Exploring the Bibliometric Landscape of Learning Disabilities: A Comprehensive Analysis

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ABSTRACT

This bibliometric analysis investigates the progression of research in learning disabilities (LD) from 2019 to 2023, focusing on publications, citations, authorship, institutional contributions, and country-level engagement. Utilising data from the Web of Science, we analysed trends in total publications (TP), h-index, average annual publications, total citations (TC), and average citations per publication, revealing a consistent growth in research output and citation impact over the five years. The study highlights the most prolific authors and leading institutions, with the University of Texas System and the University of Texas Austin emerging as significant contributors. Furthermore, it identifies the top ten journals by contributions, led by the British Journal of Learning Disabilities, indicating core publication venues for this research area. Analysis of the literature related to LD shows the USA and the United Kingdom are the foremost contributors, with notable international collaboration rates. This analysis underscores the evolving landscape of learning disabilities research, marked by increasing productivity, impactful contributions, and extensive global collaboration, providing valuable insights into the current state and future directions in this field.

The bibliometric study also delves into the thematic evolution within the learning disabilities research domain, leveraging advanced text mining and network analysis techniques to map out the key research themes and their interconnections over the study period. This aspect of the analysis has unearthed a shift towards interdisciplinary approaches that integrate psychological, educational, and neurobiological perspectives, highlighting the complexity of learning disabilities and the need for multifaceted intervention strategies. This comprehensive overview provides a valuable resource for researchers, educators, and policymakers aiming to navigate the complexities of learning disabilities and contribute to the development of more effective, inclusive education systems.

KEYWORDS: Learning Disabilities, Bibliometric Analysis, Research Trends, International Collaboration, Publication Impact, Thematic Evolution, Citation Networks.

INTRODUCTION

Education significantly influences personal and societal advancement by facilitating growth across social, economic, intellectual, physical, and emotional domains. The link between national development and educational opportunities for its citizens is pivotal, with countries like India initiating the Universalisation of Elementary Education in 1950 to promote educational accessibility. However, despite progress, disparities in accessibility and inclusivity highlight the challenges in achieving 'Education for All,' particularly for individuals with Learning Disabilities (LD). The concept of LD, first described by Samuel Kirk in 1963, emphasizes the challenges of language and communication development. Awareness and understanding of LD, crucial for educational inclusivity, are evolving, with significant strides in research highlighting the ongoing need for enhanced support and program development.

By looking at how different areas of educational and technological research have changed over time and what the current trends are, recent bibliometric analyses give us important information about how these fields have grown, how people work together, and where they are going in the future.

REVIEW OF LITERATURE

Each individual with a disability showcases diverse characteristics and, correspondingly, distinct service requirements. People with disabilities encounter limitations and challenges that necessitate the modification or tailoring of numerous aspects. APE activities are designed for students with special needs in Special Schools (SS) and School Inclusive Education Providers (SIEP); adjustments are tailored to the unique issues following the advice for learners, their sensory, motor, educational, and behavioral restrictions (Burhaein et al., 2021; Sato & Haegele, 2018). Survey findings (Center for the Study of the Disabled, 2019) have demonstrated that APE implementation in special schools is not fully effective. The "Landscape of Technology Research in Special Education: A Bibliometric Analysis" by Inci and Köse (2024) in the Journal of Special Education Technology, analyzed 4493 articles to outline the expanding body of literature on technology in special education. Their analysis highlighted the steady growth of this research area since 2003, with a diverse range of journals hosting these discussions. The findings pointed towards evolving of research topics and the need for increased collaboration among research groups. This study analyzed papers on learning disabilities published between 2011 and 2020 in WoS, aiming to highlight the awareness and authorship patterns in this field, using data from 4504 research papers and software like Bibexcel and VOSviewer for analysis, noting that Vaughn S was the most productive author and Lotka's law doesn't fit this data. It found 574 single-author and 3930 multi-author papers, contributing to the understanding of collaboration degrees in learning disabilities research (Kavitha & Murugan, 2024). Dyscalculia is characterized by a challenge in executing basic numerical tasks in daily activities, this study aimed to examine the research dynamics concerning dyscalculia through bibliometric analysis and identify research issues related to dyscalculia in the Scopus database from 2017 to October 2022 (Deda & Disnawati 2024). Murugan and Kavitha (2021) conducted a bibliometric analysis of dyscalculia publications from 2011 to 2020 within the Web of Science, highlighting the field's journal contributions and potential areas for enhancement. Of the 560 dyscalculia articles reviewed, authored by 1406 researchers from 591 institutions in 51 countries, the Journal of Frontiers in Psychology emerged as the most prolific, with 49 publications and an Impact Factor of 2.067. The study demonstrates that top-ranking journals frequently host high-impact papers.

The bibliometric study delved into lesson study research trends through bibliometric evaluation of the widely utilized Google Scholar (GS) and Scopus databases. We analyzed 997 articles from GS and 200 records from the Scopus database using Harzing's Publish on May 6, 2023. We employed a descriptive research methodology to scrutinize the data. The findings indicate that the publication of lesson study documents has seen a rise over the last decade (2012-2022). (Deda et al., 2023) It is crucial to identify early markers of LBLDs, as they serve as targets for tailored prevention and intervention schemes at very young ages, potentially leading to significant clinical outcomes. A total of 921 publications focusing on the detection of LBLD using (neurocognitive, neurophysiological, and neuroimaging) approaches were included. The analysis revealed a modest increase in research on the subject in 1990s and early 2000s, with more pronounced growth in recent years. (Alabbad et al., 2023) The systematic investigation aims to explore topics concerning disabled individuals in the field of library and information science research through systematic content analysis, to highlight the pivotal issue of accessibility and its evolution in LIS research and practices. We gathered and examined 330 research papers in LISA published between 2011 and 2021 to understand the distribution of research themes, subjects, methodologies, and conclusions regarding disabled individuals. (Cheng & Lin, 2023). Ahmad and Fauzi (2024) tackled the issue of "Plagiarism in Academic Writing in Higher Education Institutions: A Bibliometric Analysis" in the International Journal on Social and Education Sciences. Their bibliometric analysis of 579 journal articles identified trends in academic integrity and plagiarism, emphasizing the emergence of contract cheating. This study sheds light on the changing landscape of academic integrity, offering insights for minimizing future plagiarism risks.

Ashiq et al., (2023) provided an overview of information literacy literature from Asian authors through their work on "Information Literacy Research in Asia: A Bibliometric Analysis" in the portal: Libraries and the Academy, Despite the initial slow growth, there has been a notable increase in publications, by identifying key authors, countries, and leading institutions. Similarly, Cai et al., (2023) in their study "Research Progress of STEM Education Based on Visual Bibliometric Analysis" published in Sage Open, delved into the global state of STEM education through a comprehensive analysis of 1910 publications. Their findings underscored the United States' leading role in STEM education research and predicted the field's continued growth. Key research hotspots identified included STEM achievements, discipline integration approaches, educational equality, and teacher education, laying the groundwork for future investigations. Karampelas (2023) in "Examining the Relationship between TPACK and STEAM through a Bibliometric Study" published in the European Journal of Science and Mathematics Education, focused on the intersection of technological pedagogical content knowledge (TPACK) and science, technology, engineering, arts, and mathematics (STEAM) education. Analyzing 2,608 articles, this study pointed to a burgeoning interest in integrating these domains within education research. These bibliometric analyses offer a comprehensive overview of the current research landscape across various educational and technological domains, highlighting key areas of growth, collaboration, and future research directions. Bibliometric analysis has gained popularity in management science and quality assessment, including in business research (Donthu et al., 2021; Khan et al., 2021). This analytical approach aids in the quantitative evaluation of scholarly work and major research domains, also assisting in the forecasting of future research trends (Yu et al., 2020). This scenario arises when bibliometric investigations depend on a limited range of bibliometric data and methodologies, resulting in a fragmented understanding of the examined field (e.g., focusing on performance analysis without integrating science mapping e.g., Brown et al., 2020). Indrani and Murugan (2018) analyzed the mapping of authorship patterns and

collaborative research on fossil fuels publications indexed in A & HCI and SCI-Expanded, observing that the majority of h-index in terms of authors, as well as research output, was higher in 2010 and lower in 1991.

OBJECTIVES

1. My research focus is to examine the publication, h-index and citations in learning disabilities research from 2019 to 2023.
2. To identify the authors, institutions and countries with respect to the highest productivity in learning disabilities research.
3. To determine the frequently preferred journals and cited articles within the field of learning disabilities research.
4. To find out the bibliographic coupling of countries and authors, revealing patterns and connections in learning disabilities research.
5. To ascertain the highly cited articles.

METHODOLOGY

On 12th March 2024, a bibliometric study was conducted to analyse the current status of studies on learning disabilities by focusing on the articles published between 2019 and 2023. We retrieved a total of 2313 research documents (publications) from the Web of Science database.

The study aimed to assess various aspects of the field, including journal performance, contributions by authors, participation by institutions, activities at the country level, Highly Cited Papers (HCPs), top-cited references, and thematic trends' intellectual structure.

The bibliometrics package developed at the University of Luigi Vanvitelli and Federico II in Italy was used and employed biblioshiny tools within R for detailed analysis. Additionally, co-authorship analysis was performed using the tools provided by Biblioshiny, and network maps were generated with VOS viewer. Data pre-processing and correction, including details on authors, journals, and countries, were carried out using Microsoft Excel, ensuring a comprehensive examination of learning disabilities research landscape.

ANALYSIS AND FINDINGS

Table 1: Year-wise distribution and citations of learning disabilities research output

Year	TP	h-index	Average per year	TC	Average per item
2019	406	6	86	257	0.63
2020	421	12	254	1016	2.4
2021	494	19	415	2492	5.04
2022	494	27	457	4113	8.33
2023	498	28	443	4876	9.79

Note. TP-Total Publication, TC- Total Citation

The data presents a year-wise distribution of total publications (TP), h-index, average publications per year, total citations (TC), and average citations per publication from 2019 to 2023. In 2019, there were 406 publications with an h-index of 6, averaging 86 publications per year and receiving 257 total citations, equating to an average of 0.63 citations per publication. The following year, 2020, had a slight increase in productivity with 421 publications and a significant jump in the h-index to 12. The publications averaged 254 per year, with total citations reaching 1016, marking an average of 2.4 citations per publication. The trend continued to ascend in 2021, with 494 publications, an h-index of 19, an impressive average of 415 publications per year, and a substantial increase in total citations to 2492, translating to an average of 5.04 citations per publication. 2022 maintained this upward trajectory, matching the previous year's publication count of 494, but saw a notable rise in the h-index to 27, an average of 457 publications per year, and a total citation count of 4113, yielding an average of 8.33 citations per publication. In 2023, the dataset reflects a consistent level of productivity with 498 publications and the highest h-index of 28. The average number of publications per year slightly decreased to 443; however, total citations peaked at 4876, with the highest average citation rate of 9.79 per publication (Table 1). This progression underscores a steady increase in both productivity and citation impact in the field over the five years.

Table 2: Top ten productive authors

Author	Institution	Country	h-index	g-index	TC	TP
Bryant DP	University of Texas Austin	USA	6	7	63	13
Vaughn S	University of Texas Austin	USA	6	10	120	12
Swanson Hl	University of California Riverside	USA	4	7	64	12
Shankar R	Univ Plymouth, Plymouth	England	5	6	39	11
Smolkowski K	Oregon Research Institute	USA	6	8	81	10
Shin M	Jeonbuk University	South Korea	4	5	35	10
Fien H	University of Oregon; Oregon Research Institute	USA	5	8	76	9
Langdon PE	University of Kent	England	5	8	79	9
Doabler CT	University of Texas Austin	USA	4	8	69	9
Hatton C	Lancaster University	England	3	5	28	9

Note. TP-Total Publication, TC-Total Citation

Table 2 elucidates the contributions of the top ten authors in the realm of learning disabilities research over the period 2019 to 2023, analysed from a pool of 2313 records. At the forefront, Vaughn S from the University of Texas Austin, USA, shines with an impressive h-index of 6 and a leading g-index of 10, reflecting his significant impact through 12 publications that have amassed 120 total citations. Bryant DP, also from the University of Texas Austin, demonstrates notable productivity with 13 publications contributing to 63 total citations. The compilation further acknowledges the contributions of Swanson HI from the University of California Riverside, USA, and Shankar R from the University of Plymouth, Plymouth, England, who have each made substantial contributions, with 12 and 11 articles, and total citations of 64 and 39, respectively. Other distinguished contributors include Smolkowski K from

the Oregon Research Institute, USA, and Shin M from Jeonbuk University, South Korea, along with Fien H and Langdon PE, each offering valuable insights through their research outputs and citations. This summary presents an organized display of authors, sorted by their h-index and g-index values, to accurately showcase their prominence and influence in advancing learning disabilities research

Table 3: Top 10 Institution-wise distribution

S. No	Institution	Country	TP	TC	Average per Item	H-Index
1	University of Texas System	USA	104	697	6.70	15
2	State University System of Florida	USA	89	674	7.57	13
3	University of London	UK	77	508	6.60	13
4	University of Texas Austin	USA	74	513	6.93	14
5	University of California System	USA	67	440	6.57	12
6	Institut National De La Sante Et De La Recherche Medicale Inserm	France	40	467	11.68	14
7	University of North Carolina	USA	40	373	9.33	11
8	University College London	England	39	257	6.59	10
9	University System of Ohio	USA	39	217	5.56	8
10	Florida State University	USA	36	419	11.64	11

Note. TP-Total Publication, TC- Total Citation

Table 3 presents a meticulously compiled ranking of the top ten institutions contributing significantly to the field of learning disabilities research, as discerned from an analysis of 2313 records. We delineate this ranking based on total publications (TP), total citations (TC), average citations per item, and the h-index, which provide a clear perspective on the institutions' impactful contributions.

At the helm of this distinguished list stands the University of Texas System, showcasing its leadership with an impressive 104 publications and a robust total of 697 citations, alongside an admirable h-index of 15, reflecting its pivotal role in advancing research. The State University System of Florida follows, with its 89 publications amassing 674 total citations, an average citation rate of 7.57 per item, and an h-index of 13, indicating a strong influence in the research community.

The University of London occupies the third position with 77 publications and 508 citations, maintaining an average citation rate of 6.6 per item and an h-index of 13, demonstrating its significant contributions to the field. The University of Texas Austin also earns a notable spot with 74 publications and 513 citations, an average citation rate of 6.93 per item, and h-index of 14, underscoring its vital role in research dissemination.

Further enriching the list, the University of California System, with 67 publications 440 total citations, and an h-index of 12, highlights the breadth of its research impact. The Institut National De La Sante Et De La Recherche Medicale (Inserm) stands out with 40 publications, a high average citation rate of 11.68 per item, and an h-index of 14, reflecting its distinguished contributions.

Rounding off the list are the University of North Carolina, University College London, the University System of Ohio, and Florida State University, each contributing uniquely to the collective body of knowledge in learning disabilities research. Among these leading institutions in the field of learning disabilities, the USA emerges as the predominant country in terms of research publication and influence, hosting the majority of these top institutions.

Table 4: Top 10 Source-wise distribution

Journal	Publisher	Country	TP	TC	IF$_{2023}$	h-index	g-index
British Journal of Learning Disabilities	Wiley-Blackwell Publishing Ltd.	USA	131	268	1.5	7	9
Learning Disability Quarterly	Sage	USA	84	343	1.8	9	13
Intervention in School and Clinic	Sage	USA	76	160	0.8	7	9
Journal of Learning Disabilities	Sage	USA	64	482	3	13	18
Journal of Applied Research in Intellectual Disabilities	Wiley-Blackwell Publishing Ltd.	USA	60	364	2.4	12	15
Learning Disabilities Research & Practice	Sage	USA	59	268	1.886	9	12
Frontiers in Psychology	Frontiers	Switzerland	35	187	3.8	9	11
International Journal of Environmental Research and Public Health	Multidisciplinary Digital Publishing Institute	Switzerland	30	281	3.39	10	15
European Journal of Special Needs Education	Taylor & Francis	London	30	173	2.082	7	11
Journal of Intellectual Disabilities	Sage	USA	29	160	1.5	8	12

Note. TP-Total Publication, TC-Total Citation

An ordered analysis of the top ten journals contributing to the field of learning disabilities, emphasizing their role through total publications (TP), total citations, Impact Factor for 2023 (IF$_{2023}$), h-index, and g-index, across 2313 articles and 752 different journals are presented in table 4. Leading the charge, Sage in the USA publishes the Journal of Learning Disabilities, which boasts 64 publications with the highest number of citations at 482, an impressive IF2023 of 3.0, an h-index of 13, and the highest g-index of 18. This is closely followed by the *Learning Disability Quarterly*, also published by Sage in the USA, which has published 84 articles resulting in 343 citations, an IF$_{2023}$ of 1.8, an h-index of 9, and a g-index of 13.

The *Journal of Applied Research in Intellectual Disabilities*, from Wiley-Blackwell Publishing Ltd. in the USA, also stands out with 60 publications, 364 citations, an IF$_{2023}$ of 2.4, an h-index of 12, and a g-index of 15. The *British Journal of Learning Disabilities* follows, with 131 articles and 268 total citations, an IF$_{2023}$ of 1.5, an h-index of 7, and a g-index of 9, marking it as a pivotal platform for research dissemination. Additionally, the *International Journal of Environmental Research and Public Health*, from the Multidisciplinary Digital Publishing Institute in

Switzerland, makes a notable contribution with 30 publications, 281 citations, the highest IF$_{2023}$ of 3.39, an h-index of 10, and a g-index of 15.

Learning Disabilities Research & Practice, Intervention in School and Clinic, Frontiers in Psychology, European Journal of Special Needs Education, and the *Journal of Intellectual Disabilities* also significantly contribute to the field. These journals, based in the USA, Switzerland, and London, collectively demonstrate a diverse and impactful presence in learning disabilities research, with their comprehensive contributions, citations, impact factors, and scholarly influence systematically outlined to highlight the rich tapestry of research venues fostering growth and understanding in this vital area of study.

Table 5: Top ten cited articles

S.No	Title	Journal	Citation	Year
1	Understanding, Educating, and Supporting Children with Specific Learning Disabilities: 50 Years of Science and Practice	American Psychologist	98	2020
2	The association between poor reading and internalising problems: A systematic review and meta-analysis	Clinical Psychology Review	84	2019
3	COVID-19 and Telepsychiatry: Development of Evidence-Based Guidance for Clinicians	JMIR Mental Health	80	2020
4	Are Students with Disabilities Accessing the Curriculum? A Meta-Analysis of the Reading Achievement Gap Between Students with and Without Disabilities	Exceptional Children	72	2019
5	Neurodiversity at work: a biopsychosocial model and the impact on working adults	British Medical Bulletin	68	2020
6	Technology-based reading intervention programs for elementary grades: An analytical review	Computers & Education	64	2019
7	The Critical Role of Instructional Response for Identifying Dyslexia and Other Learning Disabilities	Journal of Learning Disabilities	57	2020
8	Expanding the clinical phenotype of individuals with a 3-bp in-frame deletion of the *NF1* gene (c.2970_2972del): an update of genotype-phenotype correlation	Genetics in Medicine	57	2019
9	Promoting Inclusive Communities in Diverse Classrooms: Teacher Attunement and Social Dynamics Management	Educational Psychologist	56	2019
10	Working Memory Profiles of Children with Dyslexia, Developmental Language Disorder, or Both	Journal of Speech-Language and Hearing Research	56	2019

The top ten cited articles in the field are given above table 5 detailing their titles, journals of publication, citation counts, and publication years. The list is led by "Understanding, Educating, and Supporting Children with Specific Learning Disabilities: 50 Years of Science and Practice" published in American Psychologist in 2020, garnering the highest citation count of 98. "The association between poor reading and internalizing problems: A systematic review

and meta-analysis" in Clinical Psychology Review follows closely with 84 citations in 2019, underscoring the significant interest in the psychological aspects of learning disabilities. The third spot is held by "COVID-19 and Telepsychiatry: Development of Evidence-Based Guidance for Clinicians" from JMIR Mental Health, reflecting the adaptability of the field to the pandemic with 80 citations also in 2020.

Further down the list, "Are Students with Disabilities Accessing the Curriculum? A Meta-Analysis of the Reading Achievement Gap Between Students with and Without Disabilities" in Exceptional Children (72 citations, 2019) and "Neurodiversity at Work: A Biopsychosocial Model and the Impact on working adults" in the British Medical Bulletin (68 citations, 2020) show the range of research from educational accessibility to workplace inclusivity. "Technology-based reading intervention programs for elementary grades: An analytical review" in Computers & Education garnered 64 citations in 2019, highlighting the growing interest in tech-based solutions for learning difficulties.

The remaining articles concentrate on diverse aspects of learning disabilities and their management, such as identification of dyslexia through instructional response, the expansion of the NF1 gene's clinical phenotype, the promotion of inclusive communities in diverse classrooms, and the working memory profiles of children with various learning disorders. These works, published between 2019 and 2020 in journals such as the Journal of Learning Disabilities, Genetics in Medicine, Educational Psychologist, and Journal of Speech-Language and Hearing Research, underscore the multidisciplinary approach towards understanding and supporting individuals with learning disabilities, each contributing significantly to the field as indicated by their citation counts.

Table 6: Most relevant countries by corresponding author

S.No	Country	TP	SCP	MCP	Freq	MCP Ratio
1	USA	811	725	86	0.351	0.106
2	United Kingdom	393	348	45	0.170	0.115
3	China	88	69	19	0.038	0.216
4	Spain	86	66	20	0.037	0.233
5	Italy	85	62	23	0.037	0.271
6	Canada	80	66	14	0.035	0.175
7	Israel	59	54	5	0.026	0.085
8	France	56	40	16	0.024	0.286
9	Germany	54	41	13	0.023	0.241
10	Australia	52	41	11	0.022	0.212
11	Ireland	40	31	9	0.017	0.225
12	Netherlands	39	25	14	0.017	0.359
13	Turkey	32	31	1	0.014	0.031
14	Finland	31	22	9	0.013	0.29
15	India	27	21	6	0.012	0.222

Note. Single Country Publications (SCP), Multiple Country Publications (MCP).

The global landscape of learning disabilities research, showcases a spirited contribution from various countries, with the USA taking a commanding lead. Commanding the forefront, the USA shines with an astounding 811 total publications, illustrating its unparalleled commitment and leading influence in the field. This reflects not only a vast reservoir of knowledge but also a foundational role in shaping the future of learning disabilities research. The United Kingdom secures a prominent position as well, with 393 publications, its slightly higher MCP ratio of 0.115 signalling a commendable penchant for international collaborations, further enriching the global research dialogue.

As the list progresses in table 6 and figure 1, countries like China and Spain underscore the importance of cross-border partnerships in advancing the field, their MCP ratios of 0.216 and 0.233, respectively, highlight an impressive engagement in collaborative research efforts. Italy, with an admirable MCP ratio of 0.271, and Canada, showcasing substantial contributions as well, echo the collaborative spirit that pervades the field. Notably, India emerges with pride, marking its presence with 27 significant publications. This achievement not only underscores India's growing influence in the realm of learning disabilities research but also showcases its potential to contribute valuable insights and foster international cooperation.

France and Germany further demonstrate their commitment to advancing research, each showcasing a high level of collaborative engagement. The Netherlands, with the highest MCP ratio of 0.359, exemplifies the essence of international collaboration, proving that collective effort is key to breakthroughs in research. This comprehensive overview celebrates the vibrancy and interconnected nature of the scientific community in exploring and addressing learning disabilities, highlighting the pivotal role of collaboration in driving forward research and innovation.
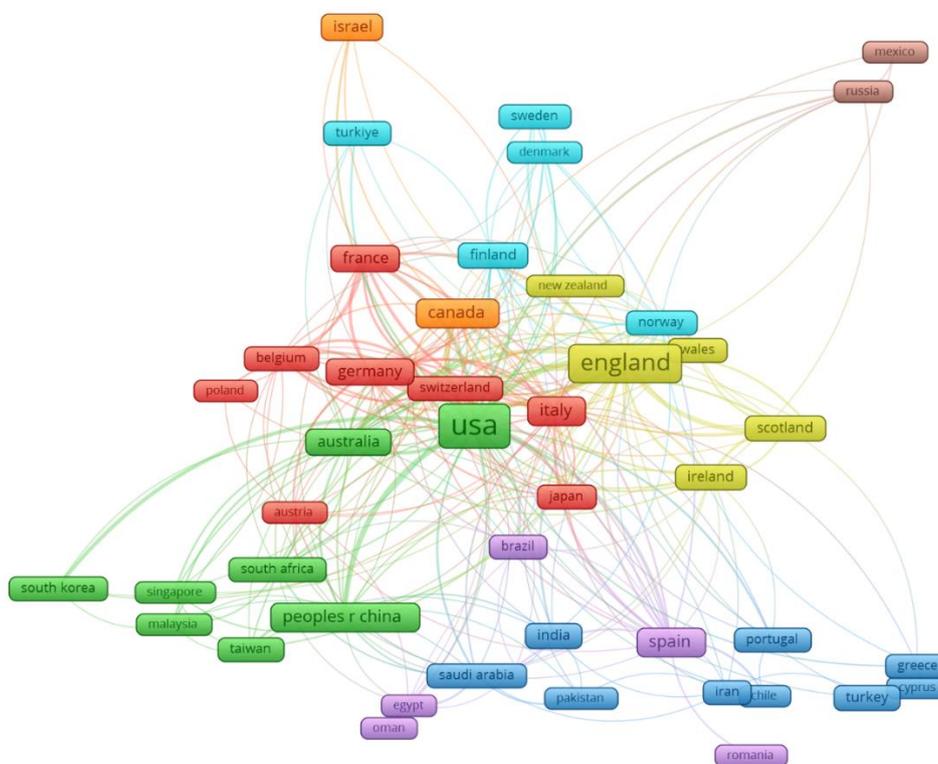

Figure 1: Country Co-authorship analysis of learning disabilities (2019 to 2023)

CONCLUSION

In conclusion, the bibliometric analysis from 2019 to 2023 illuminates the dynamic landscape of learning disabilities research, marked by significant increases in publications, h-index, and citations. The United States and the United Kingdom lead in scholarly contributions, reflecting robust international collaborations. Prolific authors and esteemed institutions like the University of Texas System and Austin emerge as key players in advancing this field. Moreover, the study underscores the global network of research collaboration, with countries such as China, Spain, and Italy actively engaging in international partnerships. Overall, this analysis highlights the evolving nature of learning disabilities research and emphasizes the vital role of collaborative efforts in shaping its trajectory worldwide.

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