total	**210**

Source: Survey data (2022).

It is worth mentioning that the category "Information Architecture and Findability" (which has 3 productions) was created separately, because these do not only mention IA or relate it to Findability, but also bring significant discussions of both themes in the same production. This is the case of the work of Campos, Sousa e Oliveira (2021) that deals with possible theoretical relations between Findability and Information Architecture.

In second place are the productions of the thematic category "Proposal, Analysis or Evaluation of Digital Environments". The 48 productions in this category deal with IA analysis and evaluation in various digital environments, such as news portals, websites of universities, organizations and/or e-commerce, digital libraries, digital repositories, among others. Often, proposing recommendations or best practices based on the analysis performed. As an example, one can cite the production of Brito and Matias (2017) that analyzes the information architecture of the Digital Library of Theses and Dissertations of IBICT; and Cirino and Silva (2020), that deals with the evaluation of the virtual health library of the Oswaldo Cruz Foundation, in the light of IA.

In third place is the category "Theoretical Relations of Information Architecture with other Knowledge Areas". There are works that deepen the conceptual and theoretical relations of IA with other areas of knowledge, such as Computer Science, Semiotics, Knowledge Organization, Accessibility, Design, Administration, among others. It can be cited in this category the studies of Souza and Tabosa (2014) who discuss about information architecture directed to the reconstruction of hypertext documents to meet the visually impaired and Cartaxo and Gottschalg-Duque (2016) who deals with the aspects of IA involved in the mapping of processes in military organizations from the perspective of semiotics.

We also highlight the productions in the category "Tools Developed for Application in the Context of Information Architecture", which groups studies focused on developing instruments, guidelines and/or models focused on IA, in the context of Information Science. Such as the production of Camargo and Vidotti (2006), which brings a proposal of IA for digital libraries; the study of Inafuko and Vidotti (2012) that presents a proposal of guidelines for evaluation of library blogs; and the study of Rocha and David (2020) that makes the proposal of an IA model for Periodical Portals.

In the SCOPUS database, the themes were presented in a slightly separate way from BRAPCI, as can be seen in Table IV, but the categories with more productions ended up being the same. In first place, with 80 productions, is the category "Cites Information Architecture, but focuses on Other Discussions". The productions in this category deal with studies that were developed in several contexts, but all of them highlight IA, either by reporting the need for improvements in the IA of certain information environments; or by relating another theme (such as: Usability, Human-System Interaction, Accessibility and Findability, etc.) being discussed with IA, highlighting the relevance of IA during the discussion; or contemplate literature reviews in the context of IC, in which IA is highlighted as a relevant theme of study. One can give as an example the production of Voces-Merayo (2010) that addresses the contribution of IA to improve Web accessibility, but focuses on the discussion about the promotion of Web Accessibility; that of Omekwu, Ugwu and Ejikeme (2021), which deals with access to information from the perspective of librarians in two Nigerian universities; and the work of Morales-Vargas, Pedraza-Jiménez and Codina (2020) who analyze the scientific production on website quality and end up addressing and defining IA, in this scenario.

It is noteworthy that among the productions in this first category, 17 discuss the Usability theme and place it in a direct relationship with IA or point out how both themes mutually influence each other. It is interesting to point out that the productions that work with usability are, in their majority, practical/applied studies (15 productions). Such as the productions by Ball and Bothma (2018) that presents the heuristic evaluation of e-dictionaries; and by Rogers and Preston (2009) that analyzes the usability for IA redesign of a library website. It is noticed in the SCOPUS productions a smaller exploration, compared to the Brazilian context, of the relationship of IA with Information Findability, since only 3 productions discuss Findability and associate it with IA and none of them deepens the discussion, thus there is no production in SCOPUS that fits in the category "Information Architecture and Findability".

Table IV - Number of Productions in each of the Thematic Categories in SCOPUS

Categories Afterwards	Quantity of Scientific Productions
Cites Information Architecture, but focuses on Other Discussions	80
Proposal, Analysis or Evaluation of Digital Environments	31
Theoretical Discussions and Innovations in Information Architecture	24
Tools Developed for Application in the Context of Information Architecture	13
Theoretical Relationships of Information Architecture with Other Areas of Knowledge	11
Information Architecture as a Methodological Alternative for Information Environments	11
Information Professionals and the Information Architecture	10
Information Systems and Information Architecture	7
Review of the Information Architecture Literature	6
Information Architecture and Business Management	6
User Studies and Information Architecture	3
Information Architecture and Information Science	2
Total	**204**

Source: Survey data (2022).

In second place is the category "Proposal, Analysis or Evaluation of Digital Environments" which groups 31 productions. For example, Burford and Resmini (2017) evaluates IA in informational ecologies and Santamaria and Monteiro (2013) analyze the website of a Spanish university based on IA. It is noticed in the productions that approach IA evaluations in digital environments that the most analyzed environments are the websites of universities, university libraries and, to a lesser extent, of companies and organizations.

Unlike the Brazilian context, in third place is the category "Theoretical Discussions and Innovations in Information Architecture", with 24 productions, which refers to studies that aim to dialogue about the theoretical and conceptual aspects of IA, deepening them; or incorporating new visions about them; or even bringing new elements to be considered in research on IA. This is the case of García, Botella e Marcos (2010) who discuss the evolution of IA and Campbell (2007) who brings future visions about Information Architecture and its application in increasingly complex and interconnected environments.

Two other categories deserve to be highlighted. "Tools Developed for Application in the Context of Information Architecture", with 13 productions, which aggregates works such as that of Mohd Isa, Md Noor and Mehad (2010) who introduced a model of architectural induction of the Web that aims to apply IA in the cultural context and the work of Ruzza, et all (2017) who designs a model for creating complex informational websites, based on IA.

Besides, the category "Theoretical Relations of Information Architecture with other Knowledge Areas" has 11 productions. In this category the discussions focus on two areas of knowledge, Computer Science, covering IA in the context of the Web: and Information Organization, linking IA with concepts such as classification, indexing, metadata, and taxonomies. An example of output from this category is the work by Coneglian et al. (2019) that addresses the relationship between semantic Web technologies and IA.

It can be observed that in the context of SCOPUS some categories not found from BRAPCI were identified, such as the category "Information Architecture as a Methodological Alternative for Information Environments", with 11 scientific productions that address information environments and propose or employ IA as a methodological strategy for planning such environments. This is the case of Clyde's (2000) production that discusses the design of a website using IA as one of the methodological means to do so; and Li's (2006) production that puts the study of IA as a methodological alternative to leverage library user services. And the categories "Information Systems and Information Architecture", which discusses and points out the need to consider IA-related issues in information system development; and "Information Architecture and Business Management" which, on issues related to business management, points out the usefulness of IA in building digital environments.

The category "Pervasive Information Architecture" exists only in the categories used for the production at BRAPCI because it is observed that the discussion of this theme in the SCOPUS corpus is diluted in other categories, not being deepened in the exclusive discussion of Pervasive IA, as occurs in the Brazilian production.

Looking at the scientific production in both databases, it is worth mentioning that those classified under the category "Proposal, Analysis or Evaluation of Digital Environments", which is in second place in both databases, focus on analyzing (and to a lesser extent, creating) informational environments using IA guidelines, recommendations, and principles. In fact, much of the research seeks to analyze digital informational environments already developed, aiming to point out flaws and improvements in IA, through the identification of the presence or absence of elements of the organization, navigation, labeling and search systems, presented by Rosenfeld and Morville (2006) and re-presented by Rosenfeld, Morville and Arango (2015). However, it is clear that there is no standardization, no model that is widely adopted to apply IA in the creation or evaluation of digital information environments. In fact, it is observed that each production ends up applying the IA systemic approach differently. It is also notable that the informational and systems approaches still predominate in the discussions of both bases, with the systems approach being the most frequently used.

Finally, an overview of the most recurrent keywords in both databases was prepared, considering those that had been used in 11 or more productions (Image 9).

Image 9. Most recurrent keywords in the analyzed scientific productions (BRAPCI and SCOPUS)
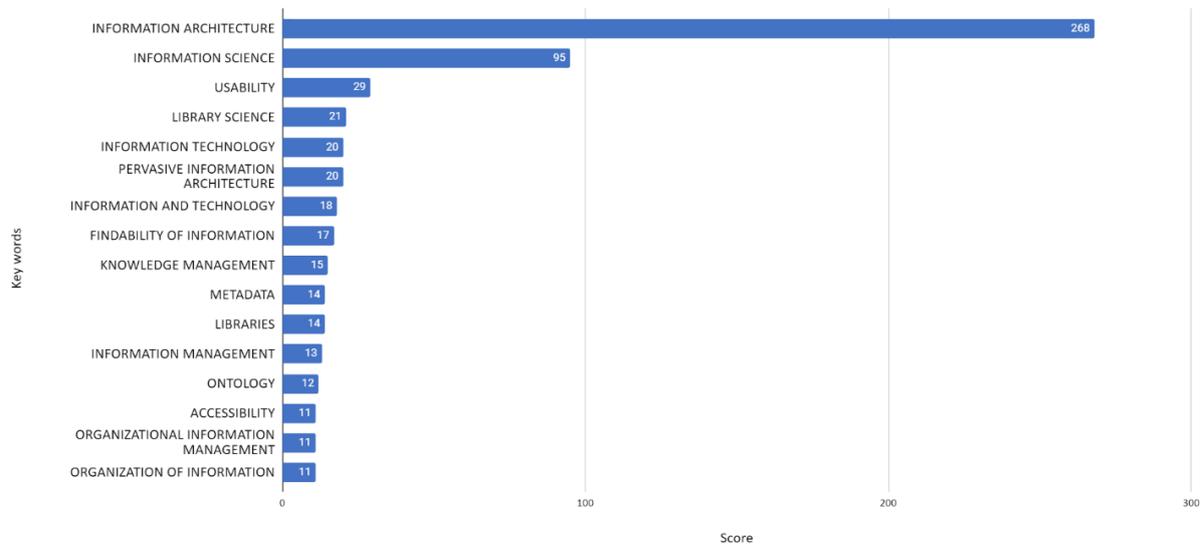
Source: Research Data (2022).

It is possible to verify that 995 keywords were used in the productions, the most frequent being "Information Architecture", which was used in 268 of the 414 productions analyzed, followed by the word "Information Science", present in 95 productions. The other key words are pulverized in the most diverse themes, which shows that IA in the context of IC has been researched in a very diversified manner, always in favor of improving access to information.

5 Conclusions

The result of this study provides an overview of the discussions about IA in the context of CI. As seen, most of the research presented in the scientific productions on IA at BRAPCI and SCOPUS cover discussions about Usability, Accessibility, Findability, interaction improvement in the context of the Web, access to information managed and preserved through Digital Curatorship, among others, in which IA is addressed transversally. In other words, the productions do not discuss IA, they do not deepen or discuss this theme specifically, but they define it, relate it to the theme they address and value its study. In this way, it can be said that research on IA together with user studies, usability, user experience and findability of information, complement each other in a harmonic vision to contribute to the access to information in a satisfactory way, so that users can meet their informational needs.

In second place are, also in the context of BRAPCI and SCOPUS, the scientific productions aimed at the practical application of IA in digital information environments, always focusing on improving the findability of information and access to information, as well as contributing to the structuring and organization of information in digital environments. Being academic and scientific environments some of the most analyzed in the Brazilian context (BRAPCI), such as university websites, libraries, digital libraries, and digital repositories. This differs from the practical applications carried out in the context of the scientific production of SCOPUS, which focus on the corporate environment, in search of solutions for the quality of corporate websites or solutions for the management of business information. It is worth noting that this concern with the corporate was not very representative in the production collected at BRAPCI.

It is noteworthy that the practical applications, in its vast majority, make use of the IA systemic approach, however, it is noted a lack of standardization in how to apply it (either for creation or evaluation of digital environments), with each author working in the IA recommendations (Rosenfeld, Morville and Arango (2015) differently. It was also found that the pervasive approach of IA is still little worked on in practical applications of

IA. This approach would be more suitable for complex informational ecologies, full of pervasive, mobile, and interconnected digital environments, increasingly present in people's daily lives.

This research has as limitations the choice of the BRAPCI and SCOPUS databases. For, despite having been chosen two representative databases with the largest number of productions on the theme, there may be productions that were not covered by them; and the delimitation of the productions analyzed was scientific articles in annals of events or in periodicals, because, thus, other types of productions that could have been significant for this study, such as books, book chapters, theses and dissertations, and altered some of their results, were not analyzed. Additionally, some difficulties were encountered in carrying out this study, arising from the time-consuming operational effort to structure the data so that they could serve as bibliometric indicators, especially on the production made available at BRAPCI. The laborious process of searching, cleaning, and organizing the data, done manually, is still an obstacle to studies linked to Brazilian scientific production in the areas of the Social Sciences and Humanities, admittedly little covered by the main international databases such as SCOPUS and Web of Science.

Finally, it is worth noting that the analyzed productions collaborate with the social function of IC, demonstrating concern with the users of information, besides being relevant in the context of the post-custodial paradigm of Information Science (Silva and Ribeiro, 2011), where the dissemination, access and use of information are valued, being consequently necessary that such information is organized and presented in an appropriate way for its target audience.

Bibliography

ALVAREZ E.B., VIDOTTI S.A.B.G., SÁNCHEZ J.A.P. (2021). Pervasive information architecture: A model for university libraries. *Revista Interamericana de Bibliotecología, 44* (2). https://revistas.udea.edu.co/index.php/RIB/article/view/345193/20804613

ALVAREZ, E.B., VIDOTTI S.A.B.G., BRITO, J.F. (2020). Arquitetura da informação enquanto disciplina científica: um debate ainda aberto. *Revista Brasileira de Biblioteconomia e Documentação, 16*, 1-24. https://rbbd.febab.org.br/rbbd/article/view/1409/1225

BALL, L. H., BOTHMA, T.J.D. (2018). Heuristic evaluation of e-dictionaries. *Library Hi Tech, 36* (2), 319-338. https://repository.up.ac.za/bitstream/handle/2263/64969/Ball_Heuristic_2018.pdf?sequence=1

BARDIN, L. (2011). *Análise de conteúdo*. São Paulo: Edições 70.

BRITO, Jean Fernandes; MATIAS, Márcio (2017). Biblioteca digital de teses e dissertações do IBICT: uma análise sob a ótica da arquitetura da informação. *Revista ACB: Biblioteconomia em Santa Catarina, 22* (2), 285-299. https://revista.acbsc.org.br/racb/article/view/1346/pdf

BRANCHEAU J.C., WETHERBE J.C. (1986). Information architectures: Methods and practice. *Information Processing and Management, 22* (6), 453-463.

BURFORD, S.; RESMINI A. (2017). Cross-channel information architecture for a world exposition. *International Journal of Information Management, 37* (6), 547-552.

CAMARGO, L. S. A., VIDOTTI, S. A. B. G. (2006). Arquitetura da informação para biblioteca digital personalizável. *Encontros Bibli: Revista Eletrônica de Biblioteconomia e Ciência da Informação*, (1), 103-118. https://periodicos.ufsc.br/index.php/eb/article/view/1518-2924.2006v11nesp1p103/389

CARTAXO, M. A.; GOTTSCHALG-DUQUE, C. (2016). Aspectos da Arquitetura da Informação envolvidos no mapeamento de processos em Organizações Militares sob a perspectiva semiótica. *Informação & Informação, 21* (2), 103-130. https://ojs.uel.br/revistas/uel/index.php/informacao/article/view/22385/18990

CIRINO, T. M. R., SILVA, M. B. (2020). Esquemas de organização exatos e ambíguos da informação no portal institucional BVS FIOCRUZ. *Revista Fontes Documentais*, (3), 592-601. https://periodicos.ufba.br/index.php/RFD/article/view/57733/30508

CLYDE, L. A. (2000). A strategic planning approach to Web site management. *Electronic Library, 18.*(2), 97-108.

CONEGLIAN C.S., ROA-MARTINEZ S.M., Da COSTA FERREIRA A.M.J.F., VIDOTTI S.A.B.G., SEGUNDO J.E.S. (2019). Semantic web technologies in information architecture. *Revista Interamericana de Bibliotecología, 42* (1), 23-35. http://www.scielo.org.co/pdf/rib/v42n1/0120-0976-rib-42-01-23.pdf

CRUZ, T.L., SIEBRA, S.A., SILVA, F.M. (2021). Produção científica dos bolsistas de produtividade em ciência da informação sobre interação humano-sistema. *Encontros Bibli: revista eletrônica de biblioteconomia e ciência da informação, 26*, 1–22. https://periodicos.ufsc.br/index.php/eb/article/view/78803/47429

FONSECA, M. B. B., VITULLO, N. A. V. (2017). Seminário do CCSA-UFRN: mapeamento temático das produções científicas na área de Ciência da Informação. *Revista Informação na Sociedade Contemporânea. 1* (3), 1-13. https://periodicos.ufrn.br/informacao/article/view/11003/8500

LEÓN, R. R. (2008). Arquitectura de Información: análisis histórico-conceptual (1886-8592). *No solo usabilidade Journal*, (7). https://www.nosolousabilidad.com/articulos/historia_arquitectura_informacion.htm

GARCÍA R., BOTELLA F., MARCOS M.-C. (2010). Hacia La Arquitectura de la Información 3.0: Pasado, presente y futuro. *Profesional de la informacion, 19* (4), 339–347. https://revista.profesionaldelainformacion.com/index.php/EPI/article/view/epi.2010.jul.02/21274

GARDNER J.R. (2001). Information architecture planning with XML. *Library Hi Tech, 19* (3), 231-241.

INAFUKO, L. S., Vidotti, S. A. B. G. (2012). Diretrizes para o desenvolvimento e a avaliação de blogs de biblioteca. *Encontros Bibli: Revista Eletrônica de Biblioteconomia e Ciência da Informação, 17* (35), 145-166. https://periodicos.ufsc.br/index.php/eb/article/view/1518-2924.2012v17n35p145/23586

LI, L. (2006). Leveraging quality web-based library user services in the digital age. *Library Management, 27* (6/7), 390-400.

MACIAS-CHAPULA, C. A. (1998). O papel da informetria e da cienciometria e sua perspectiva nacional e internacional. *Ciência da Informação*, 27 (2), 134-140. http://www.brapci.inf.br/v/a/915

MOURA M. A., GOMES C.A. (2017). Electronic commerce and consumption: Semiotic scenario and information architecture in online stores. *Proceedings of the Association for Information Science and Technology, 54* (1), 503-506.

MOHD ISA W.A.R.W., MD NOOR N.L., MEHAD S. Web Architectural-Inducing Model (WA-IM) for Information Architecture in cultural context: An empirical investigation. *Journal of Digital Information Management, 8* (5), 330-337.

OLIVEIRA, D. P. R. (2002). *Sistemas de informações gerenciais: estratégias, táticas, operacionais*. São Paulo: Atlas.

OLIVEIRA, H.P.C., VIDOTTI, S.A.B.G. (2012). Arquitetura da informação digital: conexões interdisciplinares dentro da abordagem sistêmica. In: CAVALCANTE, L.E., BENTES PINTO, V., VIDOTTI, S.A.B.G. *Ciência da informação e contemporaneidade: tessituras e olhares*. Fortaleza, p.184-202.

OLIVEIRA, H. P. C., VIDOTTI, S. A. B. G. (2013). O ensino de arquitetura da informação e organização/representação da informação digital: uma análise curricular dos cursos de Biblioteconomia do Brasil. Em Ribeiro, F., Cerveira, E. (org.), Anais do *I Congresso ISKO Espanha e Portugal XI*. Universidade do Porto. http://www.iskoiberico.org/wp-content/uploads/2014/09/porto13.pdf.

OLIVEIRA, H. P. C. (2014). *Arquitetura da informação pervasiva: contribuições conceituais*. Tese (Doutorado em Ciência da Informação) Universidade Estadual Paulista, Faculdade de Filosofia e Ciências de Marília, Brasil. https://www.marilia.unesp.br/Home/Pos-Graduacao/CienciadaInformacao/Dissertacoes/oliveira_hpc_do_mar.pdf

OLIVEIRA, H. P. C., VIDOTTI, S. A. B. G., e PINTO, V. B. (2015). *Arquitetura da informação pervasiva*. São Paulo: Cultura Acadêmica.

OLIVEIRA, H. P. C., VIDOTTI, S. A. B. G. (2016). Dos ambientes informacionais às ecologias informacionais complexas. *Inf. & Soc, 26* (1), 91-101. https://periodicos.ufpb.br/ojs2/index.php/ies/article/view/29438/16509

ROCHA, C. C., DAVID, P. B. (2020). Avaliação da Arquitetura da Informação em Portais de Periódicos. *Perspectivas em Gestão & Conhecimento, 1*0 (2), 223-243. https://periodicos.ufpb.br/index.php/pgc/article/view/50239/31156

ROGERS R., PRESTON H. (2009). Usability analysis for redesign of a Caribbean academic library web site: A case study. *OCLC Systems and Services*, 25 (3), 200-211.

ROSENFELD, L, e MORVILLE, P. (2006). *Information Architecture for the World Wide Web*. O'Reilly Media.

ROSENFELD, L., e MORVILLE, P.; ARANGO, J. (2015). *Information Architecture*: *for the web and beyond.* O'Reilly Media.

RUZZA M., TIOZZO B., MANTOVANI C., D'ESTE F., RAVAROTTO L. (2017). Designing the information architecture of a complex website: A strategy based on news content and faceted classification. *International Journal of Information Management, 27* (3), 166-176.

SANTAMARIA, S.O., MONTERO, Y.H. (2013). Analysis and evaluation of spanish university websites from Bologna process. Perspectivas em Ciência da Informação, 18 (4), 70-92.

SANTOS, R. N. M. (2003). Indicadores estratégicos em ciência e tecnologia: refletindo a sua prática como dispositivo de inclusão/exclusão. *Transinformação*, *15* (3), 129-140.
https://www.scielo.br/j/tinf/a/KqSjTqbgTJ3Pm7wbQsBnCNj/?format=pdf&lang=pt

SILVA, A.M. (2016). Arquitetura da Informação e Ciência da Informação: Notas de (re)leitura à luz do paradigma pós-custodial, informacional e científico. *Prisma* (*32*), 62-104.

SIQUEIRA, A.H. (2012). *Arquitetura da informação*: uma proposta para fundamentação e caracterização da disciplina científica. Tese (Doutorado em Ciência da Informação) Universidade de Brasília, Brasil.

SOUZA, E.D., SILVA, Z.C.G. (2016). A produção interdisciplinar na Ciência da Informação: fundamentos teórico-metodológicos da arquitetura da informação. In *Anais do XVII Encontro Nacional de Pesquisa em Pós-graduação em Ciência da Informação*.
https://cip.brapci.inf.br/download/187037

SOUZA, Osvaldo; TABOSA, Hamilton Rodrigues. (2014). Virando a página: um novo conceito de acessibilidade na web para deficientes visuais. *Informação & Sociedade: Estudos*, *24* (1), 145-161.
https://periodicos.ufpb.br/ojs2/index.php/ies/article/view/16366/10935

STEIMER, I. S. G.; LUZ, C. S. (2015). Taxonomia para Comércio Eletrônico: diferentes perspectivas em front e back end. *Ciência da Informação em Revista*, *2* (3), 3-14. https://seer.ufal.br/index.php/cir/article/view/2186/1703

VIDOTTI, S. A. B. G., CUSIN, C. A., e CORRADI, J. A. M. (2008). Acessibilidade digital sob o prisma da Arquitetura da Informação. In GUIMARÃES, J. A. C.; FUJITA, M. S. L. (org.). *Ensino e pesquisa em Biblioteconomia no Brasil*: a emergência de um novo olhar (pp. 173-184). Cultura Acadêmica.
https://ebooks.marilia.unesp.br/index.php/lab_editorial/catalog/view/344/3506/6168

WURMAN, R. S. (1997). Information architects. Zurich: Graphis Press Corp.

Author data

Elanna Beatriz Americo Ferreira

Doutora em Ciência da Informação, Professora Substituta do Departamento de Ciência da Informação da Universidade Federal de Pernambuco, Brasil.

elanna.americo@gmail.com

https://orcid.org/0000-0003-4786-9611

Sandra de Albuquerque Siebra

Doutora em Ciência da Computação. Professora do Departamento de Ciência da Informação da Universidade Federal de Pernambuco, Brasil.

sandra.siebra@ufpe.br

https://orcid.org/0000-0002-0078-6918