
COLLABORATIVE PRODUCTION INDICATORS IN INFORMATION ARCHITECTURE

INDICADORES DA PRODUÇÃO COLABORATIVA NA ARQUITETURA DA INFORMAÇÃO

INDICADORES DE PRODUCCIÓN DE COLABORACIÓN EN LA CONFIGURACIÓN DE LA
INFORMACIÓN

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RESUMO: A arquitetura da informação é considerada como um domínio estratégico de produção colaborativa da Ciência da Informação. Descrevem-se as condições da produção colaborativa na arquitetura da informação, considerando-a como subárea de estudo da Ciência da Informação. Para tanto, abordam-se, especificamente, indicadores da produção científica que compreendem temáticas de estudo, tipologia e formação da autoria, programas de pós-graduação e áreas a que se encontra vinculada, entre outros. Trata-se de uma pesquisa exploratória e descritiva. Mapeia-se a produção científica do Encontro Nacional de Pesquisa em Ciência da Informação (ENANCIB), no período de 2003 a 2013, no repositório "Questões em Rede". Utiliza-se a bibliometria para identificar elementos paratextuais e textuais que formam indícios da produção colaborativa na arquitetura da informação. Constatou-se a pluralidade na formação acadêmica dos pesquisadores que abordam a arquitetura da informação, o compartilhamento de linguagens, alguns indícios das convergências disciplinares a partir da colaboração em coautoria, bem como um plexo de relações através das citações indiretas que representam o compartilhamento de elementos teórico-metodológicos na produção interdisciplinar. Além disso, a formação acadêmica dos pesquisadores com maior índice de produtividade é vinculada principalmente à Biblioteconomia e à Ciência da Computação. Considera-se que a produção colaborativa na arquitetura da informação se apresenta como processo de produção multidisciplinar, constituindo-se em um domínio convergente que possibilita a efetividade de práticas interdisciplinares na Ciência da Informação.

PALAVRAS-CHAVE: Ciência da Informação. Epistemologia da Ciência da Informação. Produção Colaborativa na Arquitetura da Informação. Produção Colaborativa na Ciência da Informação.

ABSTRACT: Information architecture is considered a strategic domain of collaborative production of Information Science. We describe the conditions of collaborative production in information architecture, considering it a sub-area of the study of Information Science. In order to do so, we specifically address indicators of scientific production that include topics of study, typology and authorship, postgraduate programs and areas to which it is linked, among others. This is an exploratory and descriptive research. The scientific production of the National Meeting of Information Science Research (ENANCIB), from 2003 to 2013, is mapped in the "Network Matters" repository. Bibliometry is used to identify paratextual and textual elements that form evidence of collaborative production in information architecture. We verified the plurality in the academic formation of the researchers that approach information architecture, the sharing of languages, some indications of the disciplinary convergences from the collaboration in coauthorship, as well as a plexus of relations through the indirect citations that represent the sharing of elements Theoretical-methodological approaches in interdisciplinary production. In addition, the academic training of the researchers with the highest productivity index is mainly related to Librarianship and Computer Science. The collaborative production in the information architecture is presented as a multidisciplinary production process, constituting a convergent domain that allows the effectiveness of interdisciplinary practices in Information Science.

KEYWORDS: Information science. Information science epistemology. Collaborative Production in information architecture. Collaborative Production in information science..

RESUMEN: Arquitectura de la información es considerada como un área estratégica de la producción colaborativa de ciencias de la información. las condiciones de producción colaborativa se describen en la arquitectura de la información, teniendo en cuenta que como el estudio de la subzona de la Ciencia de la Información. Por lo tanto, para abordar específicamente los indicadores de producción científica que comprenden estudio temático, el tipo y la formación de la autoría, los programas de postgrado y las áreas a la que está vinculada, entre otros. Se trata de una investigación exploratoria y descriptiva. Mapas a la producción científica de la Reunión Nacional de Investigación en Ciencias de la Información (Enancib) en el período 2003-2013, el repositorio "Cuestiones de red". Se utiliza la bibliometría para identificar los elementos paratextuales y textuales que forman pruebas de producción colaborativa en la arquitectura de la información. Se encontró que la pluralidad de los investigadores académicos para hacer frente a la arquitectura de la información, idiomas compartir, alguna evidencia de convergencias disciplinares de la colaboración con otros autores, así como un plexo de relaciones a través de las citas indirectas que representan los elementos que comparten teórico y metodológico en la producción interdisciplinaria. Además, los investigadores académicos con mayor índice de productividad está ligada principalmente a la Biblioteca y Ciencias de la Computación. Se considera que la producción colaborativa en la arquitectura de la información se presenta como un proceso de producción multidisciplinar, convirtiéndose así en un dominio convergente que permite a la eficacia de las prácticas interdisciplinares en Ciencias de la Información.

PALABRAS CLAVE: Ciencias de la Información. Epistemología de la Ciencias Información. Producción de colaboración en la Arquitectura de la Información. Producción de colaboración en Ciencias de la Información.

1 INTRODUCTION

In contemporary times, the practices of knowledge integration, multidisciplinary, interdisciplinarity and transdisciplinarity, gain status of movements of collaborative production of scientific knowledge, insofar as they essentially claim the complexity of nature, seeking the integration of objects, which present themselves increasingly fragmented, as a result of the growing specialization of knowledge. More precisely, they seek to overcome the state of fragmentation promoted by the analytical model characteristic of modern science. These movements result from cooperative relations between the different actors involved in scientific production, from researchers, disciplines, theories and methods, among others.

Scientific production, in this context, is characterized as collaborative, insofar as it is constitutive of those movements, which has been shown as a feasible set of alternatives for reaching the complexity of objects through integrative disciplinary approaches, considering the multidimensionality of these objects and relationships that can be established between themes, concepts, perspectives, theories, languages and methodologies, among others, in the various forms of knowledge.

Information Science, a field of scientific knowledge dedicated to the study of the informational phenomena and the processes, technologies and methodologies that surround it, is characterized by a multiplicity of epistemological foundations that condition collaborative practices. In this context, we can highlight some historical relations with different areas of knowledge, such as Jesse Shera's Librarianship (1903-1982), Mikhailov's Scientific Information (1905-1988), Paul Otlet's Documentation (1868-1944), Shannon's Mathematical Theory of Communication (1916-2001), and Vannevar Bush's Engineering and Information Retrieval (1890-1974).

Historically, collaborative production emerges as one of the main epistemological foundations in Information Science, conditioned by the complexity of the informational object, by the plural formation of its researchers and by the consequent disciplinary convergence with areas with which it dialogues (SOUZA, 2011).

In this hybrid field of study, it is worth mentioning the "information architecture" theme, which is a field of convergent study, insofar as it can be considered a strategic epistemic space for collaborative studies dedicated to interdisciplinary production, considering some theoretical- methodological relationships of different areas, such as librarianship (organization and content classification) and Computer Science (Web content presentation, navigation systems and information retrieval systems), addressing processes, flows and information needs.

Thus, the present article seeks to describe the collaborative production conditions in the information architecture domain, considering it a study sub-area of Information Science. In order to do so, it specifically addresses scientific production indicators that include topics of study, typology and authorship, graduate programs and areas to which it is linked, among others.

It is important to consider that this is part of the results of the dissertation research "The interdisciplinary production in Information Science: an approach in the domains of information architecture" defended by the Post-Graduate Program of Information Science of the Paraíba Federal University (PPGCI / UFPB), whose objective was to understand the theoretical-methodological elements that contribute to the collaborative production in the domains of information architecture in Information Science.

2 FUNDAMENTALS OF COLLABORATIVE PRODUCTION IN INFORMATION SCIENCE

The collaborative production of scientific knowledge is based on a theoretical-methodological perspective that aims at the complexity of the objects / phenomena, the disciplinary relations, the dialogues with the most varied forms of knowledge and the external connections of science, considering the sociopolitical and economic aspects related to the scientific activity.

According to Japiassu (1976) and Pombo (2008), three knowledge integration movements gain prominence in the production of scientific knowledge, multidisciplinary, interdisciplinarity and transdisciplinarity. However, according to Pombo (2008), they can be understood as a continuum, so that the integration of knowledge rises from the genre of parallel coordination (multidisciplinary and pluridisciplinarity), passing through a combination of knowledge in Convergence (interdisciplinarity), to a holistic fusion perspective (transdisciplinarity).

In this context, according to Souza (2015), these integrative practices nowadays gain the status of collaborative production since, in its dynamics, it comprises a complex of multidisciplinary, interdisciplinarity and transdisciplinarity relations that potentiate the sharing of concepts, methods and theories between different areas of knowledge. The fact is that this dynamics of collaboration goes beyond approaches centered on epistemological frontiers and limits, insofar as the collaborative process is re-dimensioned from the associations among several actors, notably researchers, concepts, methodologies, theories and, to a greater or lesser extent, disciplines.

Collective intelligence, in this perspective, stands out as one of the characteristic elements of collaborative production, considering that "what the individual can not alone, the sum of the individuals gathered in a collectivity can [...] be reunited cooperatively and

collectively" (DOMINGUES, 2005, p.29). This property united forms the basis for a collaborative production, since complex objects and problems require multiple looks, so that they can provide solutions from different ideas, concepts, perspectives, approaches, theories and methodologies, among others.

Thus, collective intelligence, treated as a basic assumption of collaborative production, is shaped by the participation of diverse subjects, skills and competences, and, complementarily, through disciplinary discourses based on concepts and methods from different areas. In what is particularly related to interdisciplinarity, which presents itself as one of the collaborative production movements, one has as main foundations the complexity of objects and the relation between disciplines. According to Japiassu (1976), it is effective through the integration of concepts, theories, methods and languages among different disciplines.

In Information Science, collaborative production has been characterized by the variety of foundations, from its historical demarcations to interdisciplinary relationships based on different concepts, theories and disciplines. In fact, interdisciplinarity is discussed as one of the foundations of Information Science, which is characterized by three variables: the complexity of information, the plural formation of researchers and the consequent convergence between the disciplines that interface with the area (GONZÁLEZ DE GÓMEZ, 2001; PINHEIRO, 1997; SOUZA, 2011).

The complexity of the information object is evidenced, mainly, by the conceptual aspects, in view of the coexistent conceptual multiplicity in different notions and senses, discussed in several disciplines and areas of knowledge. Capurro and Hjørland (2007: 160) claim that the concept of information is collaborative, since "[various scientific disciplines] use the concept of information within its own context and with respect to specific phenomena."

The interdisciplinarity in the Information Science in relation to the information object is configured from the "translatability of concepts" discussed by Domingues (2005), in the context of the collaborative production. In a broader perspective, the author notes that:

The transdisciplinary approach does not seek to establish several isolated disciplinary discourses on the same object - multidisciplinary or to bring together the various knowledges and discourses within a single globalizing discourse - interdisciplinarity. It puts in contact the various disciplines and specific knowledge until they become more integrated, transfigured and form a new field, as it happened when studying the energy from the middle of the last century and recently, when studying the cities and their problems, such as transportation, violence, physical space and education [and, why not information?]. In this contact, the disciplines are transformed and the concepts transmute, by constant destruction and reconstruction and by the continuous migration from one field to the other, as from thought to visible and vice versa, the forms and frontiers of previous demarcations are no longer preserved (DOMINGUES, 2005, p. 44).

In addition, it is important to consider that Information Science emerges from the technological explosion and issues related to access and retrieval of information and knowledge, which are multidisciplinary efforts. Saracevic (1996) argues that the problems addressed by the area require the input of researchers from different disciplines, including engineers, chemists, philosophers, linguists, librarians, mathematicians, and computer scientists. Thus, disciplinary juxtapositions as the basis of multidisciplinary are formed in Information Science, becoming a condition of interdisciplinary production in the area.

The interdisciplinary production of Information Science is carried out based on increasing relations with several disciplines, considering the need of convergences of different areas to solve the informational problems. Indeed, Souza (2011, p.159) understands that in the development of the epistemological field, "there is an expansion with the insertion of new fields of knowledge through new researchers and the inclusion of new themes in the field of study."

Despite the efforts made by researchers in different areas of knowledge, according to Saracevic (1999), there is in the Information Science difficulty of integration of two aspects, one oriented to the user and the content, influenced by Librarianship, and another oriented to technology, related to Computer Science.

It is precisely in this space, both conflictual and epistemic, that the information architecture emerges as a study topic in Information Science, which enables integration movements around the collaborative production, insofar as it addresses, at the same time, the structuring of content in Digital environments, with a strong technological base, and to users, aiming at their informational needs. More precisely, it is a field of study that is dedicated to reflections on the processes of organization and information retrieval, integrating content, technologies and users.

3 INFORMATION ARCHITECTURE: A CONVERGENT DOMAIN IN INFORMATION SCIENCE

Information architecture emerges in the scenario of data and information explosion, at which time much was had and little understood. Wurman (1997) coined the term information architecture as the art of creating instructions to organize a space, trying to make the complex simple, considering that the amount of information would result in the difficulty of understanding, due to the growing "information anxiety". Thus, an adequate ordering of the data and information that was in a disorderly way was reiterated.

According to Morville and Rosenfeld (2006), the architecture of information is mainly discussed in view of the digital context that is characterized by the exponential advance of information and communication technologies, especially the Internet, and the consequent resizing of the information explosion.

In this context, Agner (2009, p.89) states that information architecture can be defined as a "metadiscipline concerned with the design, implementation and maintenance of digital information spaces for human access, navigation and use [.. .] ". In addition, Morville and Rosenfeld (2006) understand it as a project of visual and informational elements, focusing on the organization (classification and ordering of contents), navigation (orientation to page users and hyperlinks) in labeling or labeling Linguistic labels such as words and concepts) and in the search (search and retrieval of contents in digital environments) of contents.

In getting closer to the issues of collaborative production, it is important to consider that, for Santos and Vidotti (2009), from the structure of information available in digital information environments in terms of information and communication technologies, one may "develop informational and computational architectures [...]", so there can be an emphasis of "the interdisciplinary and transdisciplinary, with an investigative verticality held in dialogue with the various fields of knowledge, human-centered" (SANTOS; Vidotti, 2009).

In addition, the information architecture, in a multidisciplinary perspective, emerges within a plurality of inter-conceptual elements delimited from relations with other themes, disciplines and areas of knowledge. Authors such as Macedo (2005) and Morville and Rosenfeld (2006) briefly discussed the relationships of information architecture with other disciplines and themes, noting that the theme converges with themes/disciplines, such as Graphic Design, in visual aspects, Design of Interaction, in the activities related to softwares and interfaces of information systems, Communication and Journalism, in the dissemination of information in news and edition of contents on the Web, and Computer Science, in database techniques, in the storage of Content and programming languages for websites.

Moreover, they consider that information architecture is related to Librarianship and Information Science, from the organization of information and its access in information systems, considering that the professionals of these areas are trained to work with search, navigation and indexing technologies (MORVILLE; ROSENFELD, 2006).

Information architecture has been revealed as a strategic area for the studies and the consolidation of collaborative practices in the field of Information Science, however, one cannot forget that:

This "dialogue between disciplines" is extremely positive for the formation and development of the discipline. However, when establishing itself in an interdisciplinary way within the scope of postmodernity, the discipline needs to delineate its own history, and be based on consistent theoretical bases, so that it can identify its limits and understand how it relates to other areas of knowledge . "It is important to emphasize here the importance of adapting imported theories and models from other areas, not just importing them. It is necessary to consider the particularities of the discipline so that it is possible to adapt the knowledge absorbed from other areas' (MACEDO, 2005, p. 158-159, our highlight).

This consideration by Macedo (2005) comes close to Mostafa's (2005) critical stance, inasmuch as it considers that "interdisciplinary relations should not be feared, provided they can be established from changes, adaptations and differentiations based theoretically and methodologically, seeking new concepts, knowledge and other new relationships.

Information architecture can expand and consolidate in the field of Information Science as a convergent domain, considering the possible interdisciplinary relationships around the informational object and the processes of organization and information retrieval that involve it.

4 METHODOLOGICAL PROCEDURES

This is an exploratory and descriptive research, which has as universe communications held at the National Meeting of Research in Information Science (ENANCIB), from 2003 to 2013. In this cut, it was considered that, from the 2000s, it was established the Working Group of the National Association of Research and Post-Graduation in Information Science (GT/ANCIB) dedicated to the historical and epistemological studies of the area, enabling discussions on the nature of information in its theoretical-conceptual and epistemological bases. Moreover, this delimitation had as reference the observation of the period of exponential growth of scientific production on information and technology in the context of information architecture, in the largest event in the area.

In the exploratory phase, which corresponds to the centrality of this work, we sought to approach the elements involved in the research, such as the object, the themes and the context, considering the scope of the study. For that, the scientific production was mapped in the "Network Matter" repository, in the BENANCIB collection, which indexes the scientific production of ENANCIBs.

The mapping was performed, on November 20, 2015, in the repository catalog, "browsing by keywords" - subject. A total of 32 (thirty-two) communications were collected on the subject of information architecture, considering 7 keywords classified in that catalog, namely information architect (1), information architecture (25), architecture (1), information architecture (2), information architecture for the web (1), pervasive information architecture (1), information architecture - knowledge organization systems and metadata architecture. In order to confirm the theme, the effective approach of the subject was observed, starting with the reading of the abstracts. The data collected in this phase were names of authors, academic training (undergraduate, master's and doctorate), Working Group (GT), postgraduate program and institution to which the production is linked.

Subsequently, in the descriptive phase, we sought to identify and characterize the evidence of collaborative production in Information Science in the domains of information architecture, through bibliometric indicators. In fact, bibliometry is treated as the "study of the

quantitative aspects of the production, dissemination and use of recorded information" (MACIAS-CHAPULA, 1998, p.134). Thus, bibliometric analysis made it possible to explain the indicators that indicate the bases of the interdisciplinary production of Information Science in the domains of information architecture.

However, we know of the limitation of procedures based on bibliometrics with regard to their quantitative approach to data analysis. Therefore, following Alvarenga's (1998) clarification that the "potential generated by bibliometrics presents itself as valuable inputs for the development of regional archeological and epistemological studies, that is, of the specific fields of knowledge", some notions of discursive formation are used, which, according to Foucault (2008), correspond to the set of conditions that, at one and the same time, defines the domain of the discursive field and the broader conditions of the discursive process.

For Foucault (2008), the discursive formations of a field / positivity are delineated from a regime of existence, based on three elements: a) the demarcations of the first emergence surfaces, which allow the description of a discursive domain, giving the basic conditions of a field object; B) the descriptions of the delimitation instances, which are the institutional regulations and the various disciplines that are involved in the object under study; C) analyzes of specification grids, which refer to the systems that form oppositions, classifications and associations of objects and phenomena in discourse.

Therefore, Foucault's archeology is considered to be an important procedural contribution in research under the qualitative bias, since it allows a greater methodological amplitude in relation to the quantitative aspects obtained through bibliometric analyzes.

It was intended to identify indicators of collaborative production in the field of information architecture through the clues that emerge through Bibliometrics. For this, these indicators are described analytically by means of textual and paratextual elements, namely date of publication, work groups, authorship, postgraduate institutions/programs, and citations.

5 CONDITIONS OF COLLABORATIVE PRODUCTION IN INFORMATION ARCHITECTURE

The productions regarding information architecture in Information Science are constituted by several aspects, such as periodic regularity in productions on the subject, links through GTs, sharing of common and unusual languages, plurality in the academic formation of the researchers that approach the theme, some indications of the disciplinary convergences from the co-authorship, as well as a plexus of relations through the indirect citations that represent the sharing of theoretical-methodological elements in the interdisciplinary production.

Communications on information architecture in the field of Information Science are organized in a dispersed way through several indexing terms, although one notices the concentration of a term, in the case of information architecture, as shown in Table 1.

Table 1. Keyword Communication Index

| Keyword | <i>f(x)</i> |
|---|-------------|
| Information Architect | 1 |
| Information Architecture (with an <i>e</i> in Brazilian Portuguese) | 25 |
| Information architecture (with an <i>a</i> in Brazilian Portuguese) | 2 |
| Information architecture for the web | 1 |
| Pervasive information architecture | 1 |
| Information architecture - knowledge organization systems | 1 |
| Metadata architecture | 1 |
| Communications total | 32 |

Source: research data (2015)

From this, it was perceived that the productions on this theme are formed in two distinct movements. The dispersion, since the communications are effected through different terms, and, by extension, several meanings due to the plurality in the academic formation of Information Science researchers, be it from Computer Science, that approach sub-thematic like "metadata" or "Web", or Librarianship, which relate to "knowledge organization systems."

By treating the terms as representative clues to the concepts, this refers to what Domingues (2005) calls "translatability of concepts". This happens through the operation of passage of meanings, since the words are used in different fields of those originating (DOMINGUES, 2005). Thus, this varied representation emerges amid displacements of meanings by means of changes of terms in extension and focus, according to the communication approach on information architecture.

And in unity, in view of an effective sharing of common linguistic symbols, inasmuch as 25 (twenty - five) communications use the same term - information architecture. This refers to what Japiassu (1976) ponders as "sharing of common languages", thus approaching one of the main characteristics of collaboration in the production of scientific knowledge.

It can be observed, as shown in Table 2, that more than half of the universe of communications on information architecture was presented in GT8 Information and Technology, which covers "theoretical-practical studies on and for the development of information and communication technologies that involve the generation processes, representation, storage, retrieval, dissemination, use, management, security and protection of information in digital environments" (ANCIB, 2014).

Table 2. GT Communications Index

| GT | <i>f(x)</i> | <i>f(%)</i> |
|--------------|-------------|----------------|
| GT 1 | 1 | 3,13% |
| GT 2 | 2 | 6,25% |
| GT 3 | 2 | 6,25% |
| GT 4 | 2 | 6,25% |
| GT 6 | 2 | 6,25% |
| GT 8 | 20 | 62,50% |
| GT 9 | 1 | 3,13% |
| GT 11 | 2 | 6,25% |
| Total | 32 | 100,00% |

Source: research data (2015)

Information architecture is a pragmatic domain focused on dissemination and representation of content in information systems to the Web. According to authors such as Agner (2009) and Morville and Rosenfeld (2006), this theme has a conceptual basis around the processes of organization, representation, navigation and information search, considering the interdependent relations between contents, contexts and users.

Regarding the approximation between information architecture and technology, it is understood that it is an inherent link, since this issue stems from techno-informational avalanche and discussions regarding the organization and understanding of the information in information systems, as emphasizes Agner (2009).

However, there is a need for some revisions around the concepts and approaches included in this relationship, insofar as questions can be raised about other, more complex, relationships such as nature-culture, subject-object, intrinsically close to the approaches of informational architectures. In this sense, Santos and Vidotti (2009) emphasize that the Information Science has been receiving numerous criticisms of the project that seeks to explain its disciplinary formation from data, systems, algorithms and symbols devoid of meanings, that is, those theoretical bases that ponder digital technologies simply as tools. Thus, the authors affirm that

The Information Science should have or create more investigation spaces that allow the understanding of Information and Communication Technologies for the enhancement of informational skills, for the creation of more informative and computational architectures for the conceptualization of information uses in digital informational environments, for the learning of metalanguage and for the representation of information (SANTOS; VIDOTTI, 2009).

The domain of information architecture in the area requires theoretical and practical discussions that consider digital technologies as symbolic actors of a linguistic action. Technologies are not mere instruments, but an extension of what man constructs permeated by various goals and senses. Information, for example, is part of a multiple action among various

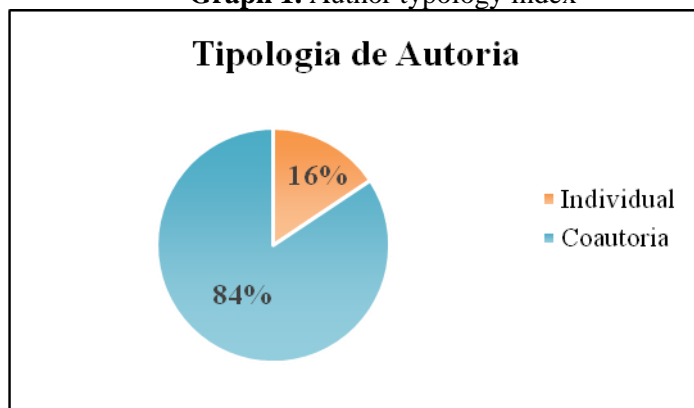
technological devices applied in language, such as symbolic communication and man's practice in nature.

In fact, Saracevic's (1999) notes in Information Science should be considered, when he states that there is a difficulty in approaching the user/content and technology-based approaches through information retrieval systems. Based on this, information architecture emerges as a convergent domain of these aspects, since its theoretical-methodological foundations and interdisciplinary relationships, initially under construction, make it possible to consider discussions about specific processes and information flows.

The ENANCIB communications on information architecture are established from individual and/or collective actions, that is to say, they are produced individually or collectively. Strictly speaking, in this analytical domain, the typology indicates the condition of collaborative production, when it is performed in a co-authoring action.

It was verified a total of 59 (fifty-nine) authors who produce on information architecture, in the field of Information Science. According to bibliometric indicators presented in Graph 1, 27 (twenty-seven) communications were carried out in co-authoring and only five were individual productions. The bibliometric indicators corresponding to co-authorship (84%) make it possible to perceive evidence of effective processing of collaborative production in the area.

Graph 1. Author typology index



Source: research data (2015)

These coauthored productions are presented as conditions for the establishment of a collective intelligence, which, for Domingues (2005), is an action among collectively collected individuals.

Thus, it was possible to affirm at first that the scientific production in the area on information architecture is established from the union between different researchers, therefore, as a multidisciplinary process in scientific collaboration. According to Pombo (2008, page 13), in multidisciplinary there is

some sort of coordination, from a perspective of mere parallelism of views. Something that, when we go beyond this dimension of parallelism, of putting it together in a coordinated way, and moving towards a combination, a convergence, a complementarity, places us in the intermediate ground of interdisciplinarity.

The communications that approach the information architecture are concretized by coordination or union of different researchers. Nevertheless, Domingues (2005) affirms that juxtapositions do not necessarily take place in interdisciplinary productions, but they form effective conditions of a multidisciplinary production, since they are constituted by approximations between different subjects (coauthorship) and disciplines collectively. Although, we observe the existing partnership between advisor and student, we consider the relationships that go beyond this approach, seeking to achieve the dynamics of theoretical-methodological collaboration from the sharing of concepts, theories and methods used in communications.

Collaborative productions take place in a network of relationships between co-authorship and citations through a complex set of statements and phrases, which, to a lesser or greater degree, evidence sharing of theories and methodologies.

From Table 3, it was observed that communications on information architecture are established in a plexus of relations of different languages by means of several units of citations, totaling 791 (seven hundred and ninety-one) citations of which the majority (64 %) is indirect.

Table 3. Índice de tipologia de citações

| Typology | $f(x)$ |
|------------------------|------------|
| Direct | 256 |
| Indirect | 502 |
| Quotation of quotation | 33 |
| Total | 791 |

Source: research data (2015)

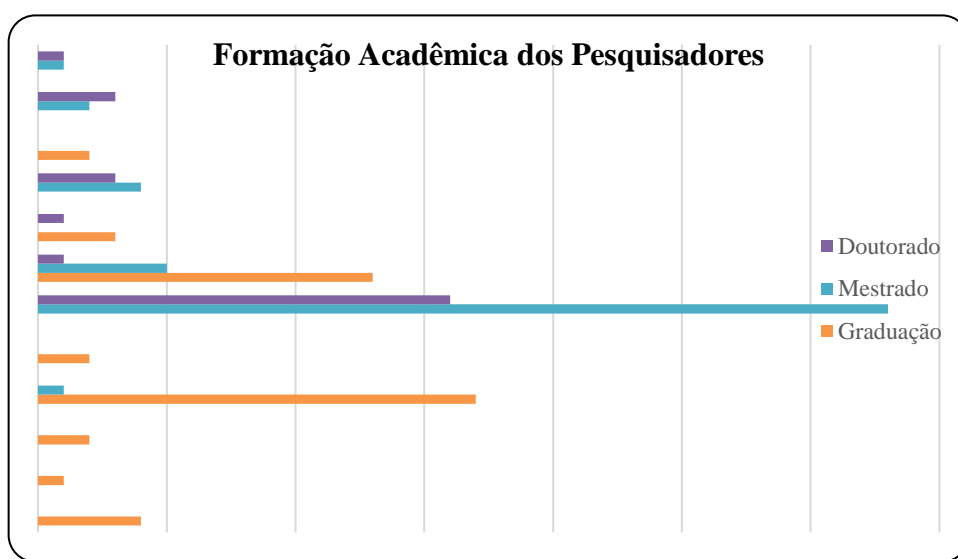
In this analytical category, the connections with other texts and the interpretative approaches according to the established context are verified. Thus, *interlingual* results are generated through these intertextual relations. It is worth remembering the words of Japiassu (1976), stating that for interdisciplinary production it becomes necessary in an "*interlinguation*" as a common denominator, so that researchers approach, seeking the fundamental relations of contexts and contents around the disciplinary languages in process.

However, from Etges (1995), this intralinguistic unit, based on citation relations, is not confined only through specific relations in common languages in mentions extracted from one or more of the same or similar sources. It is more than this, since it is based on dispersions and approximate elements intersubjectively, which intersect in search of critical considerations around a specific problem and domain.

It has also been observed that the researchers who communicate articles on information architecture in the production of Information Science are linked to a diversity of knowledge areas. A total of 27 (twenty-seven) disciplines were identified, considering the three academic levels, undergraduate, master's and doctoral degrees.

From the disciplinary plurality present in the analyzed production, shown in Graph 2, it was noticed that two areas of knowledge at the undergraduate level are highlighted - Librarianship and Computer Science.

Graph 2. Academic Education of Researchers



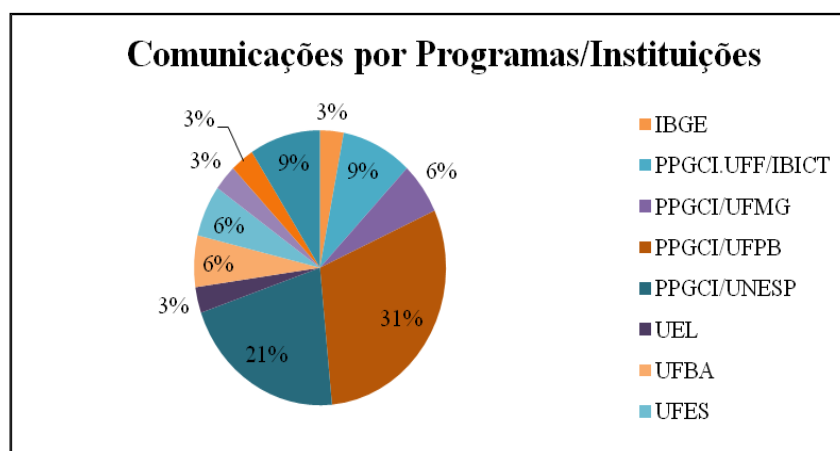
Source: research data (2015)

This result is closer to what Saracevic (1996, 2009) draws attention to, since Librarianship and Computer Science are areas of knowledge that interface with Information Science, and yet participate in convergence difficulties between These disciplines due to different approaches, respectively, focused on users and content and information retrieval systems.

At this point, there is a need for further research regarding collaborative productions on information architecture, considering the difficulties of approximation between these two areas, pointed out by Saracevic (2009), since in this field some discussions emerge regarding the approaches considered dichotomous, focusing on the user (subject) and systems (objects). In this regard, Santos and Vidotti (2009) propose a theoretical approach focused on perspectivism, in which Information Science technologies could not be treated as tools, such as Computer Science, enabling, through interdisciplinarity and transdisciplinarity, cross-cutting dialogues between different atypical domains of dichotomous conceptions between subjects and objects.

Moreover, this academic plurality, considering the classifications of areas, from the Coordination of Improvement of Higher Level Personnel - CAPES (2012), is mainly constituted around two major areas, Exact and Earth Sciences and Applied Social Sciences. It can be understood that the juxtapositions that emerge around this result come mainly from two areas, of which are disciplines such as Librarianship, Computer Science and Communication. In this sense, for Saracevic (1996), these disciplines are close to Information Science, considering, respectively, the techniques of organization of bibliographic records, the peculiarities of the informational object and information technologies.

Graph 3. Communications Index by Program/Institution



Source: research data (2015)

Another important element concerns the authorship's institutional affiliation. Thus, it can be observed in Graph 3 that communications about information architecture in ENANCIB were carried out by authors from different universities and post-graduate programs in Information Science.

According to Graph 3, the Post-Graduate Programs in Information Science (PPGCI) that presented the most communications in the ENANCIBs, in the period studied, are located at the Federal University of Paraíba (UFPB) and the Sao Paulo State University Júlio de Mesquita Filho (UNESP). In the latter, it is worth mentioning that the authors Silvana Vidotti and Fernando Vechiato directly affect the productivity index of authors, since they represent the same program and rely on several publications in co-authorship among them. The most published author on the subject was Marckson R. de Sousa of the UFPB, as seen in Table 4.

Table 4. Authors productivity index

| Authors | Program/Institution | Communication $f(x)$ |
|--------------------------|----------------------------|--|
| André L. D. de França | PPGCI/UFPB | 2 |
| Fernando. L. Vechiato | PPGCI/UNESP | 3 |
| Guilherme. A. Dias | PPGCI/UFPB | 3 |
| Hellosman de O. Silva | PPGCI/UFPB | 2 |
| Lílian V. T. Cananéa | PPGCI/UFPB | 3 |
| Liriane S. A. Camargo | PPGCI/UNESP | 2 |
| Marckson R. F. de Sousa | PPGCI/UFPB | 7 |
| Maria A. T. da Silva | PPGCI/UFPB | 3 |
| Renata M.A. Baracho | PPGCI/UFMG | 2 |
| Silvana A. B. G. Vidotti | PPGCI/UNESP | 5 |
| Total | - | 32 |

Source: research data (2015)

It is important to consider that the UFPB and UNESP programs contain at least one subject in the teaching curriculum focused on the domain of information architecture, and consequently, the researchers that publish the most about this subject are part of these programs, as can be observed in Table 4.

Finally, according to the bibliometric indicators, ENANCIB's scientific production on the information architecture is based on several elements, corroborating the emergence of this domain in the field of Information Science, especially with regard to the Collaborative production.

6 FINAL THOUGHTS

The communications carried out at ENANCIB that deal with information architecture present different elements that evidence the conditions of the collaborative production of scientific knowledge, which, to a greater or lesser extent, point to the interdisciplinary construction of the epistemological field of Information Science.

The architecture of information subarea is configured as a strategic domain of collaborative production of Information Science, even in a conflictive and epistemic space, in view of the difficulty of integration between two strands in Information Science, pointed out by Saracevic (1999). It is a matter of considering the conditions of production, which include author typology, plurality of academic training, language sharing, and institutional approaches that characterize collaborative production on information architecture.

The bibliometric indicators allowed to observe indications of the interdisciplinary production in the information architecture. The communications on this theme are effected through several authors, therefore, as collaborative productions, and, so, through an academic plurality, in view of the disciplines represented by the researchers involved. Thus, through

juxtapositions between different disciplines and areas of scientific knowledge that comprise multidisciplinary processes in the field of Information Science, specifically in the field of information architecture.

In addition, they extend into signs of disciplinary convergence based on the integration of linguistic symbols, such as indexation terms and indirect citations, and can be used to share theoretical and methodological elements that support interdisciplinary production in the area.

According to Foucault (2008), through bibliometric indicators, it was possible to describe some emergency areas and instances of delimitation of the studied production. The former aimed at describing the analytical domain in information architecture, giving it basic conditions of an object of the field of Information Science, and understood paratextual and textual elements (WGs, authors, indexing terms and citations). The second, in turn, sought to identify the institutional and disciplinary regulations that are involved in the collaborative production of information architecture in the area of Information Science. These included the disciplines, the areas of knowledge, the universities and the postgraduate programs to which the studied production refers.

In general, the results show the elements and their respective characteristics that condition the collaborative production in the area, specifically in communications in the domains of information architecture. However, it is understood that, regarding the discussions about the interdisciplinary production in Information Science, there are some difficulties and can be extended in what concerns the theoretical-methodological procedures that empirically allow clearer reflections on the processuality and effectiveness of the collaborative productions, able to observe not only the conditions in which these activities are carried out, but, above all, the constituent bases that support interdisciplinarity in scientific knowledge. After all, as Japiassu (1976) affirms, interdisciplinarity is shaped by the integration of concepts, theories, methodologies and languages among different disciplines.

It is also worth noting that analyzing the conditions of the interdisciplinary production in Information Science in view of its characteristics, information complexity, academic plurality and the consequent convergence of disciplines, it is perceived that studies on interdisciplinarity in the field may try to understand the movements of unity and dispersion. For discussions on the sharing of theoretical and methodological elements do not end in dogmatically closing or opening interdisciplinary relations at any cost, but, above all, pondering the constitutive bases of interdisciplinary production in Information Science, which specifically contemplates the foundations and strategies, or, more precisely, concepts, theories, methodologies and languages, among others.

Finally, it is considered that the collaborative production in the information architecture emerges as a strategic epistemic space of the interdisciplinary production in the field of Information Science, allowing greater reflections on the disciplinary convergence between

different disciplines and areas of knowledge, considering the complexity of the Informational processes and flows that involve it.

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