

Article

Intellectual Structure of Knowledge Organization Research: Temporal Change and Scholarly Variation Across Communities and Geographic Regions

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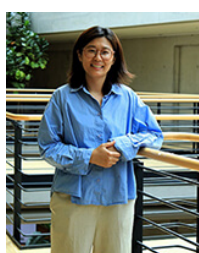
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Abstract

This study examines key topics and trends in knowledge organization (KO) research. Using text mining, a corpus of 1444 research articles published between 2008 and 2023 in three leading KO journals was analyzed. The BERTopic model, a neural topic modeling approach based on Bidirectional Encoder Representations from Transformers (BERT) text representations, was used to generate initial topics, which were then manually reviewed and consolidated into 16 final topics for comparative statistical analyses. The findings identify “cataloging” and “subject headings/ontology/thesaurus” as the dominant topics. Publications on “subject headings/ontology/thesaurus”, “KO and diversity/Lesbian, Gay, Bisexual, Transgender, and Queer or Questioning, and other identities (LGBTQ+)”, and “linked data/Bibliographic Framework (BIBFRAME)” increased over time, whereas those on “cataloging”, “KO education”, and “library preservation” declined over the study period. A comparison between academics and practitioners revealed distinct topical emphases, with academics focusing more on conceptual and theoretical aspects of KO and practitioners placing greater emphasis on practical aspects. Cross-continent comparisons likewise revealed distinct regional research priorities, with several topics showing significant overrepresentation within specific



continents. The findings highlight both continuity and change in KO research priorities and reveal meaningful differences in topical focus across groups and regions. By identifying dominant topics, temporal shifts, and cross-group differences, this study provides a systematic view of the KO research field and offers insights to guide future research directions and scholarly collaborations.

Keywords: knowledge organization research; topic modeling; research trends; comparative analysis; academic-practitioner differences; geographic variation

1. Introduction

Knowledge Organization (KO) constitutes one of the core and dynamic areas within Library and Information Science (LIS) (Sofik and Rahman, 2023). As a fundamental and continually evolving component of LIS, examining the intellectual structure of KO research is essential for understanding the field and identifying both established and emerging trends.

There have been a number of previous studies that have explored the KO research field through content analysis, bibliometric, and text-mining approaches (Si et al., 2023). These studies have primarily focused on identifying top research topics, tracing changes in research trends over time, mapping productive authors and institutions, and highlighting influential publications (Alipour et al., 2022; Castanha and Wolfram, 2018; Sofik and Rahman, 2023). Overall, these studies have provided valuable insights into the characteristics and evolution of the KO field. However, previous studies have tended to examine the KO research field as a relatively homogeneous whole, overlooking internal differences in research focus and emphasis. In particular, comparative analyses of research focus between academics and practitioners in the KO field have been scarce. In this study, academic research refers to research projects primarily conducted within universities and research institutions. Practice-oriented research is conducted within professional and applied contexts such as libraries and other information service institutions. This distinction is further informed by a knowledge production framework that conceptualizes differences in institutional context and approaches to knowledge production. The lack of systematic studies comparing these two groups limits our understanding of the field and may contribute to potential disconnections between academia and practice. Similarly, surprisingly little attention has been given to how research topics and research focus differ across global regions (Dora and Kumar, 2020). Given the international nature of the KO field (Rekha and Parameswaran, 2002; Sofik and Rahman, 2023), examining how KO research focus varies across geographic contexts can provide deeper insights into the field, reveal region-specific strengths and gaps, and facilitate international communication and collaboration among KO researchers.

This study aims to address these gaps and provide a comprehensive understanding of KO research by examining the top research topics and how they have changed over time, the differences in research focus between academics and practitioners, and variations in research empha-

sis across continents. Methodologically, this study employs BERTopic, an advanced topic modeling technique that enables more nuanced and semantically coherent topic extraction than traditional models. The topic modeling results are further examined using statistical analyses to identify significant differences over time and across groups. The research questions of this study are as follows:

RQ1. What are the major research topics in the KO field over the past 16 years?

RQ2. How have KO research topics and trends changed over the past 16 years?

RQ3. What are the differences in research topics and trends between academics and practitioners within the KO field?

RQ4. What are the differences in research topics and trends among continents within the KO field?

2. Conceptual Background and Related Research

2.1 Topical Trends in KO Research

Studying topical trends in the KO field can be interpreted through the lens of domain analysis, as conceptualized by Hjørland and Albrechtsen (1995), which emphasizes the intellectual and social characteristics of knowledge-producing communities. From this perspective, variations in topic distributions across time periods, groups, and regions do not merely represent different research interests. Instead, they show how research priorities are shaped by specific communities. Consequently, analyzing these patterns goes beyond simply describing publication trends and helps clarify how and why scholarly attention is distributed across different contexts in KO research. Previous studies that examined KO research topics and trends primarily used three methods: content analysis, bibliometric analysis, and text mining (Si et al., 2023). Each methodology offers distinct strengths and limitations for mapping the field.

Content analysis enables researchers to derive meaningful patterns from textual, visual, or audio data by categorizing and interpreting content using coding rules based on existing theories, expert knowledge, experience, or previous research (White and Marsh, 2006). This method is widely used to explore the characteristics of KO research and systematically identify temporal trends (Olson, 2006), providing insights into how topics and trends have changed over time. For instance, Saumure and Shiri (2008) analyzed 219 articles and compared KO topics and trends between

pre- and post-web eras. The authors found that the main focus shifted from “indexing and abstracting” to “cataloging”, “classification”, and “metadata”, demonstrating the close relationship between technological advancement and the KO field. Similarly, Si et al. (2023) observed changes in topics, research methods, and application fields in KO by analyzing 4360 KO-related articles published from 2000 to 2021. They identified 13 topics, including “classification schemes”, “thesauri”, “ontology”, “linked data”, and “cataloguing and bibliographic control”. Specifically, they found significant shifts toward “ontology”, “linked data”, and “automated techniques”, reflecting the profound impact of technological advancements on KO research.

Some scholars have applied content analysis to KO course readings from syllabi or course descriptions on LIS schools’ websites rather than published articles to understand trends in KO education (Alajmi and Rehman, 2016; Pattuelli, 2010). For example, Pattuelli (2010) analyzed readings from KO courses at 34 LIS schools in North America and found that traditional bibliographic methods remained the primary focus, while “metadata” emerged as an important topic. New topics, such as “markup languages” and “semantic web”, were also incorporated into the curriculum. Likewise, Alajmi and Rehman (2016) examined KO course descriptions from 68 schools in Southeast Asia, Europe, and North America and reported that “information organization”, “cataloging”, “bibliographic control”, and “metadata” were central topics, with growing emphasis on “indexing”, “classification”, and “subject analysis”. In contrast, “taxonomies”, “ontologies”, “thesauri”, and “digital libraries” were considered less significant. Although the researchers focused on curricula rather than research articles, they indicate that KO remains a major educational area in LIS and that curricula generally reflect research trends, albeit at a slower pace.

Despite its advantages, content analysis is vulnerable to subjective interpretation due to coder bias. Classifying content using coding schemes may lead to biased judgments that affect research findings. Although some studies have attempted to improve reliability through prior coding schemes, thesauri, specialized software such as ATLAS.ti, or expert coders with iterative negotiation, discrepancies in interpretation can still misrepresent actual patterns (Alajmi and Rehman, 2016; Pattuelli, 2010; Si et al., 2023).

Bibliometric techniques analyze trends and relationships within the scientific literature using indicators such as citation, co-citation, co-word, or bibliographic coupling analysis (Hjørland, 2013) and represent another widely used approach for examining KO research trends (Arboit et al., 2012; Castanha and Wolfram, 2018; Rekha and Parameswaran, 2002; Sofik and Rahman, 2023). Rekha and Parameswaran (2002) conducted a bibliometric analysis of 214 articles published in the *Knowledge Organization* journal from 1988 to 1999, identifying “classification”, “information retrieval systems”, “linguistics and terminol-

ogy”, and “subject cataloging and indexing” as the top topics. They also analyzed the number of publications over 12 years, authorship patterns, author productivity, authors’ institutional affiliations, and their geographical distribution. More recently, Sofik and Rahman (2023) analyzed 3909 KO publications, including journals, editorial materials, and conference proceedings from 2001 to 2020, and found that “knowledge management”, “knowledge”, and “knowledge sharing” were the top author keywords. The authors also identified the most productive countries, organizations, and authors, influential journals, frequently used keywords, the co-occurrence network, and highly cited articles.

Bibliometric techniques enable dynamic examinations of evolving research, facilitating the identification of influential works or authors, and supporting the tracking of terminology changes. However, a major limitation concerns the complex motivations behind scholarly citation and its semantic ambiguity. If concept mapping is not carefully applied to process synonymy or polysemy in co-word analysis, results may be skewed. To mitigate this limitation, Alipour et al. (2022) employed thorough keyword normalization, removed duplicates using an inclusion threshold, and adopted a hierarchical clustering approach. This method provided a more nuanced understanding of thematic diversity and interconnections and helped delineate the underlying intellectual structure of the KO field, including core themes, neglected emerging domains, and their maturity levels.

Text mining analysis, an automated technique for collecting, classifying, and clustering large textual datasets, has become increasingly popular as the volume of KO publications grows. Notably, Latent Dirichlet Allocation (LDA) topic modeling, an unsupervised machine learning technique, can automatically identify hidden topics within a dataset without requiring pre-labeled data and allows for semantic-level analysis of terms. More recently, BERTopic modeling (Grootendorst, 2022) has been proposed to identify topics from a text corpus based on context-dependent embeddings derived from pre-trained large language model Bidirectional Encoder Representations from Transformers (BERT) (Devlin et al., 2019). BERTopic modeling takes advantage of text embedding techniques that encode textual meaning as context-dependent vectors. Owing to its inherent advantages, text mining has been extensively utilized in the LIS domain to discover research trends (Han, 2020; Park and Song, 2013).

Ibekwe-SanJuan and SanJuan’s (2010) study pioneered the use of natural language processing techniques to automatically map trends in KO research. By processing titles and abstracts from 31 KO-related journals using the TermWatch text mining platform, the study revealed the dominance of traditional KO topics during the first decade (1988–1997) and a shift towards more specialized and technologically oriented topics in the second decade (1998–

2008). Similarly, Joo et al.'s (2018) study implemented text mining procedures, particularly term frequency analysis and LDA topic modeling analysis, to examine trends in the *Knowledge Organization* journal from 2006 to 2015. The study found that the key theme during this period was "organization or classification of knowledge and information". Using LDA topic modeling, the authors identified 20 topics, with "theories or epistemology in KO", "classification scheme or facet structure", and "domain analysis and ontologies" emerging as dominant, while topics related to "metadata and controlled vocabularies" remained consistently popular.

As shown above, a number of studies have investigated trends in KO research using various methods. These studies often identified major themes in KO research, as well as shifts in trends. Top authors, journals, and productive countries have also been examined. These studies provide valuable insights into the characteristics of KO research. Despite these contributions, little attention has been given to the differences between academics and practitioners regarding KO research topics. Identifying and reducing the academia-practice gap is essential to ensure that academics remain relevant to professional needs and that practitioners benefit from academic findings. Addressing this gap may also reveal opportunities for meaningful collaboration.

2.2 Scholarly Variation Between Academic and Practitioners

In the field of LIS, many studies have examined the gaps between academics and practitioners and proposed various strategies to bridge them (Ardanuy and Urbano, 2019; Chang, 2021). The gaps between academic and practice-oriented research may also be interpreted through theoretical frameworks of knowledge production. More specifically, Gibbons et al. (1994) categorized knowledge production into two modes: Mode 1, which is characterized by discipline-based, academic-oriented inquiry, and Mode 2, which is more context-driven and application-oriented. This framework helps explain the underlying differences in how academics and practitioners approach knowledge. From this perspective, the distinct research focus between academics and practitioners can be understood as an expression of different priorities in how knowledge is developed and applied within the field.

Specifically, several studies have focused on publication patterns, finding that academics and practitioners generally do not publish in the same journals and prioritize journals differently (White and Cossham, 2017). According to Dalton (2013), academics are more likely to be influenced by the Web of Science Journal Impact Factor (JIF) than practitioners when choosing journals. Chang (2017) also found that librarians tended to favor open-access journals for publication, whereas LIS academics preferred subscription-based journals.

There have also been studies that have examined the authorship and academic-practitioner collaborations. For example, Chang (2021) investigated whether articles co-authored solely by LIS academics are cited more frequently or earlier than those authored only by LIS practitioners or collaboratively. The researcher analyzed 1388 articles published in seven LIS journals and found no significant difference in the number of citations across co-authorship types. However, articles co-authored by both academics and practitioners were cited earlier than those written by only academics or practitioners, highlighting the benefits of collaboration. However, Ardanuy and Urbano (2019), who analyzed authorship and collaboration in two leading national publications in Spain, found an extremely low level of co-authorship between academics and practitioners. Collectively, prior research indicates a persistently low level of collaboration and information exchange, suggesting a structural divide within LIS (White and Cossham, 2017). These studies help clarify the nature of the gap between academics and practitioners in LIS.

However, there is a relative paucity of research directly comparing differences in research topics and trends between academics and practitioners in LIS. Powell et al. (2002) examined the research-related activities and attitudes of LIS professionals and found that many practitioners engage in and value research, although the level of activity varied. In studies that comparatively investigated LIS academics' and practitioners' research topics, the divide between the two has been reported. For example, Hildreth and Aytac's (2007) comprehensively examined this divide through content analysis, comparatively analyzing authorship, study location and settings, methodology, type of research, and data collection methods across 401 articles from 23 LIS journals, and found that academic researchers were typically more inclined to concentrate on issues related to information use and user behaviors, whereas library professionals primarily addressed topics concerning library operations, collections, and services. Similarly, White and Cossham (2017) also found noticeable differences in areas of interest between academics and practitioners. While "academic library" was the top topic for both groups, half of the top topics were unique to each group. For example, "public libraries", "assessment", "user studies", and "information behavior" were top topics for academics but were not among the top 20 topics for practitioners, whereas "library instruction" ranked highly among practitioners but not academics.

In the research landscape of KO, even fewer studies comparatively analyze differences between academics and practitioners regarding research topics and trends. Joo and Oh (2019) is one of the very few studies that has uncovered such differences by applying text mining to 914 articles published between 2008 and 2017 in three key KO journals. The study reported that academics predominantly concentrate on foundational principles within KO, whereas librarians

ians tend to focus on practical library applications. Despite growing scholarship on KO, limited comparative evidence constrains our understanding of research focus and trends within the field.

In addition to differences between academics and practitioners, another area requiring greater attention for a more comprehensive understanding of KO research is the variation in research topics and trends among authors from different geographic regions.

2.3 Geographic Variations in KO Research

Many studies across disciplines have examined research topics and trends across countries. For example, Paek et al. (2021) analyzed cross-national research trends within competency-based education, Shin (2020) focused on mathematical education, and Chang (2024) examined microplastics. Notably, all the aforementioned studies employed the “country of journal publication” as the criterion for international comparative analysis. However, this approach introduces a potential bias, as authors’ affiliations may differ from the journal’s publication country. Furthermore, journals published within a single nation may feature authors from diverse countries, thereby limiting the accuracy of cross-national comparisons.

In LIS, Rochester and Vakkari (1998) is one of the few studies that comparatively examined research topics and trends across countries. The authors analyzed LIS research articles published in core journals and found that although there were some similarities, research emphases varied considerably across countries, including Australia, China, Finland, Spain, Turkey, and the UK. More specifically, “information storage and retrieval” and “library and information services” were popular topics overall, while others were uniquely prominent in certain countries, such as “principles of LIS” in China, “scientific communication” in Spain, and “library history” in Australia. More recently, Dora and Kumar (2020) examined international trends in LIS research by analyzing 55 papers that investigated LIS research trends. The authors reported that although similarities existed across countries, differences in research focus were also evident. Specifically, studies in African countries focused more on “information seeking”, “education”, “information technology”, and “automation-related research”, China and India on “bibliometrics” and “electronic resources and services”, Denmark on “buildings” and “collection research”, and Australia, New Zealand, and Turkey on “LIS services activities”. The authors stated that these differences may depend on factors such as education, culture, and social structure, technology adoption in libraries, and issues in practical librarianship.

In the field of KO, some studies have investigated countries with higher publication output or journal impact (Rekha and Parameswaran, 2002; Sofik and Rahman, 2023) as well as prolific authors from different countries (Castanha and Wolfram, 2018; Smiraglia, 2015). Rekha and

Parameswaran (2002) analyzed the geographical distribution of authors in 214 articles published in the *Knowledge Organization* journal from 1988 to 1999, and reported representation from 26 countries. Similarly, Sofik and Rahman (2023) identified the top 20 most productive countries by analyzing 3909 KO publications from 2001 to 2020. Together, these studies underscore the international scope of the KO field. However, studies that comparatively analyze research focus and trends across countries remain limited, restricting insights into how national contexts shape KO research priorities.

Beak et al. (2013) is one of the few studies that examined KO research topics across four countries, Brazil, South Korea, Spain, and the United States, using domain analysis, keyword frequency, and comparative analysis. This study identified 21 common research topics while also revealing country-specific interests. Brazil showed greater interest in “automatic indexing and terminology”, South Korea in “children’s library classification”, “FRBR”, “interoperability”, and “next generation library catalog”, Spain in “encoding schemes” and “visualization”, and the United States in “information retrieval”. The authors argued that each nation offers distinct perspectives that enrich the KO field. By demonstrating how foci differ across countries, this study contributes to a deeper understanding of the field. However, it compared only four countries based on authors’ language proficiency, used purposive sampling to select KO-related journals, and relied on the “country of journal publication” for international comparison, highlighting the need for more comprehensive cross-regional analysis of KO research trends.

3. Methods

3.1 Data Collection

Data were collected from research articles published between 2008 and 2023 in three representative KO journals: *Cataloging & Classification Quarterly*, *Knowledge Organization*, and *Library Resources & Technical Services*. Any work other than research articles, such as introductions, editorials, reviews, and cataloging news, was excluded from the analysis. From each article, the authors’ names, article title, abstract, keywords, publication year, journal name, the first author’s employment type (i.e., academic or practitioner), and the first author’s continent (i.e., Africa, Asia, Europe, North America, Oceania, or South America) were collected and entered into an Excel spreadsheet. The first author’s employment type was determined based on their title (e.g., professor, librarian), and continent was identified based on affiliation information (institution name and country). When the author’s title was not explicitly displayed, a Google search was performed based on the author’s name and affiliation provided in the article. Other than that, all articles had all the information, except for five articles that did not have abstracts. Since all other information was present for these articles, they were not excluded. In total, 1444 articles were included in the analysis.

3.2 Data Analysis

Our study used the BERTopic implementation by the original author of the model available at <https://maartengr.github.io/BERTopic>. At the time of the study, the software version was 0.16.2 (BERTopic, version 0.16.2, Maarten Grootendorst, Netherlands). The analytical program was written in Python (version 3.12, Python Software Foundation, Beaverton, OR, USA). The titles and abstracts of the 1444 research articles were passed to BERTopic for topic modeling to generate initial topics. Stop words were not removed as advised because full context is helpful to create accurate embeddings for transformer-based models. The model first converts each article into a vector representation, called a document embedding, based on the Sentence-BERT framework (Reimers and Gurevych, 2019). The default sentence-transformer “all-MiniLM-L6-v2” was used, as it demonstrates the capabilities to capture the semantic similarity between documents. The document embeddings then underwent a dimension reduction process before being clustered into topics. The Hierarchical Density-Based Spatial Clustering of Applications with Noise (HDBSCAN) algorithm was used to generate clusters. The clustering process is based on the similarities among document embeddings with reduced dimensions. Default parameter values for HDBSCAN were used since there is no clear objective to tune the parameters (i.e., `min_cluster_size=10`, `min_samples=10`, `metric=euclidean distance`). Since the BERT representation has shown superior performance in natural language understanding tasks, BERTopic modeling has the advantage of capturing the semantic properties of text when generating topic clusters. The clustering process in BERTopic modeling creates some outlier documents that do not initially fall within any of the created topics. To reduce the outliers, we assigned them to the closest topics based on their document embeddings.

BERTopic modeling initially generated 31 topics for the KO articles. A number of the initial topics showed overlapping themes, such as “library classification” and “information science classification”. Some topics were closely related to each other, such as “indigenous knowledge organization” and “gender and sexual diversity/LGBTQ+”. Some topics were a subset of another topic, such as “e-book cataloging” and “cataloging”. Two of the authors manually examined the initial topics and consolidated them into 16 final topics through multiple iterations. In this process, visualizations such as the Intertopic Distance Map (a two-dimensional map showing the distances among topics) and the Documents and Topics map (a two-dimensional map showing the distances among documents and generated topic clusters) were also used. The Intertopic Distance Map is generated by embedding the c-TF-IDF representation, a class-based TF-IDF procedure that applies the TF-IDF formula to each topic by joining all documents in the topic cluster, of the topics in 2D using the dimension reduction algorithm Uniform Manifold Approximation and

Projection (UMAP). Then, the map visualizes the two dimensions in an interactive view. The Documents and Topics Map is generated from the document embeddings and then reduces the embeddings to 2D space using UMAP for visualization. With BERTopic modeling, each article is assigned to a topic. The Intertopic Distance Map and the Documents and Topics map with final topics are presented in Figs. 1,2. The final 16 topics were agreed upon by both authors. The table mapping the initial 31 topics to the final 16 topics is included in Appendix Table 2.

Based on these 16 topics, we analyzed the changes in the KO topics and trends over the past 16 years, the differences between academics and practitioners in their research topics and trends, and the differences among continents in their research topics and trends by conducting statistical analyses using SPSS (version 27). Articles were categorized based on the first author’s employment type and continent for comparative analyses, as the first author typically plays a primary role in determining the research topic.

4. Results

4.1 Primary Topics in KO Research

Over 40% of the articles concentrated on “cataloging” ($n = 372$, 25.8%) and “subject headings/ontology/thesaurus” ($n = 224$, 15.5%), establishing them as the most popular topics in the three KO journals between 2008 and 2023. “KO domain analysis” was another prominent topic, accounting for over 10% of the articles. “Library classification” and “metadata” were also among the top five topics, indicating a moderate but consistent scholarly presence. Table 1 presents all 16 topics in KO identified in this study.

4.2 Changes in Research Topics, 2008–2023

For a more in-depth analysis of KO topics and trends between 2008 and 2023, and to examine whether these top topics changed over time, articles were grouped into four time periods: 2008–2011 ($n = 311$, 21.5%), 2012–2015 ($n = 410$, 28.4%), 2016–2019 ($n = 378$, 26.2%), and 2020–2023 ($n = 345$, 23.9%), with each period spanning four years. A two-way contingency table analysis revealed a statistically significant relationship between time periods and top topics, $\chi^2(45, N = 1444) = 133.9, p < 0.01, V = 0.18$, indicating a moderate relationship. Cell-level analysis was conducted by examining the adjusted standardized residuals (ASRs; $|ASR| \geq 1.96$), while percentages within each time period were used to describe temporal trends.

On the one hand, the topics that generally increased in popularity over time were “subject headings/ontology/thesaurus”, “KO and diversity/LGBTQ+”, and “linked data/BIBFRAME”. Among these, “subject headings/ontology/thesaurus” showed a steady increase, from 10.9% in 2008–2011 to 21.2% in 2020–2023. Cell-level analysis using ASRs indicated that this topic was significantly underrepresented in 2008–2011 ($ASR = -2.5$) and significantly overrepresented in 2020–2023 ($ASR = 3.3$). Similarly, pub-

Intertopic Distance Map

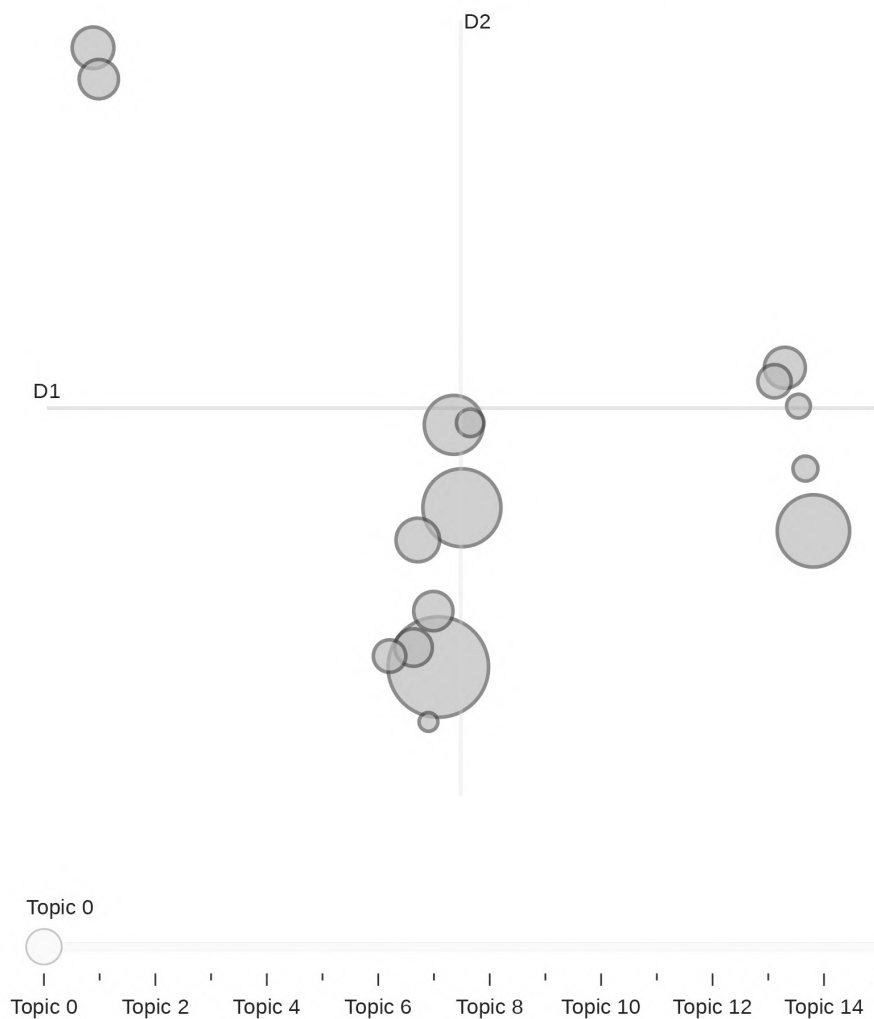


Fig. 1. Intertopic distance map with final 16 topics. Topic IDs correspond to the manually consolidated 16 final topics.

lications on “KO and diversity/LGBTQ+” increased substantially from 1.6% to 7.5%, with significant underrepresentation in 2008–2011 ($ASR = -2.6$) and significant overrepresentation in 2020–2023 ($ASR = 3.4$). “Linked data/BIBFRAME” showed a gradual increase in prevalence over time, with significant underrepresentation in 2008–2011 ($ASR = -2.9$), and no significant deviations in later periods.

In contrast, “cataloging”, “KO education”, and “library preservation” generally declined in popularity over time. In addition, “tagging/folksonomy” and “serials literature” showed a recent decline. More specifically, “cataloging”, despite remaining the top topic overall, became significantly underrepresented in both the “2016–2019” ($ASR = -2.1$) and “2020–2023” ($ASR = -2.0$) periods, indicating a shift in scholarly attention over time. Similarly, “KO education” decreased from 7.1% in 2008–2011 to 2.9% in 2020–2023 and shifted from significant overrepresentation in 2008–2011 ($ASR = 3.2$) to underrepresenta-

tion in 2016–2019 ($ASR = -2.4$). “Library preservation” also declined overall, from 7.4% to 4.6%, with significant overrepresentation in 2008–2011 ($ASR = 2.9$). “Tagging/folksonomy” remained relatively stable through 2019 but declined sharply in 2020–2023 ($ASR = -2.5$), indicating a recent rather than prolonged decline. “Serials literature” did not show substantial variation across most periods (1.3%, 1.2%, 1.1%, 0.0%) but showed a significant underrepresentation in 2020–2023 ($ASR = -2.0$), suggesting a recent decline.

There were also several topics that exhibited a fluctuating pattern rather than a consistent increase or decrease over time. These topics included “metadata”, “cataloging ethics”, “KO and archival science”, and “KO domain analysis”. “Metadata” showed a rather unstable trajectory, with percentages varying across periods (7.1%, 2.7%, 6.6%, and 3.5%) and corresponding ASRs indicating alternating periods of overrepresentation and underrepresentation ($ASR = 2.1$ in 2008–2011; -2.4 in 2012–2015; 1.9 in 2016–2019;

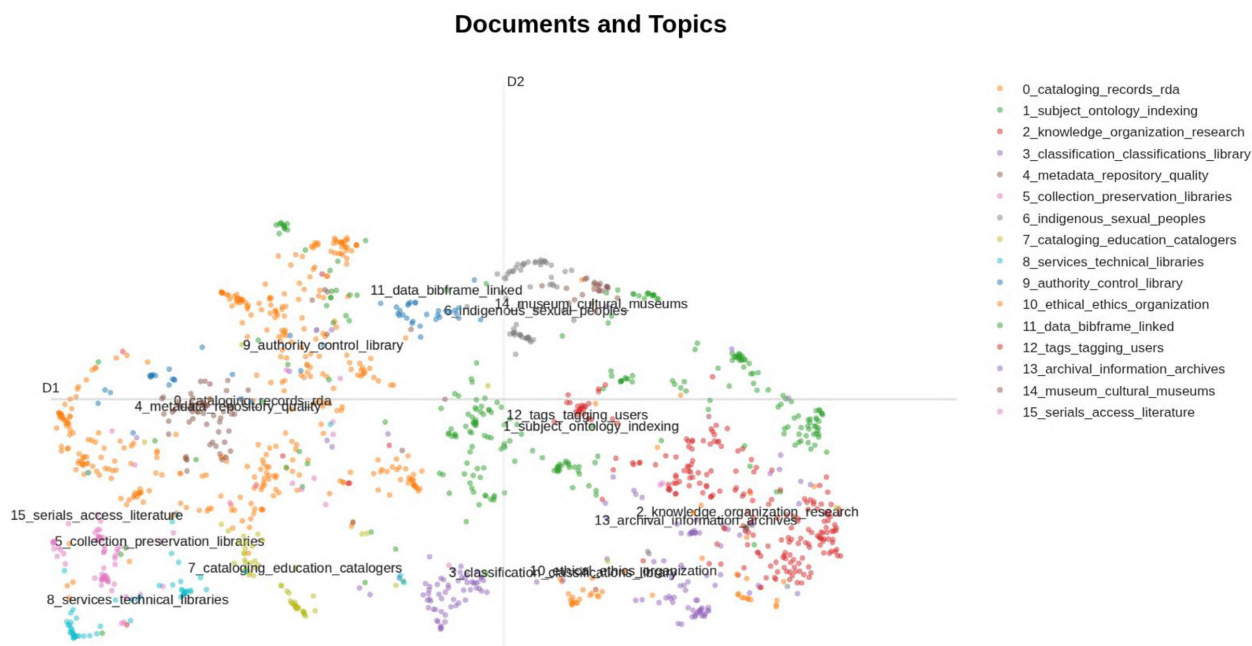


Fig. 2. Documents and topics map with final 16 topics.

Table 1. Top topics in KO ($N = 1444$).

Topic ID	Manual label	Number of articles	Percentage
0	cataloging	372	25.8%
1	subject headings/ontology/ thesaurus	224	15.5%
2	KO domain analysis	193	13.4%
3	library classification	128	8.9%
4	metadata	70	4.8%
5	library preservation	64	4.4%
6	KO and diversity/LGBTQ+	62	4.3%
7	KO education	57	3.9%
8	library technical services	57	3.9%
9	authority control	52	3.6%
10	cataloging ethics	41	2.8%
11	linked data/BIBFRAME	39	2.7%
12	tagging/folksonomy	28	1.9%
13	KO and archival science	23	1.6%
14	KO and museum studies	21	1.5%
15	serials literature	13	0.9%
Total		1444	100.0%

KO, knowledge organization; LGBTQ, Lesbian, Gay, Bisexual, Transgender, and Queer or Questioning, and other identities; BIBFRAME, Bibliographic Framework.

–1.4 in 2020–2023), suggesting no consistent directional trend. Similarly, “cataloging ethics” fluctuated over time (1.6%, 4.9%, 1.1%, 3.5%), with a significant overrepresentation in 2012–2015 ($ASR = 2.9$) followed by a significant underrepresentation in 2016–2019 ($ASR = -2.4$). “KO and archival science” also showed a non-linear pattern across

periods (0.3%, 1.5%, 3.4%, 0.9%), with significant underrepresentation in 2008–2011 ($ASR = -2.0$) and significant overrepresentation in 2016–2019 ($ASR = 3.3$). “KO domain analysis” showed a significant underrepresentation in 2008–2011 ($ASR = -2.0$), with no significant deviations in subsequent periods, indicating an initial underrepresentation followed by stabilization in subsequent periods.

The remaining topics did not exhibit statistically significant temporal change, with non-significant ASRs ($|ASR| < 1.96$) across all periods. Fig. 3 displays the heatmap of topic distributions across time periods. See Appendix Table 3 for the contingency table and adjusted standardized residuals describing the relationship between time periods and topics.

4.3 Scholarly Variation Between Academics and Practitioners

To analyze differences between academics and practitioners in their research topics and trends in KO, articles were grouped based on the first author’s employment type: academics ($n = 760$, 53.5%) and practitioners ($n = 661$, 46.5%). First authors with both academic and practitioner titles ($n = 23$, 1.6%) were excluded from the analysis to ensure that at least 80% of the cells had expected counts of 5 or greater to reduce the risk of Type I error in the two-way contingency table analysis. The results indicated a statistically significant association between first authors’ employment type and top topics, $\chi^2(15, N = 1421) = 285.74$, $p < 0.01$, $V = 0.45$, indicating a strong association between author type and topical focus. Cell-level analysis was conducted using the ASRs, with percentages providing descriptive context.

	2008-2011	2012-2015	2016-2019	2020-2023
cataloging	31.2%	28.8%	21.7%	21.7%
subject headings/ontology/thesaurus	10.9%	13.9%	15.9%	21.2%
KO domain analysis	10.0%	13.9%	15.6%	13.3%
library classification	10.0%	7.6%	11.1%	7.0%
metadata	7.1%	2.7%	6.6%	3.5%
library preservation	7.4%	2.9%	3.4%	4.6%
KO and diversity/LGBTQ+	1.6%	4.6%	3.2%	7.5%
KO education	7.1%	4.4%	1.9%	2.9%
library technical services	3.5%	4.9%	3.7%	3.5%
authority control	4.8%	2.9%	2.6%	4.3%
cataloging ethics	1.6%	4.9%	1.1%	3.5%
linked data/BIBFRAME	0.3%	2.9%	3.4%	3.8%
tagging/folksonomy	2.3%	2.2%	2.9%	0.3%
KO and archival science	0.3%	1.5%	3.4%	0.9%
KO and museum studies	0.6%	0.7%	2.4%	2.0%
serials literature	1.3%	1.2%	1.1%	0.0%

Fig. 3. Heatmap of topic distributions across time periods (% within time period).

On the one hand, several topics were more prevalent among academics than practitioners, most notably “KO domain analysis” (21.4% vs. 4.1%; ASR = 9.6), “tagging/folksonomy” (3.4% vs. 0.2%; ASR = 4.5), “library classification” (12.0% vs. 5.4%; ASR = 4.3), followed by “KO and archival science” (2.6% vs. 0.3%; ASR = 3.5), “subject headings/ontology/thesaurus” (18.4% vs. 12.6%; ASR = 3.0), and “cataloging ethics” (4.1% vs. 1.5%; ASR = 2.9). Topics are listed in descending order of ASRs.

On the other hand, practitioners showed greater emphasis on “cataloging” (36.8% vs. 15.7%; ASR = 9.1), “library preservation” (7.1% vs. 2.1%; ASR = 4.6), “authority control” (5.9% vs. 1.4%; ASR = 4.5), “library technical services” (5.9% vs. 2.2%; ASR = 3.5), “metadata” (7.0% vs. 3.0%; ASR = 3.4), and “serials literature” (1.8% vs. 0.1%; ASR = 3.3), also listed in descending order of ASRs.

Some topics showed no significant difference (i.e., $|ASR| < 1.96$) between academics and practitioners. These included “KO and diversity/LGBTQ+”, “KO and museum studies”, “KO education”, and “linked data/BIBFRAME”. These results suggest shared interest across the two groups. Fig. 4 presents the heatmap of topic distributions by employment type. See Appendix Table 4 for the contingency table and adjusted standardized residuals illustrating the re-

lationship between first authors’ employment types and topics.

4.4 Geographic Variation Across Continents

To examine differences in research topics and trends across continents, articles were grouped based on the first author’s continent: Africa ($n = 18$, 1.2%), Asia ($n = 127$, 8.8%), Europe ($n = 354$, 24.5%), North America ($n = 842$, 58.4%), Oceania ($n = 24$, 1.7%), and South America ($n = 77$, 5.3%). Two cases in which the first author had affiliations in both Europe and Asia were excluded from the analysis since it was less than 0.2% ($n = 2$). The two-way contingency table analysis revealed a statistically significant relationship between the first author’s continent and top topics, $\chi^2(75, N = 1442) = 536.03, p < 0.01, V = 0.27$, suggesting a moderate to strong association. However, 53.1% of cells had an expected count of less than 5. Accordingly, Fisher’s exact test with Monte Carlo Simulation was conducted to validate the robustness of the results. The test also indicated a statistically significant result. For cell-level analysis, the ASRs were examined, with percentages providing descriptive context.

Distinct differences were observed in research focus across continents. Cell-level analysis based on ASRs

	Academic	Practitioner
cataloging	15.7%	36.8%
subject headings/ontology/thesaurus	18.4%	12.6%
KO domain analysis	21.4%	4.1%
library classification	12.0%	5.4%
metadata	3.0%	7.0%
library preservation	2.1%	7.1%
KO and diversity/LGBTQ+	5.0%	3.6%
KO education	3.4%	4.5%
library technical services	2.2%	5.9%
authority control	1.4%	5.9%
cataloging ethics	4.1%	1.5%
linked data/BIBFRAME	3.2%	2.3%
tagging/folksonomy	3.4%	0.2%
KO and archival science	2.6%	0.3%
KO and museum studies	1.8%	1.1%
serials literature	0.1%	1.8%

Fig. 4. Heatmap of topic distributions by employment type (% within employment type).

identified several topics that were significantly overrepresented within specific continents. Continents are discussed in descending order of the number of articles contributed by first authors. In North America, “cataloging” (31.8%; ASR = 6.2), “library preservation” (7.2%; ASR = 6.1), “library technical services” (6.2%; ASR = 5.1), “KO and diversity/LGBTQ+” (6.2%; ASR = 4.2), “authority control” (4.9%; ASR = 3.0), “metadata” (6.2%; ASR = 2.8), and “serials literature” (1.4%; ASR = 2.5) were significantly overrepresented. In Europe, “KO domain analysis” (23.4%; ASR = 6.4), “library classification” (15.0%; ASR = 4.7), “subject headings/ontology/thesaurus” (21.2%; ASR = 3.4), and “KO and museum studies” (2.8%; ASR = 2.5) were significantly overrepresented. The topics that were significantly overrepresented in Asia were “KO domain analysis” (27.6%; ASR = 4.9) and “linked data/BIBFRAME” (7.1%; ASR = 3.2). In South America, “KO domain analysis” (39.0%; ASR = 6.8), “KO and archival science” (7.8%; ASR = 4.5), and “cataloging ethics” (9.1%; ASR = 3.4) were significantly overrepresented. In Oceania, significant overrepresentation was observed for “KO and diversity/LGBTQ+” (16.7%; ASR =

3.0). In Africa, “KO education” accounted for 55.6% of topics and showed strong overrepresentation (ASR = 11.3), although this finding should be interpreted with caution given the small number of articles from the continent ($n = 18$). Fig. 5 displays the heatmap of topic distributions across continents. See Appendix Table 5 for the contingency table and adjusted standardized residuals describing the relationship between the first authors’ continents and topics.

5. Discussion

The analysis identified 16 leading topics in KO research in the past 16 years. The findings show both stability in core topics and the emergence of new trends. More specifically, “cataloging” and “subject headings/ontology/thesaurus” remained central topics in the KO field, which indicates the continued importance of these topics. At the same time, the temporal analysis revealed increasing attention to topics such as “KO and diversity/LGBTQ+” and “linked data/BIBFRAME”, which reflects shifts in scholarly attention within KO research related to social and technological changes. They were also top-

	Africa	Asia	Europe	North America	Oceania	South America
cataloging	5.6%	22.0%	18.6%	31.8%	25.0%	3.9%
subject headings/ontology/thesaurus	27.8%	18.9%	21.2%	11.8%	16.7%	20.8%
KO domain analysis	0.0%	27.6%	23.4%	5.1%	8.3%	39.0%
library classification	0.0%	12.6%	15.0%	5.8%	12.5%	7.8%
metadata	0.0%	1.6%	4.0%	6.2%	4.2%	1.3%
library preservation	0.0%	0.0%	0.3%	7.2%	4.2%	1.3%
KO and diversity/LGBTQ+	0.0%	0.8%	0.8%	6.2%	16.7%	2.6%
KO education	55.6%	3.1%	0.8%	4.8%	0.0%	0.0%
library technical services	5.6%	0.0%	0.6%	6.2%	4.2%	1.3%
authority control	0.0%	1.6%	2.3%	4.9%	4.2%	0.0%
cataloging ethics	0.0%	0.0%	2.0%	3.2%	0.0%	9.1%
linked data/BIBFRAME	0.0%	7.1%	2.5%	2.1%	4.2%	2.6%
tagging/folksonomy	5.6%	3.9%	2.8%	1.3%	0.0%	1.3%
KO and archival science	0.0%	0.0%	2.5%	1.0%	0.0%	7.8%
KO and museum studies	0.0%	0.8%	2.8%	1.1%	0.0%	1.3%
serials literature	0.0%	0.0%	0.3%	1.4%	0.0%	0.0%

Fig. 5. Heatmap of topic distributions across continents (% within continent).

ics that did not show substantial differences between academics and practitioners, suggesting broad relevance across academic and practice communities. In contrast, topics including “cataloging”, “KO education”, “library preservation”, and “tagging/folksonomy” showed a notable decline, indicating shifts in research attention.

One of the key findings of this study is the strong relationship between the author’s employment type and top topics, which reveals distinct topical emphases between academics and practitioners in the KO field. Overall, academics focused more on conceptual or theoretical aspects of KO, while practitioners placed more emphasis on practical aspects of KO. These differences may reflect different forms of knowledge production, consistent with Gibbons et al.’s (1994) distinction between Mode 1 and Mode 2 knowledge production. From this perspective, the variation in topical emphasis demonstrates a distinct divergence in priorities of academic and practice communities. The findings also suggest a possible disconnect between theory-oriented and practice-oriented research. More active communication between academics and practitioners may help bridge the gap and support the development of research that is both theoretically important and practically relevant.

Although some findings are consistent with Joo and Oh’s (2019) study, this study provides a more detailed picture of topical variation between academics and practitioners.

The findings also indicated noticeable regional differences in topical emphasis. Overall, in North America, there was a strong focus on practice-oriented topics. Interestingly, most of the topics that showed significant overrepresentation in North America overlapped with topics that were significantly overrepresented among practitioners, suggesting a shared emphasis on practical aspects of KO. In contrast, Europe and South America showed greater emphasis on theoretical aspects of KO. Most of these overrepresented topics overlapped with topics that were significantly overrepresented among academics, showing a shared interest in the conceptual and theoretical dimensions of KO. In Asia, technology-oriented topics, particularly “linked data/BIBFRAME”, were overrepresented. Although some of these regional patterns partially correspond with previous studies, differences in units of analysis and scope limit direct comparison. These findings suggest that different regions contribute to different areas in the field, which may enrich the development of the KO field. At the same time, the findings highlight the importance of international com-

Table 2. Mapping of the initial 31 topics to the final 16 topics.

Initial topics	Final topics
Program for Cooperative Cataloging (PCC)	cataloging
Resource Description and Access (RDA)	
Functional Requirements for Bibliographic Records (FRBR)	
music cataloging	
cataloging	
romanization in cataloging (Chinese, Japanese language cataloging)	
e-book cataloging	
subject headings	subject headings/ontology/thesaurus
ontology	
thesaurus	
KO and multimedia retrieval/indexing vocabularies/thesauri	
knowledge organization (KO) domain analysis	KO domain analysis
library classification	library classification
information science classification	
metadata	metadata
library preservation	library preservation
indigenous knowledge organization	KO and
gender and sexual	diversity/LGBTQ+
diversity/LGBTQ+	
information organization education	KO education
book acquisition	library technical services
library technical services	
authority control	authority control
cataloging ethics	cataloging ethics
ethics of knowledge organization	
linked data	linked data/BIBFRAME
BIBFRAME	
tagging/folksonomy	tagging/folksonomy
KO and archival science	KO and archival science
museum collection management	KO and museum studies
serials literature	serials literature

munication and collaboration to facilitate the exchange of ideas and avoid silos or fragmentation of research agendas.

Overall, these findings provide an empirical map of the contemporary KO research field and clarify how scholarly attention is distributed across topics, time periods, communities, and regions. This study advances understanding of the intellectual landscape of KO research by integrating advanced topic modeling with comparative analysis and examining KO research from multiple perspectives, including temporal change, differences between academics and practitioners, and geographic variation. The findings identify emerging and underexplored research areas and

highlight the importance of communication and collaboration among academics, practitioners, and international research communities. The findings provide an empirical foundation for understanding the structure and development of KO research and may help guide future research directions.

In this study, the first author's employment type and continent were used to categorize articles and conduct comparative analyses. The first author typically plays a primary role in determining the research topic and is commonly used as the basis for article categorization and analysis in bibliometric studies (Chen et al., 2022). However, co-authors may have had different employment types or been from different continents, and their contributions could also have influenced the choice of the research topic. Thus, the use of only the first author's characteristics may not fully capture all patterns of authorship composition. Future studies may consider incorporating the affiliations of all authors to provide a more comprehensive picture of collaboration patterns and their relationship to research topics. In addition, although articles authored by researchers from all six continents were analyzed, the distribution of articles was uneven, which may have affected the results and limited the representativeness of regional research trends. This study selected research articles published in the three representative KO journals between 2008 and 2023 to limit the scope of the study. However, this has excluded other sources that also contain KO research. When using the BERTopic model to generate initial topics, many parameters and model choices could influence the outcome. This study used default settings from the author of the model due to a lack of clear objectives to tune the parameters. We have not compared the outcomes that could have resulted from the alternative choices.

6. Conclusions

This study examined research topics and trends in KO by analyzing 1444 research articles published over the past 16 years in leading KO journals. The analysis revealed both enduring and emerging patterns within KO scholarship. In particular, research topics and trends between academics and practitioners, as well as among KO researchers across six different continents, were comparatively analyzed, an area that has received limited attention despite its importance. The results indicate significant differences in research focus between academics and practitioners and among KO researchers across continents. From the domain analysis perspective, these variations deepen our understanding of the intellectual structure of the KO field and clarify the extent to which research priorities diverge across different communities.

Future research could comparatively analyze studies authored exclusively by academics, by practitioners, or by mixed teams, as well as collaborations involving authors from the same countries versus multiple countries, to gen-

Table 3. Relationship between time periods and top topics ($N = 1444$).

		2008–2011	2012–2015	2016–2019	2020–2023
cataloging	Count	97	118	82	75
	% within TimePeriod	31.2%	28.8%	21.7%	21.7%
	Adjusted Residual	2.5	1.7	–2.1	–2
subject headings/ontology/thesaurus	Count	34	57	60	73
	% within TimePeriod	10.9%	13.9%	15.9%	21.2%
	Adjusted Residual	–2.5	–1.1	0.2	3.3
KO domain analysis	Count	31	57	59	46
	% within TimePeriod	10.0%	13.9%	15.6%	13.3%
	Adjusted Residual	–2	0.4	1.5	0
library classification	Count	31	31	42	24
	% within TimePeriod	10.0%	7.6%	11.1%	7.0%
	Adjusted Residual	0.8	–1.1	1.8	–1.4
metadata	Count	22	11	25	12
	% within TimePeriod	7.1%	2.7%	6.6%	3.5%
	Adjusted Residual	2.1	–2.4	1.9	–1.4
library preservation	Count	23	12	13	16
	% within TimePeriod	7.4%	2.9%	3.4%	4.6%
	Adjusted Residual	2.9	–1.8	–1.1	0.2
KO and diversity/LGBTQ+	Count	5	19	12	26
	% within TimePeriod	1.6%	4.6%	3.2%	7.5%
	Adjusted Residual	–2.6	0.4	–1.2	3.4
KO education	Count	22	18	7	10
	% within TimePeriod	7.1%	4.4%	1.9%	2.9%
	Adjusted Residual	3.2	0.5	–2.4	–1.1
library technical services	Count	11	20	14	12
	% within TimePeriod	3.5%	4.9%	3.7%	3.5%
	Adjusted Residual	–0.4	1.1	–0.3	–0.5
authority control	Count	15	12	10	15
	% within TimePeriod	4.8%	2.9%	2.6%	4.3%
	Adjusted Residual	1.3	–0.9	–1.2	0.9
cataloging ethics	Count	5	20	4	12
	% within TimePeriod	1.6%	4.9%	1.1%	3.5%
	Adjusted Residual	–1.5	2.9	–2.4	0.8
linked data/BIBFRAME	Count	1	12	13	13
	% within TimePeriod	0.3%	2.9%	3.4%	3.8%
	Adjusted Residual	–2.9	0.3	1	1.4
tagging/folksonomy	Count	7	9	11	1
	% within TimePeriod	2.3%	2.2%	2.9%	0.3%
	Adjusted Residual	0.5	0.4	1.6	–2.5
KO and archival science	Count	1	6	13	3
	% within TimePeriod	0.3%	1.5%	3.4%	0.9%
	Adjusted Residual	–2	–0.2	3.3	–1.2
KO and museum studies	Count	2	3	9	7
	% within TimePeriod	0.6%	0.7%	2.4%	2.0%
	Adjusted Residual	–1.3	–1.4	1.8	1
serials literature	Count	4	5	4	0
	% within TimePeriod	1.3%	1.2%	1.1%	0.0%
	Adjusted Residual	0.8	0.8	0.4	–2
Total	Count	311	410	378	345
	% within TimePeriod	100.0%	100.0%	100.0%	100.0%

$\chi^2 (45, N = 1444) = 133.9, p < 0.01, V = 0.18.$

Table 4. Relationship between first authors' employment types and top topics (N = 1421).

		Academic	Practitioner
cataloging	Count	119	243
	% within EmploymentType	15.7%	36.8%
	Adjusted Residual	−9.1	9.1
subject headings/ontology/thesaurus	Count	140	83
	% within EmploymentType	18.4%	12.6%
	Adjusted Residual	3	−3
KO domain analysis	Count	163	27
	% within EmploymentType	21.4%	4.1%
	Adjusted Residual	9.6	−9.6
library classification	Count	91	36
	% within EmploymentType	12.0%	5.4%
	Adjusted Residual	4.3	−4.3
metadata	Count	23	46
	% within EmploymentType	3.0%	7.0%
	Adjusted Residual	−3.4	3.4
library preservation	Count	16	47
	% within EmploymentType	2.1%	7.1%
	Adjusted Residual	−4.6	4.6
KO and diversity/LGBTQ+	Count	38	24
	% within EmploymentType	5.0%	3.6%
	Adjusted Residual	1.3	−1.3
KO education	Count	26	30
	% within EmploymentType	3.4%	4.5%
	Adjusted Residual	−1.1	1.1
library technical services	Count	17	39
	% within EmploymentType	2.2%	5.9%
	Adjusted Residual	−3.5	3.5
authority control	Count	11	39
	% within EmploymentType	1.4%	5.9%
	Adjusted Residual	−4.5	4.5
cataloging ethics	Count	31	10
	% within EmploymentType	4.1%	1.5%
	Adjusted Residual	2.9	−2.9
linked data/BIBFRAME	Count	24	15
	% within EmploymentType	3.2%	2.3%
	Adjusted Residual	1	−1
tagging/folksonomy	Count	26	1
	% within EmploymentType	3.4%	0.2%
	Adjusted Residual	4.5	−4.5
KO and archival science	Count	20	2
	% within EmploymentType	2.6%	0.3%
	Adjusted Residual	3.5	−3.5
KO and museum studies	Count	14	7
	% within EmploymentType	1.8%	1.1%
	Adjusted Residual	1.2	−1.2
serials literature	Count	1	12
	% within EmploymentType	0.1%	1.8%
	Adjusted Residual	−3.3	3.3
Total	Count	760	661
	% within EmploymentType	100.0%	100.0%

 $\chi^2 (15, N = 1421) = 285.74, p < 0.01, V = 0.45.$

Table 5. Relationship between first authors' continents and top topics (N = 1442).

		Africa	Asia	Europe	North America	Oceania	South America
cataloging	Count	1	28	66	268	6	3
	% within Continent	5.6%	22.0%	18.6%	31.8%	25.0%	3.9%
	Adjusted Residual	-2	-1	-3.5	6.2	-0.1	-4.5
subject headings/ontology/thesaurus	Count	5	24	75	99	4	16
	% within Continent	27.8%	18.9%	21.2%	11.8%	16.7%	20.8%
	Adjusted Residual	1.5	1.1	3.4	-4.6	0.2	1.3
KO domain analysis	Count	0	35	83	43	2	30
	% within Continent	0.0%	27.6%	23.4%	5.1%	8.3%	39.0%
	Adjusted Residual	-1.7	4.9	6.4	-10.9	-0.7	6.8
library classification	Count	0	16	53	49	3	6
	% within Continent	0.0%	12.6%	15.0%	5.8%	12.5%	7.8%
	Adjusted Residual	-1.3	1.6	4.7	-4.7	0.6	-0.3
metadata	Count	0	2	14	52	1	1
	% within Continent	0.0%	1.6%	4.0%	6.2%	4.2%	1.3%
	Adjusted Residual	-1	-1.8	-0.9	2.8	-0.2	-1.5
library preservation	Count	0	0	1	61	1	1
	% within Continent	0.0%	0.0%	0.3%	7.2%	4.2%	1.3%
	Adjusted Residual	-0.9	-2.5	-4.4	6.1	-0.1	-1.4
KO and diversity/LGBTQ+	Count	0	1	3	52	4	2
	% within Continent	0.0%	0.8%	0.8%	6.2%	16.7%	2.6%
	Adjusted Residual	-0.9	-2	-3.7	4.2	3	-0.8
KO education	Count	10	4	3	40	0	0
	% within Continent	55.6%	3.1%	0.8%	4.8%	0.0%	0.0%
	Adjusted Residual	11.3	-0.5	-3.5	1.8	-1	-1.8
library technical services	Count	1	0	2	52	1	1
	% within Continent	5.6%	0.0%	0.6%	6.2%	4.2%	1.3%
	Adjusted Residual	0.4	-2.4	-3.8	5.1	0.1	-1.2
authority control	Count	0	2	8	41	1	0
	% within Continent	0.0%	1.6%	2.3%	4.9%	4.2%	0.0%
	Adjusted Residual	-0.8	-1.3	-1.6	3	0.1	-1.7
cataloging ethics	Count	0	0	7	27	0	7
	% within Continent	0.0%	0.0%	2.0%	3.2%	0.0%	9.1%
	Adjusted Residual	-0.7	-2	-1.1	1	-0.8	3.4
linked data/BIBFRAME	Count	0	9	9	18	1	2
	% within Continent	0.0%	7.1%	2.5%	2.1%	4.2%	2.6%
	Adjusted Residual	-0.7	3.2	-0.2	-1.6	0.4	-0.1
tagging/folksonomy	Count	1	5	10	11	0	1
	% within Continent	5.6%	3.9%	2.8%	1.3%	0.0%	1.3%
	Adjusted Residual	1.1	1.7	1.4	-2.1	-0.7	-0.4
KO and archival science	Count	0	0	9	8	0	6
	% within Continent	0.0%	0.0%	2.5%	1.0%	0.0%	7.8%
	Adjusted Residual	-0.5	-1.5	1.6	-2.3	-0.6	4.5
KO and museum studies	Count	0	1	10	9	0	1
	% within Continent	0.0%	0.8%	2.8%	1.1%	0.0%	1.3%
	Adjusted Residual	-0.5	-0.7	2.5	-1.5	-0.6	-0.1
serials literature	Count	0	0	1	12	0	0
	% within Continent	0.0%	0.0%	0.3%	1.4%	0.0%	0.0%
	Adjusted Residual	-0.4	-1.1	-1.4	2.5	-0.5	-0.9
Total	Count	18	127	354	842	24	77
	% within Continent	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

 $\chi^2 (75, N = 1442) = 536.03, p < 0.01, V = 0.27.$

erate deeper insight into KO research topics and trends. Additionally, incorporating KO conference papers and presentations, such as those from the International Society for Knowledge Organization (ISKO) or North American Symposium on Knowledge Organization (NASKO), into the corpus would help capture more recent developments in the field.

Availability of Data and Materials

The data reported in this paper are available from the corresponding author upon reasonable request.

Author Contributions

KO: designed the research study, collected, analyzed, and interpreted the data, wrote and reviewed the manuscript. KL: analyzed and interpreted the data, wrote and reviewed the manuscript. HP: interpreted the data, wrote and reviewed the manuscript. All authors contributed to editorial changes in the manuscript. All authors read and approved the final manuscript. All authors have participated sufficiently in the work and agreed to be accountable for all aspects of the work.

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Conflicts of Interest

The authors declare no conflicts of interest.

Declaration of AI and AI-Assisted Technologies in the Writing Process

During the preparation of this work, the authors used ChatGPT-5.2 to check spelling and grammar. After using this tool, the authors reviewed and edited the content as needed and take full responsibility for the content of the publication.

Appendix

See Tables 2,3,4,5.

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