Names | A Journal of Onomastics

Unveiling the Landscape of Onomastics from 1972 to 2022: A Bibliometric Analysis

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Abstract

Over the past five decades, onomastics has seen remarkable growth with fruitful publications and interdisciplinary collaborations. Despite the abundance of literature, a panoramic view of contribution networks and the evolutionary trajectory of this field has been lacking. To address this issue, this study presents a statistical assessment complemented by visualization clustering, rendering data from 768 journal articles and 28,357 references, to unfold impactful journals, influential scholars, foundational knowledge, and evolving frontiers. The outcomes of this research showcase the distribution of subtopics within each name category, depicting noteworthy contributors, focal trends, and cutting-edge subjects in the area. New themes that illuminate orientations include online naming, multi-identity construction, language processing, corpus-assisted approaches, and neural-cognitive experiments. Further data-driven exploration of name-related themes is foreseen to yield valuable insights. Through this comprehensive assessment, this study elucidates the role of names as manifestations of human identity, social emotions, aesthetic ingenuity, and strategic communicative paradigms. The findings are poised to facilitate the discernment of human quality, societal stratification, interpretative nuances, and relationships underlying social issues. Additionally, this research exemplifies the efficacy of bibliometric analysis and proposes strategies to mitigate potential constraints, disclosing how quantitative data from onomastics can be applied in the digital era and beyond. This article is the corrected version of the original article. For more information on the changes made, see the erratum: http://dx.doi.org/10.5195/names.2024.2689.

Keywords: onomastics, bibliometrics, names, socio-onomastics, citation analysis, information visualization, scientific mapping

1. Introduction

Onomastics, the scholarly investigation of naming practices and methodologies, has thrived as a significant field of study over the last century. While often regarded as an "autonomous field", it intricately intersects with numerous scientific disciplines as name use holds a central position in human activity and carries weight for our understanding of the world (Algeo and Algeo 2000). The act of bestowing a name upon something not only grants its existence in the realm of human attention, but also mirrors the profound connection between language, perception, and the very essence of the entity being named. In this sense, the potential of this subject is vast, inspiring inquiries that span across various disciplines, such as anthropology, history, archaeology, and multidisciplinary humanities (Coates 2012). Despite extensive explorations into multiple aspects of onomastics, such as its origins, meanings, grammars, socio-cultural allure, and functions, as well as the cognitive processes underlying naming mechanism (Ainiala & Östman 2017; Hough & Izdebska 2016; Aitchison 2012; Grzega 2002), a comprehensive overview of the field's evolutionary path and knowledge structure remains to be undertaken.

Bibliometric analysis has emerged as a powerful tool in the humanities and social sciences, employing mathematics and statistical methods to dissect publication information (Aryadoust & Ang 2021; Arik & Arik 2017; Zheng et al. 2017; Bellis 2009; Weinberg 1974; Salton 1971). This approach enables researchers to quantitatively navigate through extensive bodies of existing research. It creates interconnected representations of individual studies using bibliometric branches, offering a comprehensive landscape for future research in related areas (Chen 2013; Leydesdorff et al. 2013). Initially applied in the natural sciences, bibliometrics primarily involved tallying publications to trace knowledge development within academic fields (Lei & Liu 2019; Chen & Song 2017; Weinberg 1974; Salton 1971). Modern bibliometrics simplifies the retrieval of citation information and allows for a numerical evaluation of the impact of publications, journals, authors, programs, and institutional productivity (Leydesdorff et al. 2013). Alongside scientometric overviews, the knowledge graph tool plays a pivotal role in not only uncovering research hotspots and geographical distribution of publications but also elucidating the thematic evolution, influential authors, and temporal progress of literature topics at a glance (Chen 2006). The principle of a knowledge graph is to present complex information clearly and visually by organizing it into a triad of entity, relation, and property (Chen & Song 2017). In the graphical semantic network, the interconnections among named entities are depicted, with each entity represented as a node or vertex on the graph (Abulaish et al. 2022; Aryadoust et al. 2020). While links in the graph typically signify relationships between entities, properties refer to inherent characteristics of entities or relationships that may not be immediately apparent but are crucial for core comprehension.

Recent bibliometric studies have demonstrated their effectiveness in measuring research productivity or publication impact in various linguistic domains, such as applied linguistics (Lei & Liu 2019), language assessment and second language acquisition (Aryadoust et al. 2020; Arik & Arik 2017), translation studies (Zanettin et al. 2015), eye-tracking in language studies (Aryadoust & Ang 2021), and cognitive words and recognition (Fu et al. 2021; Liu et al. 2020; Zheng & Wang 2019), among others. However, a critical gap exists in the literature that a scientometric evaluation is yet to be undertaken of the bibliography in the field of onomastics. Notably, as highlighted by Raan (2005), the utilization of bibliometrics to evaluate and/or classify scholars, programs, institutions, or countries is prone to misinterpretation or misuse of data, and inevitably giving unreliable or misleading conclusions. Therefore, it is essential to acknowledge that the present study is cognizant of the limitations inherent in inductive studies like bibliometric assessments, and underscore that all bibliometric assessments herein are based on the statistics of the dataset in use for this study.

Given the quantitative exploration of the panorama of onomastics as an uncharted domain, this study endeavors to conduct a thorough evaluation of existing literature spanning the past half century, from 1972 to 2022, using the CiteSpace Tool for scientometric analysis. Its objectives are to unveil research patterns, identify current focal points, and suggest future research directions, aiming to inform scholars of existing works in the field while addressing the critical gap in the literature through quantitative analysis. Its primary tasks include identifying primary contributors, prevalent topics, and portraying the field's evolution. In addition, it also seeks to gauge the effectiveness of these measures in tracking the overall progression of literature within this field.

2. Methodology

The dataset for the present study were retrieved from the Web of Science (WOS) Core Collection Database, covering a total of 768 articles from 396 sources authored by 956 individuals representing 140 countries, along with 28,357 distinct references. Following the etymology of "onoma", which originates from the ancient Greek *ὄνομᾰ* 'name', the most typical words directly referring to the study of names and naming practices, namely "onomastics" and "onomastic", are adopted as search words for the retrieval. To expand the richness of the data, the term "onomasiology" is added, as it shares the same lexical root and overlaps with onomastics in examining names, specifically on concepts. The relevance of the selected articles to the study of names and naming is double-checked with respect to their titles, abstracts, and keywords. In the next step of data cleaning, this dataset was further filtered in terms of article categories and publication dates using the WoS search and duplication-removal in CiteSpace. To uncover the disciplinary landscape of onomastics, a descriptive analysis and three major statistical quantifications of literature were conducted on the dataset. The three measures are "network" to illustrate connections, "cluster" for classifications, and "evolution" for research progress. CiteSpace is a scientific field mapping tool to analyze co-occurrence and co-citation indexes, highlighting influential scholars, institutions, cooperation networks, and citation patterns (Abulaish et al. 2022; Aryadoust et al. 2020; Chen 2020; Zheng & Wang 2019; Chen & Song 2017; Li & Chen 2016; Chen et al. 2009).

The basic network of relationship structure is built up in terms of co-citation information, by looking into the co-cited journals, authors, and documents. The co-citation index of an article is determined by three parameters according to the network: N, the number of examined nodes, such as institutions, countries, authors, keywords, cited literature, and cited journals; E, the number of retrieved edges that represent relationships between nodes; and a "Density" value that indicates the solidness of network linkages between 0 and 1, the higher of which signifies a denser network with more linkages between entities (Chen 2006). Cluster analysis is applied to identify phenomenal research themes in groups and significant issues with keywords, using modularity (Q value) and the mean silhouette (S value) to measure community structure and clustering homogeneity respectively (Chen 2016). These two values reflect the degree of connectivity among nodes and links, with Q greater than 0.3 and S at or beyond 0.7 representing valid results and significant clustering (Newman & Girvan 2004; Rousseeuw 1987). Statistical measures like log likelihood ratio (LLR), latent semantic indexing (LSI), and mutual information (MI) provided by CiteSpace are adopted to label each cluster based on the meta-information of the literature, with LLR as the preferred one to capture cluster uniqueness (Dunning 1994). While bibliometric studies provide insights into development trajectories over time, space, and content (Rousseeuw 1987), CiteSpace aids in analyzing research hotspots, academic shifts, and future directions (Chen et al. 2010). Also, burst detection signifies noteworthy surges in attention or citations (Chen & Song 2017; Chen et al. 2009; Kleinberg 2003). These indexes unveil enduring issues, ongoing themes, and burgeoning scholarly interests, collectively showcasing changes in research domains, providing valuable hints for future investigative pathways. A word of caution is necessary that, despite effectiveness, the outcomes derived from the co-citation information are limited within the certain interpretative scope. Thus, it is crucial to steer clear of overgeneralization and critically avoid potential biases that might be inherent in the analysis of citation information.

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3. Statistics of Literature: Descriptive Analysis

3.1 Chronological Development

Figure 1 illustrates the annual publication profile of onomastic research over the past fifty years, revealing three distinct stages. The initial phase (1972–2006) witnessed limited publications. The advancing phase (2007–2017) saw a gradual growth, surpassing ten articles per year in 2007 and then doubling over the next five years. The prosperous phase (2018–2022) experienced a significant surge, with 2018 peaking at 103 articles, followed by an average of around 90–100 articles annually. This upward trend reflects the growing recognition of the importance of onomastics and a prognostic of its further expansion and diverse academic contributions.

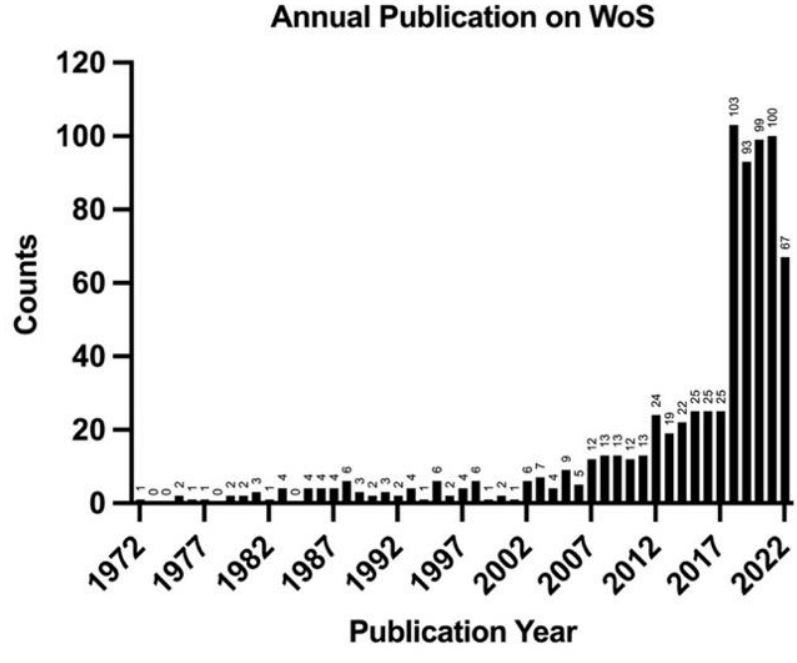

Figure 1: Annual Publication of Onomastic Research on WoS

3.2 Distribution of Sources

Type of Publication

The top ten journals that published the largest number of articles in onomastics are listed in table 1, in company with their ranks by article count, home countries, and scientific categories (as defined in WoS). Apart from journals, papers collected in the conference compilations and books also make a notable part in the whole onomastic literature. For instance, the International Conference on Onomastics (ICONN) contributed 146 papers and two German books added 31 articles, altogether making an eminent contribution that accounts for 23 percent of the current database.

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Table 1. Top 10 Most Contributed Journals

Rank	Journals	Counts	Country	Category
1	Names: A Journal of Onomastics	61	United States	Onomastics
2	Voprosy Onomastik (Problems of Onomastics)	60	Russia	Onomastics
3	Zeitschrift Fur Dialektologie Und Linguistik (Journal of Dialectology and Linguistics)	23	Germany	Linguistics
3	Zeitschrift Fur Romanische Philologie (Journal of Romance Philology)	23	Germany	Language and Literature
5	Studi Piemontesi (Piedmontesi Studies)	20	Italy	Regional Studies
6	Zeitschrift Fur Slawistik (Journal of Slavic Studies)	17	Germany	Language and Literature
7	Nauchnyi Dialog (Scientific Dialogue)	15	Russia	Language and Literature
8	Journal of Indo-European Studies	12	United States	Language and Literature
9	Palaeohispanica Revista Sobre Lenguas Y Culturas De La Hispania Antigua (Magazine on Languages and Cultures of Ancient Hispania)	11	Spain	Regional Studies
10	Revista De Estudos Da Linguagem (Journal of Language Studies)	9	Brazil	Linguistics
10	Revue De Linguistique Romane (Review of Romance Linguistics)	9	French	Language and Literature

Scientific Category

The present study employs bibliometric analysis to locate the academic knowledge domain of onomastics. Figure 2 displays the onomastic research network map derived from the dataset, where a circle represents a scientific category (as defined in WoS). The size of each circle corresponds to the number of articles in that category. Figure 3 presents the top ten catrgories ranked by the number of onomastic publications, indicating *Language* and *Linguistics* play a central role while hallmarking the interdisciplinary nature of onomastics as a subject field.

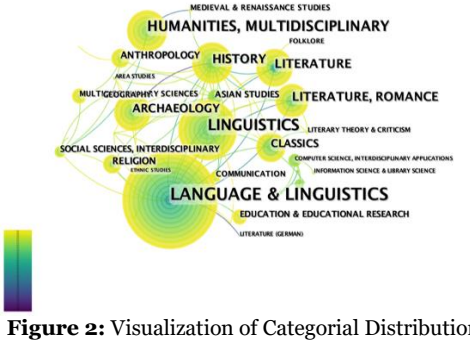

Figure 2: Visualization of Categorial Distribution

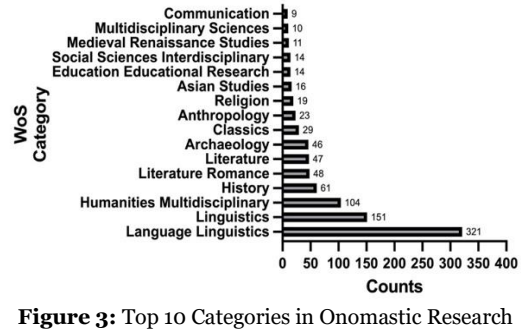

Figure 3: Top 10 Categories in Onomastic Research

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Institution and Country

As institutions and their countries (or regions) are concerned, figure 4 depicts the most representative excerpt of the collaboration network given by the dataset covering 316 institutions with 131 collaborations (*N*=316, *E*=131, Density=0.0026), where circles represent institutions with various sizes for numbers of collaborations. Table 2 presents the nine institutions and their countries that are the most involved in participating in the onomastic research in this network, showing that three Russian institutions lead in publications, with Spanish, German, French, and Taiwanese institutions also actively involved.

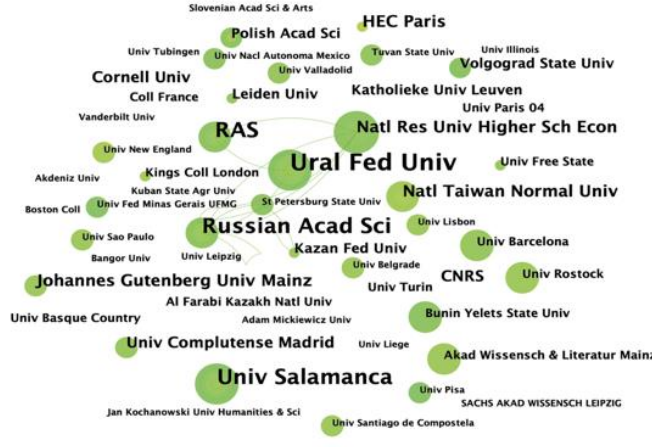

Figure 4: Visualization of Co-Institution Network

Table 2: Top 9 Most Active Institutions

Freq	Institution	Begin Year	Location
16	Ural Federal University (UrFU)	2015	Russia
12	Russian Academy of Sciences (RAS)	2015	Russia
12	University of Salamanca	2018	Spain
6	National Research University Higher School of Economics (NRU)	2020	Russia
6	National Taiwan Normal University	2015	Taiwan Region
6	École des hautes études commerciales de Paris (HEC Paris)	2010	France
6	Johannes Gutenberg Univeisity Mainz	2017	Germany
5	University of Complutense Madrid	2017	Spain
5	Centre National de la Recherche Scientifique (CNRS)	2012	France

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Figure 5 (N=71, E=55, Density=0.0221) illustrates the geographical distribution of onomastic literature across countries, emphasizing international collaborations and diverse participation from countries such as Russia, Spain, USA, Germany, and France, among others (as ranked in table 3). It shows that the field of onomastics thrives not only by virtues of interdisciplinarity and cross-cultural inspirations, but also by vibrant collaborative networks extending across countries.

Figure 5: Visualization of Co-Countries Network

Table 3: Top 10 Most Active Countries

Freq	Institution	Begin Year	Freq	Institution	Begin Year
120	Russia	1998	30	England	2000
69	Spain	2002	23	Poland	2010
68	USA	1975	23	Italy	2005
49	Germany	1986	20	Brazil	2012
48	France	1991	19	South Africa	2009

4 Knowledge Base of Onomastics: Co-Citation Analysis

Co-cited documents are articles that have been cited together on a third-party reference list, indicating thematic relationships (Chen 2013). This interconnection forms a co-citation network, demonstrating relationships among journals, authors, and references. The co-citation frequency, while sometimes lower in numerical count compared to direct citation frequency, holds value in pinpointing the pivotal literature within a field—specifically, the extensively referenced and closely interlinked works in the domain. A whopping 28,357 references from 770 articles are consulted to unveil the knowledge base and research trends in onomastic research. This type of analysis reveals the relationship between citations within a network. Statistical analysis is performed on the most influential co-cited references, authors, and journals for each year spanning a time frame from 1972 up to 2022.

4.1 Journal Co-Citation Analysis (JCA)

Journal co-citation analysis (JCA) allows for the identification of key sources of knowledge in a specific field by examining the interconnections among frequently cited research journals (Aryadoust & Ang 2021). Figure 6 (N=1303, E=3573, Density=0.0044) displays the co-citation of journals in onomastic research, highlighting the top 40 journals based on citation frequency. The size of each node represents the counts of co-citation, with larger nodes indicating higher citation frequency. The top ten most frequently cited sources are all related to language studies, which aligns with the scientific categorical distribution in figure 2. As provided by table 4, the

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"Thesis" column indicates that university dissertations play a role as a source of scholarly inspiration or research foundation, with 127 citations. *Names* ranks the most frequently cited journal in onomastic research, with 83 citations, indicating its significance in the field. *Names*, established by The American Name Society (ANS) in 1951, is dedicated to the study of naming practices and has remained influential in the field. Over nearly seven decades since its inception, *Names* has been contributing high-quality research and digitizing many early works (Nuessel 2013). Figure 7 confirms the prominence of *Names*, despite the present WoS dataset starting from 1972. Other than *Names*, six co-cited journals and two books highlight the diverse scopes and geographical perspectives in onomastics. *The Oxford Handbook of Names and Naming* and *Namen* serve as two fully-fledged guides covering diverse topics from theoretical foundations to applied research on toponyms, anthroponyms, literary onomastics, socio-onomastics, and interdisciplinary names, respectively in English and German (Hough and Izdebska 2016; Nübling, Fahlbusch, and Heuser 2015). With reference to JCA visualization, impacts of journals and books in various sorts of publications and languages on the subject can be clearly noted in the field.

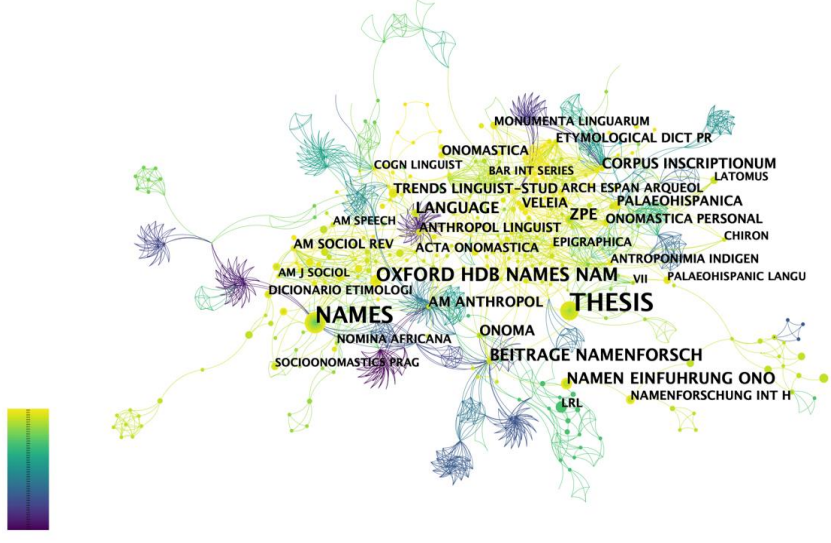

Figure 6: Visualization of Co-Cited Sources

Table 4: Top 10 Most Co-Cited Sources

Freq	Begin Year	Source	Theme	Type
127	2014	Thesis	Multidisciplinary	Thesis
83	1975	Names	General Onomastics	Journal
34	2016	The Oxford Handbook of Names and Naming	General Onomastics	Book
32	1996	Voprosy Onomastiki (Problems of Onomastics)	Russian Onomastics	Journal
22	1949	Beiträge zur Namenforschung (Contributions to the Study of Name)	German Onomastics	Journal
19	2015	Namen: Eine Einführung in die Onomastik (Name: An Introduction to Onomastics)	German Onomastics	Book
18	1925	Language	Linguistics & Language	Journal
17	1967	Zeitschrift für Papyrologie und Epigraphik (Journal of Papyrology and Epigraphy)	German Papyrology & Epigraphy	Journal
14	1863	Corpus Inscriptionum	Latin Inscriptions &Roman Epigraphy	Journal
14	1951	Onoma	General Onomastics	Journal

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4.2 Author Co-Citation Analysis (ACA)

Author co-citation analysis (ACA) pinpoints specialties within a subject area by analyzing groups of frequently cited scholars in relevant literature (Chen et al. 2010). The article applies ACA to identify influential scholars based on the frequency of co-citation. A total of 2,289 authors and 7,609 interactions were analyzed, and clustering was performed using the LLR algorithm to classify literature themes based on topics, abstracts, and keywords, yielding 20 semantic clusters, as shown in figure 7 (*N*=2289, *E*=7609, Density=0.0029). Seven themes represented by the top 20 highly co-cited authors are listed in table 5. #2 ***Personal Onomastics*** (*S*=0.93) concentrates on seminal works related to personal names in various languages, typified by scholars such as Jürgen Untermann (in Osco-Umbrian languages, Liburnian/Indo-European languages), Joaquín Gorrochategui (Basque names), Heikki Solin (Greek inscriptions), José María Vallejo (ancient Asturian names), and Monique Dondin-Payre (Romanisation of personal names). Notable scholars of the #3 ***Spanish Anthroponymic Repertoire*** (*S*=0.977) such as John Algeo, Terhi Ainiala, Stanley Lieberson, and Carmen Fernández-Juncal delve into the exploration of lexical availability and sociolinguistic analysis. Carole Hough takes the lead in the #7 ***Urbanonymic Terminology*** (*S*=0.99), which explores onomastics in England and Scotland. Additionally, scholars such as Aleksandra Vasilyevna Superanskaya and Marina Golomidova contribute to this category on Russian onomastics. Besides, George Lakoff and Dirk Geeraerts are representatives of the academic group of the #1 ***Cognitive Semasiology*** (Silhouette *S*=0.97). Both scholars contribute to the book *Cognitive Linguistics: Basic Readings*, with Geeraerts introducing cognitive linguistics, specifically prototype theory, and Lakoff discussing conceptual metaphor (Geeraerts 2006; Lakoff, 1993). Damaris Nübling has made significant contributions to the #4 ***Special Emphasis*** (*S*=0.994) in Germanic socio-onomastics and to the #5 ***Gulf War*** (*S*=0.948) together with Friedhelm Debus on that topic. Alföldy (2014) is at the center of the #6 ***Celtic Venetic*** (*S*=0.995***)***, involving a comparison of Indo-European personal names in Celtic, Venetic, and South-Picene.

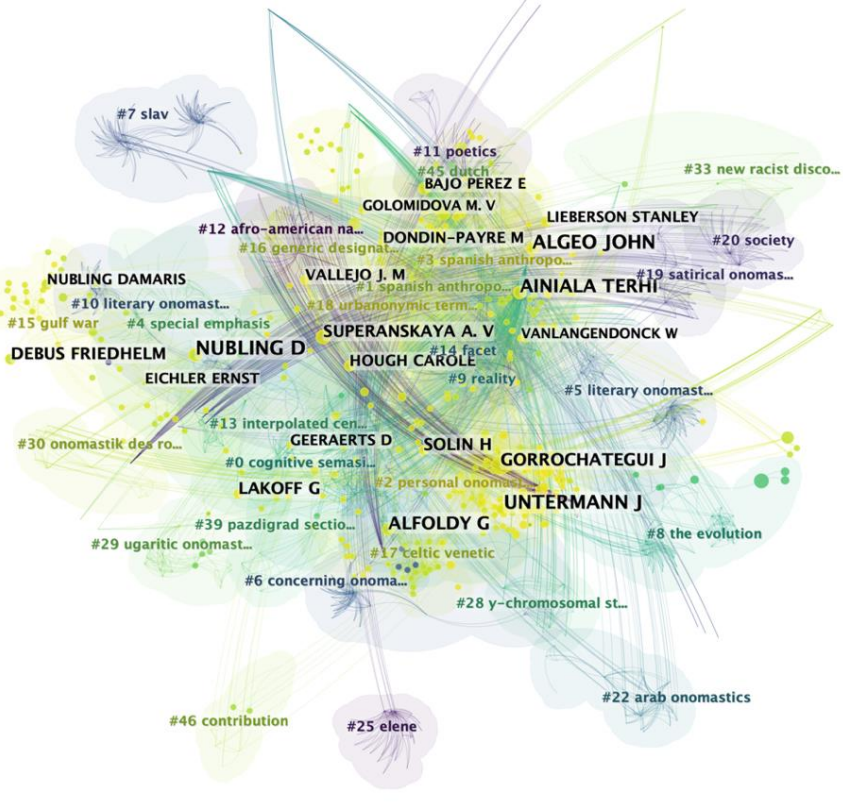

Figure 7: Visualization of Co-Cited Authors

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Table 5: Top 20 Most Co-Cited Authors

Freq	Cluster	Author	Year	Freq	Cluster	Author	Year
22	#2	Untermann J	2008	12	#7	Superanskaya A. V	2019
19	#1	Lakoff G	1993	11	#2	Vallejo J. M	2015
19	#5	Nubling D	2018	10	#3	Lieberson Stanley	2016
17	#3	Algeo John	2011	10	#3	Vanlangendonck W	2016
16	#3	Ainiala Terhi	2019	9	#2	Dondin-Payre M	2019
14	#2	Gorrochategui J	2015	9	#2	Untermann J	2008
14	#1	Geeraerts D	1996	9	#4	Nubling Damaris	2017
14	#6	Alföldy G	2009	9	#7	Hough Carole	2012
13	#2	Solin H	2015	9	#7	Golomidova M. V.	2019
13	#5	Debus Friedhelm	2012	8	#3	Juncal CF	2014

4.3 Document Co-Citation Analysis (DCA)

Clustering of Co-Cited Documents

Document Co-citation Analysis (DCA) involves analyzing citation distribution, connecting co-cited relationships to enhance the visibility of research gaps, and assisting in identifying focal publications and potential academic collaborators within the field, which may be underexplored in the isolated view of literature (Chen 2016). Figure 8 (*N*=4701, *E*=14363, Density=0.0013) shows the thematic clustering of co-cited literature. It reveals four main clusters (#0, #1, #12, and #13) in different groupings (*S*=0.994, Q=0.9885).

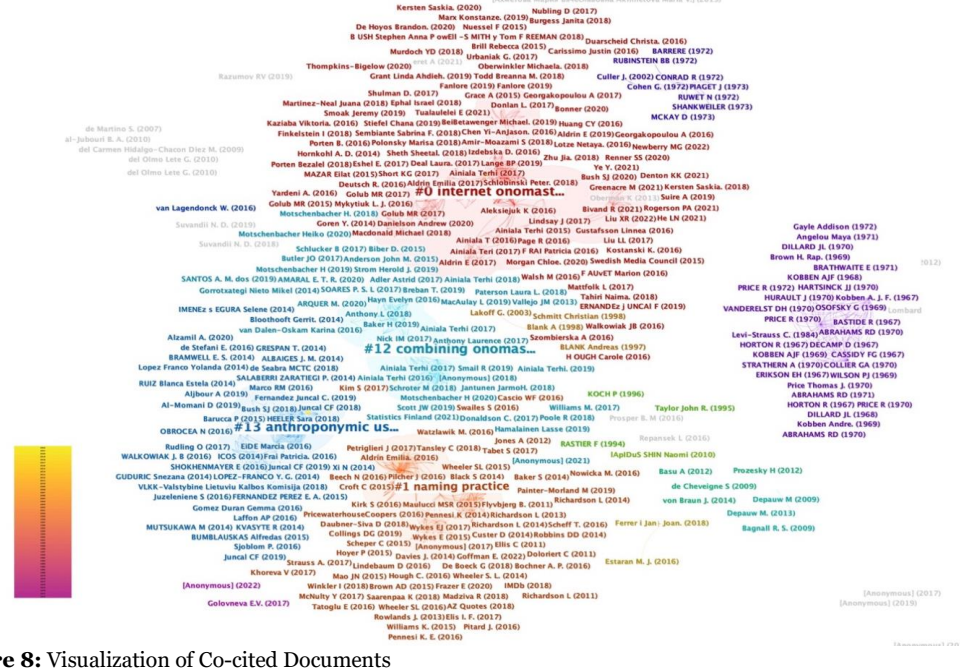

Figure 8: Visualization of Co-cited Documents

Figure 9 zooms in with a detailed lens, displaying co-cited references and their breakdown into sub-clusters (nodes and links reflecting shared knowledge strength and depth). The cluster #0 ***Internet Onomastics*** (*S*=0.997) in figure 9 (a), consists of 95 articles focusing on nomenclature on the Internet and self-identity constructions. Heated topics include Internet onomastics, self-naming, authenticity, anonymity lexis, identity, face-work, online communities, fanfiction, climate influence, and content analysis. Examples of articles explore

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socio-pragmatics (Ainiala & Östman 2017), naming and identity (Aldrin 2017), and online naming choices related to internet onomastics (Kersten & Lotze 2022; Aleksiejuk 2016a, 2016b). #1 ***Naming Practice*** (*S*=0.998) includes 63 cited articles and is represented by key works of Aldrin (2017), and Maulucci and Mensah (2015), as figure 9 (b) shows, exploring the practical uses and methodology of nomenclature, reflecting the paradigmatic naming strategy on intertextual layers, contextual meanings, as well as social practices. Terms identified in this category are social anthropology, cultural studies, multiculturalism, diversity global, identity, qualitative, naming, cultural, and sciences. Onomastics in Wales are studied as one of the cases such as Cymraeg (the Welsh language) and Cymru (Welsh names) (Kirk 2021). #12 ***Combining Onomastics*** (*S*=0.989) covers 41 articles with Ainiala (2016) being the most influential along with Anthony (2014), is displayed in figure 9 (c). Cluster#12 represents the integration of corpus linguistics and the quantitative study of nomenclature. Jantunen et al. (2022) map digital discourse to explore social sentiment behind names through individual self-perceptions and shared emotional values set in particular social collectives. Additionally, #13 ***Anthroponymic Uses*** (*S*=0.986) in figure 9 (d) comprises 40 articles, among which Juncal (2019) links three articles and explores the evolution of anthroponymic uses in Spain, indicating an established area of research in nomenclature.

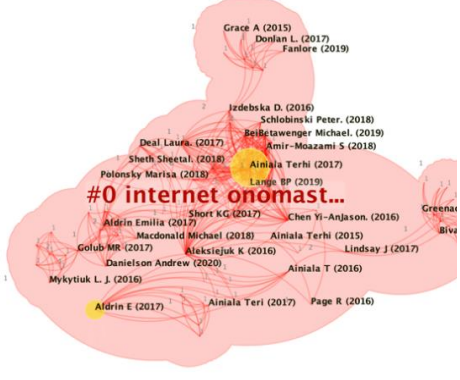

Figure 9 (a): Network of Co-Cited Documents on "Online Onomastics"

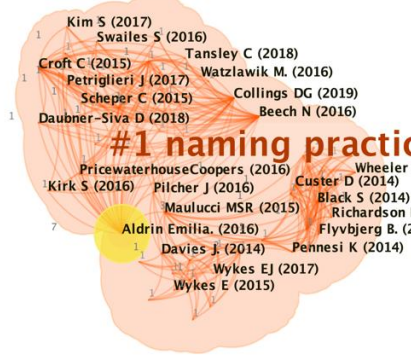

Figure 9 (b): Network of Co-Cited Documents on "Naming Practice"

Figure 9 (c): Network of Co-Cited Documents on "Combining Onomastics"

Figure 9 (d): Network of Co-Cited Documents on "Anthroponymic Uses"

Evolution of Co-Cited References

The detection of *Burstness* is an algorithmic parameter reflecting the abrupt changes of concerns during the temporal development of a field (Kleinberg, 2002). By measuring *Burstness* in co-citation, we can observe the

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significant attention and the extent of the citation impact of targeted literature and references (Chen 2016, 32). Figure 10 displays the top 25 documents with the highest citation bursts, featuring the most long-lasting influential books in onomastics, including *Namen: Eine Einführung in die Onomastik* (Nübling et al., 2015), *The Oxford Handbook of Names and Naming* (Hough & Izdebska 2016), and *Linguistic Categorization* (Taylor, 1995). The former two, as introduced in JCA, cover encyclopedic guidance related to names, while the latter delves into the philosophical and cognitive aspects of naming. These books altogether contribute to the understanding of the general principles and socio-contexts of human cognition behind naming practices across languages or cultures.

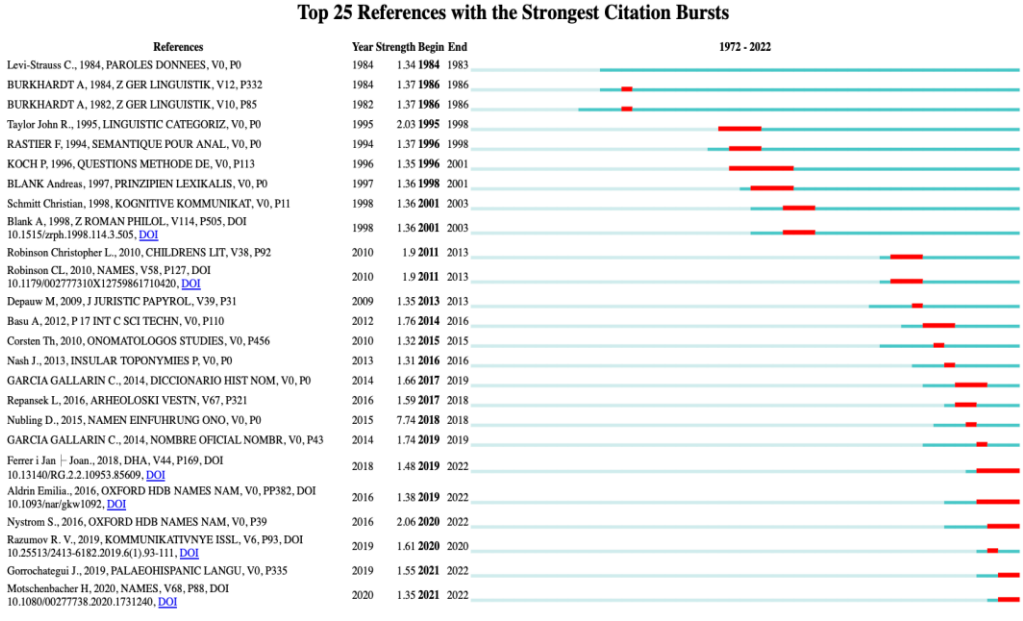

Figure 10: Top 25 Burst References in Chronological Evolution

5. Dynamic Trends of Onomastics: Thematic Cluster Analysis

5.1. Research Fronts: Keywords Clustering

Keyword analysis in bibliometrics tracks research trends by analyzing node word frequency (Li & Chen 2016, 200). Keywords are utilized as labels to categorize meta-information—that is, *Author Keywords (DE)* and *Keywords Plus (ID)*, based on occurrence and centrality. Figure 11 shows fourteen themes using the LLR algorithm (N=1338, E=2764, Density=0.0031, S=0.9632, Q=0.9166). Tables 6 and 7 present the top keywords and categories with salience. Among the identified clusters, seven prominent research topics emerged. These categories offer insights into the primary focus of onomastic research across distinct fields.

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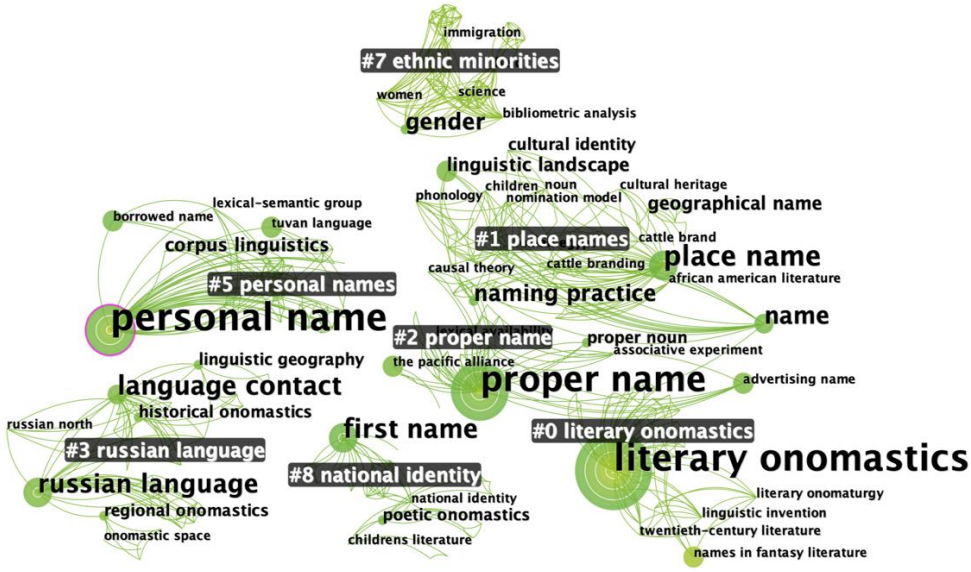

Figure 11: Keywords in Major Clusters

Table 6: Lists of Top 15 High-Frequency and High-Centrality Keywords

Rank	Keyword	Freq	Centrality	Degree
1	personal name	28	0.13	76
2	literary onomastics	26	0.07	65
3	proper name	23	0.09	58
4	place name	10	0.05	35
5	language contact	9	0.04	28
6	first name	9	0.03	22
7	russian language	8	0.03	32
8	name	7	0.02	21
9	gender	6	0.06	40
10	naming practice	6	0.03	16
11	corpus linguistics	6	0.04	13
12	geographical name	6	0.02	10
13	Linguistic landscape	5	0.01	13
14	poetic onomastics	3	0.02	10
15	linguistic geography	3	0.01	10

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Table 7: Clusters of Keywords Co-Occurrence (* As the Major Clusters)

Cluster	Size	Silhouette	Mean Year	Label (LLR)
#0 literary onomastics*	58	0.984	2016	literary onomastics; linguistic invention; twentieth-century literature; german; mervyn peake
#1 place names*	56	0.944	2016	place names; african american literature; naming practices; geographical names; names
#2 proper name*	53	0.931	2018	proper name; proper names; linguocultural dictionary; greco-roman society; nomination models
#3 russian language *	53	0.974	2017	russian language; language contacts; historical onomastics; anthroponyms; collective biographies
#4 identity	48	0.915	2018	idenity; social positioning; online naming; latino; hispanic; assimilation bias; ethnolinguistic minority
#5 personal names*	47	0.993	2019	personal names; tuvan language; tuva; lexical-semantic group; personal name; morphological method; first names
#6 language	40	0.949	2020	language; ancient greek; sociolinguistics of chile; iberian peninsula; cultural change; hispania; lexical typology
#7 ethnic minorities*	34	0.997	2015	ethnic minorities; ethnicity; scientific output; malaysia; bibliometrics
#8 national identity*	29	0.93	2016	national identity; poetic onomastics; interactional onomastics; marine le pen; literary fairytale
#9 latin epigraphy	29	0.995	2018	latin epigraphy; indo-european word formation; indo-european onomastics; celtic languages; roman military history
#10 mobility	26	0.982	2020	qualitative; shared decision-making; global talent; autonomy; rehabilitation
#12 archaeology	25	0.965	2016	history; trauma; sary-arka; east kazakhstan; indian linguistics; genetics; archaeology; prehistory
#13 basque language	20	0.99	2018	basque language; theoretical onomastics; english language; distributional morphology; pragmatic theory of proper names
#21 brand name	9	1	2016	brand name; alphabetical sorting; order effects; onomastics; literary onomastics

Literary Onomastics

The largest keyword cluster is #0 *Literary Onomastics*, which is counted 58 times (*S*=0.984). Research on *Literary Onomastics* encompasses two main directions. First, it explores naming techniques in literature, considering factors such as morphology, phonetics, and etymology to develop names that align with aesthetic or anti-aesthetic themes. One of the typical studies is Tolkien's unique style of onomaturgy and its emotional impact (Robinson 2013). Second, translated names in literary works are focused, exemplified on the role of proper names in children's literature translation (Turan 2021) and the onomastic power in the choices of gender-appropriate characters (Chen 2016). Literary onomastics is often resonated with its creativity and imagination. It invites an examination of the intentional architecture of naming systems in literature and the association with the aesthetics that shape the very fabric of a work or an author's unique style. Translating literary names in the face of divergent nomenclature patterns is an important sub-area to study.

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Place Name

Cluster #1 *Place Name* hits 56 times (*S*=0.944). Place names, or toponyms, are imbued with social sentiments related to people's expectations of the external environment or their perception of the role a place plays in the public sphere. Applied research delves into specific geographical contexts, language-spoken regions, and employs comparative, historical, and corpus-assisted approaches. Examples include studies on German and Hungarian place names in Czech and Slovak languages (David & Klemensová 2019), word formation and geographical conventions of place names (Suvandii 2019), historical toponym context and onymization of anthroponyms (Torkar 2008), and the online perception of place names in public discourse (Jantunen et al. 2022). Methodological studies focus on name corpora implementation, encompassing name data and corpus linguistics (Motschenbacher 2020), phonological matches in cross-referencing toponyms (MacKenzie 2018), and the creation of "onomastic landscapes" for regions lacking epigraphic culture (Ruiz 2009). Place name research sheds light on cultural identity, linguistic landscapes, and the intersection of geography and naming practices. Notably, it offers insights into the universality of place-naming patterns across languages, although productive studies have inquired about Indo-European languages and less attention has been given to Sino-Tibetan languages, leaving room for future exploration.

Proper Name

Cluster #2 *Proper Name* is counted 53 times (*S*=0.931), mainly involving linguistic properties, social implications, and their role in various domains such as literature, translation, and advertising. Theoretical research delves into linguistic principles, grammar, pragmatics, and translation. Fernández Juncal and Hernández Muñoz (2019) examine anthroponyms and lexical availability, while Nagy (2012) applies John Searle's social ontology theory to proper name classification. Functional perspectives are presented by Dvořáková (2018) and Marlett (2008), focusing on the identification functions of proper names. Ilkhanipour (2014) explores translation metamorphosis using description and causal theory. Aleksieieva (2021) investigates associative comprehension and presuppositional knowledge in onyms. The applied research aims to uncover linguistic patterns and macro-structural explanations for name patterns. Prósper (2018) examines Celtic languages to understand language affiliation based on etymology, geography, and sound variations. Romanova (2020) conducts a structural-semiotic analysis of event names in advertising, exploring their communicative and pragmatic potential in onomastics. Proper names, in their various forms, tantalize glimpses into alternative perspectives on naming conventions and chart a course toward interdisciplinary exploration, igniting fervent varieties in communication and discourse.

Russian Language

Cluster #3 *Russian Language* appears 53 times (S=0.974) in the context of Russian names. Shvarev (2019) investigates Maurino's toponyms, related to social class, foreign language influence, and Meryan land geography. Makarova and Popova (2020) explore collective nicknames in the Russian North, focusing on variations in animal species names and naming motivations. These findings align with socio-onomastic concerns in Russian onomastics, covering demographics, social class, foreign language influence, migration patterns, and colonial history, particularly the Slavic influence. In a sense, the Russian topics underscore the universal value of names as representations of human situations, transcending language, and cultural disparities.

Personal Name

Cluster #5 *Personal Name* is mentioned 47 times (*S*=0.993). Studies in this area, known as anthroponymy or anthroponomastics, are a rich source of information about manifesting individuals and groups. Research primarily focuses on socio-contextual variations, linguistic interactions, special semiotic names, and the potential of name datasets. The main goal of analyzing personal names is to move beyond linguistic forms and observe how people's positions change within sociocultural contexts. Studies on anthroponymic practices explore historical development, such as the classification of modern Ukrainian informal names by Vilchynska et al. (2021), naming patterns in Kazakhstan by Madiyeva and Aliakbarova (2020), the influence of social and ethnic changes on first name selection during Iran's transitional governments by Sabet and Zhang (2020), and sociological transformations and name selection among Portuguese citizens by Silvestre (2021). Researchers also investigate naming practices to uncover social class awareness and religious beliefs (Abubakari 2020; Fernández-Domínguez 2019). Language contacts are epitomized by studies on etymology in Latin epigraphy (Prósper 2018) and the formation of borrowed names related to Buddhism from Tibetan and Sanskrit into the Tuvan language (Suvandii 2021). In the realm of translation, Chen (2021) investigates the translation strategies for anthropomorphic names in Hayao Miyazaki's non-human creatures. Special names studies, such as Paales's

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(2011) research on nonverbal name signs in the deaf community, further expand our understanding of personal names. Large data of personal names have been proved valuable in exploring socio-demographic information such as ethnicity, nationality, geography, language, religion, and so on. (Silvestre 2021; Turbay & Domicó 2021). In general, personal names are symbolic signifiers that offer a gateway to unravel the complexities of human existence, encapsulating the intricate interplay between language, reality, and social contexts. They enlighten us to discern socio-demographic information tethered to names, including ethnicity, nationality, geography, language, and religion. Large datasets of names are expected to play an increasingly significant role in future research.

Ethnic Minorities and National Identity

Cluster #7 *Ethnic Minorities* is concerned 34 times (*S*=0.997), displaying a focus on demographic distribution, population diversity, ethnic composition, and socio-cultural disparities. Lewison et al. (2016a) examine demographic shifts among Malaysian researchers, studying changes in the representation of Chinese, Indian, and Malay authors in scientific research. Another study by Lewison et al. (2016b) explores the ethnic demography of lung cancer researchers, revealing patterns of labor mobility among Indian and East Asian scholars. Social changes and gender are also addressed, like Parada (2016) investigates naming practices among second-generation Latinos in Chicago, linking cultural attitudes, language ideologies, and naming preferences. Roe et al. (2014) compares the regional and disciplinary composition of female researchers in Italy, Sweden, the UK, and the US, offering empirical evidence of women's contributions to scientific output. Nick (2020) conducts a corpus analysis of fugitive slave naming patterns during the Revolutionary War, revealing demographic, intra-racial, and gender diversity within a geo-temporal context. Cluster #8 *National Identity* appears 29 times (*S*=0.93), typified by the study of Clifton (2022) which highlights how national identity is frequently reinforced in political debates by emphasizing immigrant names, thereby demarcating boundaries.

5.2 Fads in Theme: Evolutionary Bursts

Bursts in onomastic research signify sudden surges of scientific attention to specific topics during certain periods (Kempe et al. 2003). The detection of temporal bursts reveals dynamic shifts in major research areas. Figure 12 visually represents the shifting hotspots of onomastic research during two key phases, with darker hues in red indicating longer bursts. Table 8 provides the burstness metric, indicating keyword salience. During the developing period (2008-2015), the citation burst for *geographical names* stood out as the earliest and longest-lasting trend, together with *literary onomastics*, *twentieth-century literature*, *linguistic invention*, and *naming practice* garnering sustained interest. Then the evolution phase (2016–2022) witnessed theoretical advancements, including *word formation*, *linguistic landscape*, *street names*, *Russian language*, *ethnic history,* and *history*. Notably, *personal names* and *language contact* regained popularity, possibly influenced by the rise of online naming for self-identity construction. As socio-onomastics evolves, a mosaic of emerging research trends reflects the evolutionary patterns, encompassing language change (Sinner et al. 2022), ethnic minorities (Nick 2020; Lewison, Kumar, et al. 2016; Lewison, Roe, et al. 2016; Parada 2016), online naming and personal identity (Clifton 2022; Kersten & Lotze 2022; Aleksieieva 2021; Kirk 2021; Aldrin 2019; Ainiala & Östman 2017), naming and gender (Chen 2016; Parada 2016; Roe et al. 2014), and language processing (Aleksieieva 2021; Nagy 2012). Captivating the cognitive process is increasingly popular to portray the myriad of faculties, including memories, imagination, emotions, and beyond (Aleksieieva 2021; David & Klemensová 2019; Hoffman & Tóth 2019). Methodological advancements, such as corpus-assisted or corpus-driven approaches (Li & Kit 2021), can illuminate and enrich the path for name construction and interpretation (Jantunen et al Lewison, Roe, et al. 2016; Parada 2016). Future research promises to enhance interdisciplinarity and multi-method approaches, bridging linguistics, humanities, and emerging fields, to foster a paradigmatic integration of naming practices that addresses critical social issues.

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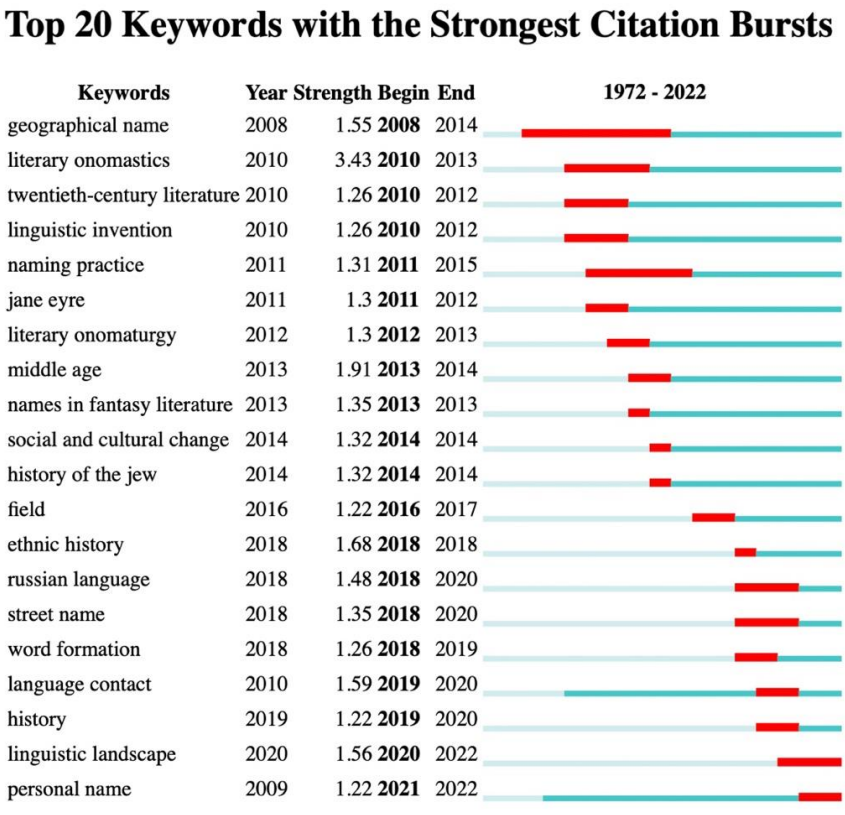

Figure 12: Top 20 Burst Keywords in Chronological Evolution

Table 8: Top 10 Burst Keywords Ranking by Strength

Strength	Entity	Begin Year	End Year
3.4314	literary onomastics	2010.0	2013.0
1.9142	middle age	2013.0	2014.0
1.6754	ethnic history	2018.0	2018.0
1.5859	language contact	2019.0	2020.0
1.5575	linguistic landscape	2020.0	2022.0
1.5474	geographical name	2008.0	2014.0
1.475	russian language	2018.0	2020.0
1.3548	street name	2018.0	2020.0
1.3468	names in fantasy literature	2013.0	2013.0
1.3169	social and cultural change	2014.0	2014.0

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6 Discussion and Conclusion

This study examines the evolution of onomastic literature over the past five decades, revealing its spatial, temporal, and interdisciplinary distribution. Notably, the US, Germany, Russia, Spain, and France have been the most productive countries, with the journal *Names* holding prestige. Co-citation, clustering, and burst indexes were used to identify influential scholars and contributions. Key co-cited documents revolve around *Internet Onomastics*, *Naming Practice*, *Combining Onomastics*, and *Anthroponymic Uses*, highlighting primary research clusters in *personal names*, *literary onomastics, proper names*, and *place names*. *Geographical names* stand out as the earliest and longest-lasting concern. Recent socio-onomastic research focuses on *word formation*, *language contact*, *linguistic landscape*, *street names*, *ethnic history*, and *personal names*. Additional noteworthy topics included the issues pertaining to *ethnic minorities*, *national identity*, *russian language*, *gender*, and *corpus linguistics*.

Studies have shown an eclectic mix of theoretic inquiries, including morphological name formation, sound symbolism, semantic connections of "onoma", referent-concept relationships, lexical availability, ontological onomastics in social contexts, and associative patterns (Aleksieieva 2021; Romanova 2020; Fernández Juncal & Hernández Muñoz 2019; Ilkhanipour 2014; Nagy 2012; Marlett 2008). Onomastics' lineage traces back to classical theories, with scholars exploring name origins, typologies, influences, and functions (MacKenzie 2018). This intellectual legacy echoes Aristotle's efforts to understand the essence and conceptual boundaries of names (Sager 1990), leaving an indelible mark on psychology, anthropology, philosophy, and linguistics. Modern linguistics has developed a branch of study as *onomasiology*, which focuses on the naming process for concepts (Fernández-Domínguez 2019). The perennial exploration of names and their referential meanings persists. In the era of large language models (LLMs) and Artificial Intelligence Generated Content (AIGC) (Li et al. 2023), onomastics remain vital, as LLMs generate text but struggle with grasping deeper conceptual intricacies. The sheer creativity encapsulated within the naming practices defies replication by language models, which, devoid of genuine emotional connections to the tangible world, fall short of capturing the integrity of sign vehicle, reference and referent innated in language as a human-crafted product (Cheng & Sin 2008; Cheng et al. 2014).

As an exemplar of bibliometric analysis, the results of the present study have proved the replicability and feasibility of using onomastic research data in a quantitative approach. Indicative measures are applicable such as annual publication volumes, scientific categories, co-occurrence of the most active authors, institutions, and countries, co-citation indexes, keyword clusters, and burst detection. Nevertheless, it is necessary to acknowledge the limitations inherent in bibliometric analysis. The scope of the literature studied may be limited due to challenges in data accessibility, and the qualitative categorization and evaluation might not fully represent the entire field. Subjectivity within individual perspectives requires diverse interpretations to complement and enrich each other. Despite these limitations, this study strives to uncover trends in the collected literature scientifically, understanding that conclusions about influential factors depend on the dataset and statistical methods used. While this study provides an initial portrayal of the growth from a scientometric perspective, future research opportunities include expanding the database, broadening the search criteria, and delving into specific clusters for deeper analysis. Diversified assessments and refined analytical approaches will reveal the developmental patterns within onomastics with more informative statistics and dynamic depictions.

In summary, anthroponomastics, toponyms, and literary onomastics delve into the intricate world of names, revealing their vital role in comprehending human existence, identity, and culture. Personal names hold socio-demographic insights, while toponyms provide universal or discrepant perspectives on place-naming patterns. Literary onomastics examines the deliberate architecture of naming creation. The future of socio-onomastic research promises interdisciplinarity, integrating naming practices to address social issues. There is a growing interest in understanding the cognitive processes of naming, including memory, emotions, and non-verbal name signs. Methodological advancements and philosophical inquiries continue to enrich this field, with corpus-assisted approaches providing nuanced insights into name construction and interpretation. In the age of AI, onomastics reaffirms naming's role as a testament to human conceptualization, cultural identity, and emotional depth, qualities beyond the reach of machine-generated content. Philosophical inquiries into names will persist, bridging classical theories and modern AI-driven discourse, emphasizing the enduring significance of understanding the human connection to names.

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Notes

[1] Thanks to the anonymous reviewers for their revisions and suggestions on this manuscript. Admittedly, as reviewers note, citation data in bibliometric analysis can never tell the whole nor the best picture, especially given the dependent parameters and disadvantageous metrics that annual or biannual publications face on certain database.

[2] The search queries were: "*onomastic (All Fields) OR onomastics (All Fields) OR onomasiology (All Fields)*" and "*Articles OR Book Chapters OR Proceedings Papers OR Early Access OR Books (Document Types) Thursday, 09 March 2023, 1238 results document results, 1972–2022*".

[3] The retrieved data encompass articles sourced from the following repositories within the Web of Science (WoS): *Science Citation Index Expanded (SCIE)*, *Social Sciences Citation Index (SSCI)*, *Arts & Humanities Citation Index (AHCI)*, and *Emerging Sources Citation Index (ESCI)*.

[4] Regarding the choice of the search words, while "names" may be the most direct object of onomastics research, the scope of inquiry encompasses a wide array of references beyond the immediate purview of names. To maintain the analytical focus on onomastics, it was deemed essential to exclude the term "name" from the search query, thereby ensuring the inclusion of only literature directly pertinent to onomastics research.

[5] Post-filterings were adopted, first yielded 1238 relevant papers in WoS, then refined to 768 papers by removing duplicates in CiteSpace.

[6] The institutional data presented in figure 4 aligns with the records available in Web of Science, valid until March 16, 2023.

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