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Research group leaders in knowledge organization and representation: production, visibility and scientific articulation in the ISKO-Brasil conference proceedings

Jessica dos Santos Gonçalves

Geological Survey of Brazil (SGB), Brazil

Natália Bolfarini Tognoli

Fluminense Federal University, Brazil

Abstract

This paper analyzes the scientific and social capital of leaders of knowledge organization (KO) research groups in Brazil, using ISKO-Brasil conference proceedings (2011–2023) as the primary data source. It situates KO as a dynamic, interdisciplinary domain linked to Library and Information Science, and understands leaders as key actors shaping group research topics and directions. Brazil has 28 KO groups registered in its ISKO chapter's directory (as of December 2024), with leaders who influence group trajectories and research agendas. The study employs documentary and bibliometric methods to examine the domain, applying Hjørland's domain analysis framework, Price's law of elitism, and Bourdieu's notions of scientific capital. Self-citations are included, and author names are harmonized via Lattes to ensure accurate attribution. Methodologically, the citations of leaders in ISKO-Brasil proceedings over a decade were counted, identifying the "research front" through the most-cited individuals (50+ mentions) and the elite subset corresponds to roughly the top 22 authors per Price's formulation, i.e., those with six or more papers. The analysis also considers the social capital of elite researchers, using Pierre Bourdieu's framework to interpret influence, status, and networks within KO. Contextually, KO is framed as a field with strong institutional roots (ISKO and ISKO-Brasil) and notable regional leadership in Brazil, the latter being among the largest and most active chapters in South America. The paper underscores the value of investigating leaders and their collaboration networks to understand how scientific communities in KO form, evolve, and contribute to knowledge production and organization practices in Brazil.

1.0 Introduction

In its early days, or even before it was called that, science was carried out by tenacious individuals who tackled everything, from practical questions to elementary issues related to the natural sciences. They used the observation process to conduct experiments, moved by necessity or even curiosity. Over time, the term "science" became established and methods/means of work evolved, having the modern scientific method as a starting point.

Scientific communication studies the social interactions within the making of science and how individuals communicate their findings. Scientific communication therefore

contributes to the advancement of science by examining the means by which members of a given domain of knowledge communicate with one another, and how relationships between actors operating within these domains occur, either individually or as part of national or international communication networks.

Currently, research is conducted in collaborative environments where diverse researchers from different institutions, nationalities, and sometimes research areas work together and interact. This interaction can take place through research groups linked to universities, research laboratories, and other types of institutions.

In Brazil, research groups are listed in the *Diretório de Grupos de Pesquisa do Conselho Nacional de Desenvolvimento Científico e Tecnológico* (Research Groups Directory of the National Council for Scientific and Technological Development) - DGP/CNPq and have at least one researcher in the role of research group leader. Leaders are responsible for establishing research topics within the group and guiding the group's overall interests. Therefore, research group leaders have a great deal of influence on the investigative direction the group will take over time.

The ISKO Brazilian chapter also maintains a directory of research groups where its members can register the research groups to which they belong. The Brazilian scientific community in Knowledge Organization (KO) had 28 research groups listed in ISKO-Brasil's directory as of December 2024. This scientific community is dedicated to the theoretical and conceptual improvement of the KO domain. These groups have leaders who are subject to the rules of conduct or *habitus* of the field of knowledge to which they belong, just like other actors in these fields.

Having the context above as a starting point, this study aimed to analyze the scientific and social capital of the elite and the research front of leaders of KO research groups in Brazil who are registered in the directory of the Brazilian chapter of ISKO, through the scientific output of research group leaders. This investigation focused on analyzing the output of these leaders in the proceedings of ISKO-Brasil events published between 2011 and 2023. The analysis of the output will be based on citation indicators of the research group leaders in papers presented at these events.

2.0 The method

The research presented here was documentary in nature, gathering information on theories and institutions of knowledge organization in Brazil, and qualitative-quantitative in its domain analysis and citation counting. The historical, epistemological, and bibliometric approaches to domain analysis, as outlined by Hjørland (2017), were used to analyze the knowledge organization domain.

The citation counts for authors in the ISKO-Brazil proceedings from 2011 to 2023, covering 10 years of scientific production, were calculated using bibliometric techniques. ISKO-Brasil conferences were used because they are one of the main forums for dialogue and

exchange among Brazilian researchers in the field of KO, as Sales (2017, 3) presents as one of the: "[...] two main knowledge organization forums in the country."

The authors with the highest number of citations during the period in question form the research front. Price's elitism law was used to analyze the most productive authors. According to this law, the research elite corresponds to the square root of the authors who publish the most in a given domain. Regarding the research field, authors who received 50 or more mentions were analyzed, and regarding the elite, according to Price's formula, this would be the 22 authors with 6 or more papers published in the ISKO-Brazil conference proceedings. Concepts from Pierre Bourdieu's social theory were used to analyze the scientific capital of elite and research-front authors.

Regarding the categories in the table columns, we sought to indicate whether the authors were leaders, members, or not part of a research group. In this process, we noticed that some research groups stood out more than others (GPFAPOI, Representação Temática da Informação - Repr. Tem. Inf., and GPERTIC), with a significant number of members in the elite and at the research front. Therefore, these groups were included in the tables.

In an effort to identify external motivations for participation in the elite and research front, as well as increased productivity, we sought to determine whether the authors had strong ties to any research institutions, such as universities, and whether they were recipients of CNPq productivity grants.

Additionally, we examined whether they had ties to the international ISKO or its Brazilian chapter that might explain their greater participation in these societies' events – served as presidents, vice-presidents, or secretaries of ISKO and/or ISKO-Brazil, or carried out activities within ISKO, such as the management of ISKO's publications and contents –, through the "Connections ISKO/ISKO Brazil" category.

Self-citations were taken into consideration, as they reflect the research trajectory of the cited authors and his/her conceptual maturity in the field. There was a need to standardize the names of some authors because they appeared with different spellings. The Lattes Curriculum Vitae Platform was used to confirm the authorship of the works about which there were doubts.

3.0 Knowledge organization and the Brazilian context

In 1903, Paul Otlet was the first to refer to Knowledge Organization (*organisation des connaissances*) as a specialized discipline, although the definition given by the author differs from the definition of KO considered in this study.

According to Hjørland (2008), the term "knowledge organization" likely emerged around 1900, used by individuals such as Charles A. Cutter and Ernest Cushington Richardson. However, it was formalized by W. C. Berwick Sayers and Henry Bliss. Like Dahlberg (2006), he cites Bliss's (1929) book "The Organization of Knowledge and the System of the Sciences" as one of the major contributions in the field of KO (Hjørland 2008).

Dahlberg, Hjørland, Barité, and other researchers have presented definitions for KO. The view adopted here is the one presented by Barité (2022), for whom Knowledge Organization is a dynamic and independent domain with broad links to Library Science and Information Science.

This research aimed to study Knowledge Organization as a domain of knowledge composed of social actors, with the research group leaders as one of these types. Sales (2017, 3) characterizes Knowledge Organization as a "[...] scientific space that, although 'young', is no longer in an embryonic state."

Using Hjørland's analytical approach to the study of structures and institutions in scientific and professional communication in a given domain, we will briefly examine the International Society for Knowledge Organization - ISKO and ISKO-Brasil, the Brazilian chapter of this society.

ISKO was founded in 1989 by members of diverse countries. Dahlberg, as one of its founders, stated that ISKO was created to bring together individuals and institutional members, both national (German) and international, interested in the research, development, and application of all methods for organizing knowledge, in general or in specific fields (Dahlberg 1989).

The international society was perceived as a space for the exchange of knowledge and the development of theories that would advance Knowledge Organization as a domain. This view remains, as the biennial ISKO conferences mentioned by Dahlberg (1989) continue to take place in various countries and are fertile ground for building bridges between researchers and professionals of different nationalities who investigate KO in its most varied contexts.

The ISKO founding charter, according to Dahlberg (1989), establishes the creation of regional chapters and working groups at the national and international levels, in line with the interests of the society's future members.

The creation of the Brazilian chapter began at the Encontro Nacional de Pesquisa em Ciência da Informação (ENANCIB) that took place in 2005, 2006, and 2007, within the scope of the Work Group-2 (ISKO-Brasil n.d.-a). Sales (2017) reports that the Brazilian representative of ISKO was officially established in 2007, at the eighth Encontro Nacional de Pesquisa em Ciência da Informação (ENANCIB VIII).

The ISKO Brazilian chapter is, according to Sales (2016), one of the largest in terms of membership and ongoing research among regional chapters, and is also the only one active in South America.

Up until the data collection for this research, ISKO-Brasil events took place in 2011, 2013, 2015, 2017, 2019, 2021 and 2023, totaling seven editions of the national ISKO event. Only six events (2011, 2013, 2015, 2017, 2019 and 2023) are included in the corpus of this research, as the proceedings for the 2021 event, held online during the COVID-19 pandemic, were not published (ISKO-Brasil n.d.-b).

Based on the above, ISKO-Brazil is one of the main spaces for dialogue and knowledge exchange among Brazilian researchers in the Knowledge Organization domain. Therefore, research analyzing the relationships among the actors in this space is important for strengthening this domain.

4.0 Scientific community: research groups and actors in focus

The formation of research groups aids the advancement of science by uniting people with common research interests who work to find solutions to problems that affect our daily lives. A research group consists of a group of individuals, with an established hierarchy, who perform interdependent tasks and share responsibility for generating results. In Brazil, research groups must be registered in the research groups directory DGP/CNPq and have at least one group leader.

Research group leaders commonly influence the direction of the group's central research themes through hierarchy and the management of research activities. We can observe this tendency even in the definition of the DGP/CNPq (CNPq n.d.), which defines a research group leader as the person who: "[...] holds academic and intellectual leadership in their research environment. They are usually responsible for coordinating and planning the group's research work. Their role brings together the efforts of other researchers and points to new horizons and focus areas for the work. A group may have up to two leaders, designated as 1st Leader and 2nd Leader."

Power relations arise within the dynamics of a research group. To analyze these dynamics, concepts from Pierre Bourdieu's social theory were used. A field consists of the whole (domain) in which the agents and institutions that create, replicate or disseminate the analyzed domain are inserted. The field obeys specific social laws, to a greater or lesser degree (Bourdieu 2004).

The agent/actor is the individual who acts in the field, whatever it may be. In the scientific field, the agent is the researcher or scientist. Scientific fields, referred to as disciplines by Bourdieu (2004), are embedded in society and therefore influenced by the social space or field, insofar as the research carried out in scientific fields is shaped by society. This contextual influence is not taken into account by Bourdieu, but it is essential in Hjørland and Albrechtsen's (1995) domain analysis, which is one of the reasons the two methodologies complement each other, according to Nascimento and Marteleto (2008).

The set of behaviors acquired through the cultural and scientific experience of the individual actor (agent) and incorporated into him as part of society is called *habitus*. Thus, scientific experience in a given field or domain leads to the development of behaviors specific to that domain, increasing the agent's chances of success in that domain. Each field has an invisible system of social relations (internal and with other fields), produced by the *habitus* (Bourdieu 2004; Nascimento and Marteleto 2008; Alves 2018).

Finally, capital is a set of skills that each agent and/or institution possesses and that helps in achieving honors, titles, awards, etc., varying depending on each scientific field.

According to Bourdieu (2004) and Alves (2018), social capital depends on belonging to a group of agents with similar characteristics, perceptible even to external observers, and on permanent relationships that meet the group's needs. Based on this, the research group can be considered an “entity” that depends on social capital as much as on scientific capital.

Scientific capital is linked to contributions to scientific progress, such as inventions, scientific discoveries, developed theories, publications, among others. It can be linked to peer recognition, thus being of the “pure” type. Or it may be related to the actions that an agent carries out within an institution, organization, or sphere of political power; in this case, it refers to the “institutional, temporal, political, or world-power” type (Bourdieu 2004; Alves 2018).

In this study, the focus was on the type of scientific capital known as “pure”. In addition to the scientific sphere, the social sphere and, consequently, social capital influence pure scientific capital, since the latter depends on the recognition of an individual’s scientific contributions by his or her peers. The agent consists of research group leaders in Knowledge Organization who are registered in the ISKO-Brasil directory and have published papers in the proceedings of that society’s conferences, as well as members of the research front and/or the elite of those proceedings.

5.0 Results

The research elite is the square root of the authors who produce the most in a given domain. Table 1 lists the 22 authors who form the research elite who have published papers at conferences organized by the ISKO Brazilian chapter. Cells marked with an X indicate that the author possessed a specific characteristic at the time the article was published at the event.

Table 1 Authors from the elite research panel of the ISKO-Brazil 2011–2023 conference proceedings

	Group leader	Group member	No group	UNESP	CNPq scholarship	Connections ISKO/ISKO-Brasil	GPFAPOI	Repr. Tem. Inf.	GPERTIC
Barité M			X						
Barros THB	X	X			X	X			X
Bräscher M		X					X		
Bufrem LS		X			X				
Cervantes BMN		X				X			
Dal'Evedove PR	X	X		X				X	

	Group leader	Group member	No group	UNESP	CNPq scholarship	Connections ISKO/ISKO-Brasil	GPFAPOI	Repr. Tem. Inf.	GPERTIC
Fujita MSL	X	X		X	X			X	
Grácio MCC		X		X	X		X		
Gracioso LS	X	X			X	X			X
Guimarães JAC	X	X		X	X	X	X		
Martínez-Ávila D		X		X			X		
Miranda MLC	X	X							
Moraes JBE			X	X					
Moreira W		X		X	X			X	
Moura MA			X		X				
Oliveira EFT		X		X	X		X		
Pinho FA	X	X			X	X	X		
Sabbag D			X	X		X			
Sales R		X				X	X		X
Santos RF	X	X							
Tartarotti RCD		X						X	
Tognoli NB	X	X			X	X	X		

The elite of research authors who have published papers in the ISKO-Brazil conference proceedings consists of 22 individuals. Of the authors of this elite, 9 authors are leaders of research groups and 9 are only members of research groups listed in the ISKO-Brazil research group directory. The other 4 authors are not part of any research group registered in the ISKO-Brazil directory.

As for the members of this elite, nine authors have ties to UNESP. Eight authors are associated with ISKO and/or ISKO-Brazil, having served as presidents, vice-presidents, and/or secretaries of these societies, or carrying out activities in ISKO publications, such as editor-in-chief of the Knowledge Organization journal and/or managers of the “Advances in Knowledge Organization” series, which publishes the proceedings of ISKO international conferences.

It is worth highlighting the research group "GPFAPOI – Training and professional performance in information production and organization", as eight authors are members of this group, including its two leaders. The same is true for the research group "Thematic Representation of Information" (Repr. Tem. Inf.), which has four members who are part of the research elite.

The group "GPERTIC - Research Group in Knowledge Representation and Information and Communication Technologies Studies" also has three members who are among the elite in KO research, as reflected in the proceedings of ISKO-Brazil congresses.

The research verified that there were cases in which both leaders of some research groups were part of the research elite, which occurred due to the tendency of members of research groups to cite each other in the analyzed domain, emphasizing the influence of the leaders in the KO scientific community in the proceedings of ISKO-Brasil conferences.

Regarding the research front, Table 2 below lists the 11 authors with 50 or more citations in the proceedings of ISKO-Brazil conferences in the analyzed period. In this table, Brazilian nationality has been highlighted because several authors were not from Brazil.

Table 2 Authors of the research front for ISKO-Brazil events from 2011 to 2023

	Brazil	CNPq scholarship	UNESP	Group leader	Group member	No group	GPFAPOI	Connections ISKO/ISKO-Brasil
Hjørland B						X		X
Guimarães JAC	X	X	X	X	X		X	X
Dahlberg I						X		X
Fujita MSL	X	X	X	X	X			
Bräscher M	X				X		X	
Smiraglia RP						X		X
Barité M						X		
Pinho FA	X	X		X	X		X	X
Martínez-Ávila D			X		X		X	X
Beghtol C						X		
Olson HA						X		X

The research front comprises the most cited authors in the period under consideration. The table makes it easier to see that more than half of the authors on the research front in the ISKO-Brazil proceedings are not affiliated with research groups registered in the society's directory. These are: Hjørland B, Dahlberg I, Smiraglia RP, Barité M, Beghtol C, and Olson HA. These researchers are leading figures in Knowledge Organization and specialists in their research areas: Hjørland and Smiraglia deal with the epistemology of Knowledge Organization and domain analysis; Dahlberg studied classification theories and developed Concept Theory; Mario Barité investigates literary warrant and terminology in Knowledge Organization; Clare Beghtol was a researcher in the critical theory of classification; and Hope Olson conducts gender studies applied to Knowledge Organization.

The minority of the authors from the research front are Brazilians (four of them). Three of them have connections with UNESP, and three are also research group leaders. Almost half of the authors on the research front are members of a research group registered in the ISKO-Brazil directory; six authors are not. There are four members of the research front in the GPFAPOI research group.

There are seven authors on the research front who have or have had ties to ISKO and/or ISKO-Brasil (Connections with ISKO/ISKO-Brasil category): they have served as presidents, vice presidents, or secretaries of the latter, or are currently involved or have been involved in activities with ISKO, such as Hjørland's management of the ISKO encyclopedia.

Six authors were part of both the front and the elite of KO research in the ISKO-Brazil conference proceedings, namely José Augusto Chaves Guimarães, Mariângela Spotti Lopes Fujita, Daniel Martínez-Ávila, Mario Barité, Marisa Bräscher and Fabio Assis Pinho.

6.0 Conclusions

This study examined the influence of the existing social and scientific context on the scientific capital of the authors analyzed. The relationships that occurred in the domain of KO in the ISKO-Brazil congress proceedings were strongly influenced both by the social context – institutional – which culminates in the social capital accumulated by the authors, and by the scientific context – research groups and themes – existing in the scientific capital of each author analyzed, whether a member of the research elite, research front, leader or member of a research group.

It is worth pointing out the presence of members of the "GPFAPOI - Training and professional performance in information organization" and "Organization and Representation of Information and Knowledge of Image Resources (GP ORICRI)" research groups, whose citations to authors in the research front totaled 125 (one hundred and twenty-five) and 38 (thirty-eight), respectively. However, it is noted that the number of citations for the GPFAPOI research group is higher than the number of citations for the GP ORICRI group.

It is suggested that this research be complemented by studying the institutions and nationalities of the authors, and whether the most cited authors are CNPq research fellows,

to verify if this actually influences the production of papers published at ISKO-Brazil events, and to what extent. It is also suggested the expansion of this study to more fully encompass the domain of Knowledge Organization, through an examination of the papers published in ENANCIB's Working Group-2.

Drawing a parallel with Pierre Bourdieu's sociology, we can observe that the social structure of partnerships is mimicked in the production of scientific knowledge, through the apparent tendency for publication of works among leaders and members of research groups, and among researchers from the same institution, especially UNESP. Interactions between advisors and advisees (at the master's and doctoral levels) were also observed in the authorship of works published in the proceedings of ISKO-Brazil events.

In conclusion, at least within the universe of this study and contrary to Bourdieu's proposal, the social sphere influences the scientific sphere, as we observed greater interaction among members of the same KO research group and the same institution — particularly between advisors and advisees.

AI usage statement

The authors of this paper state that no AI was used in the research or writing of the article.

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