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The Geography of Evidence: A Bibliometric Analysis of U.S. Research on Inclusive Mathematics Instruction for Students with Disabilities (2020-2025)

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Abstract

Although the United States has invested extensively in research on mathematics instruction for students with disabilities, the structural organization of this evidence base remains largely unexplored. Understanding who produces the evidence, which works shape the intellectual foundations of the field, and how research agendas evolve is critical for evaluating the scope and diversity of knowledge informing inclusive mathematics education. This study employs bibliometric methods to map the institutional, intellectual, and conceptual structure of U.S. research on inclusive mathematics instruction for students with disabilities published between 2020 and 2025. Drawing on 424 articles indexed in the Web of Science Core Collection and analyzed using the bibliometrix R package, the study integrates performance analysis, co-citation analysis, keyword co-occurrence analysis, bibliographic coupling, and thematic mapping. The results reveal a rapidly expanding but structurally concentrated research landscape. Scholarly production is clustered within a relatively small group of U.S. research universities and shaped by a limited set of highly influential authors and journals. Citation patterns further indicate that the intellectual foundations of the field are strongly anchored in U.S. policy frameworks and evidence-based instructional models. These findings suggest that while the evidence base supporting inclusive mathematics instruction is robust and cumulative, it remains institutionally and geographically concentrated, raising important questions about knowledge diversity, contextual generalizability, and the global transferability of research evidence.

Keywords

Inclusive Mathematics Education, Bibliometric Analysis, Knowledge Production, Students with Disabilities, Special Education Research

1. Introduction

Over the past two decades, improving mathematics outcomes for students with disabilities has become a major priority in both educational policy and research. Persistent achievement gaps between students with and without disabilities have intensified efforts to develop instructional approaches capable of supporting diverse learning needs within increasingly inclusive educational systems. In the United States, federal legislation such as the Individuals with Disabilities Education Act (IDEA) and subsequent accountability reforms have reinforced expectations that students with disabilities participate in standards-based mathematics curricula and demonstrate measurable academic progress (West et al., 2023). These policy developments have stimulated extensive research aimed at identifying effective instructional practices and intervention strategies for improving mathematics learning among students with disabilities (Fuchs et al., 2021). As a result, a substantial and rapidly expanding body of literature has emerged examining instructional models, cognitive processes, and intervention effectiveness within special education and mathematics education contexts.

Despite this growing body of studies (Witzel et al., 2024; Enders & Kostewicz, 2023; Özdemir & Kılıç, 2023; Shin et al., 2023; Wilson & Hunt, 2022), relatively little attention has been devoted to examining how the evidence base itself is structured. Research fields do not evolve as neutral accumulations of knowledge; rather, they develop through complex networks of authors, institutions, journals, and citation practices that shape which ideas gain prominence and which perspectives remain marginal. Studies in the sociology of science have long shown that knowledge production tends to cluster around influential institutions and scholarly communities, producing uneven patterns of intellectual influence across research fields (Baker & Powell, 2024; Vlase & Lähdesmäki, 2023). In education research, these dynamics are often reinforced by the institutional concentration of research funding, publication outlets, and scholarly infrastructure, particularly within countries possessing well-established academic systems (Collyer, 2018). Consequently, understanding the development of a research field requires examining not only the findings of individual studies but also the institutional and intellectual networks through which knowledge is produced and circulated.

In the domain of inclusive mathematics instruction, the United States occupies a particularly prominent position within the global research landscape. Extensive federal investment in educational research, combined with a dense network of research universities and specialized academic journals, has contributed to the development of a substantial body of empirical evidence on mathematics instruction

for students with disabilities (Adeoye, 2025; Mickelson & Bottia, 2009). However, this concentration of research activity also raises important questions about the broader structure of the evidence base. When a large share of the literature is produced within a relatively small set of institutions and scholarly networks, the theoretical frameworks, methodological approaches, and policy priorities associated with those contexts may disproportionately shape the direction of the field. Such dynamics have implications not only for how knowledge is generated but also for how research evidence is interpreted, disseminated, and translated into educational policy and practice.

Bibliometric analysis provides a powerful methodological approach for examining these structural dimensions of scholarly knowledge production. By analyzing patterns of publication output, citation relationships, and collaboration networks, bibliometric methods enable researchers to map the intellectual architecture of research fields and identify the institutional actors and conceptual themes that shape their development (Aria & Cuccurullo, 2017; Zupic & Čater, 2015). These approaches have increasingly been applied across disciplines to investigate the evolution of scientific domains, identify emerging research fronts, and reveal patterns of concentration within scholarly communities (Bızel, 2023; Dao et al., 2023; Rojas-Sánchez et al., 2023; Zhang et al., 2022; Aria & Cuccurullo, 2017; Zupic & Čater, 2015). Applying bibliometric analysis to the literature on inclusive mathematics instruction therefore provides an opportunity to move beyond traditional narrative reviews and examine the broader structural dynamics that organize the field.

The present study addresses this gap by conducting a comprehensive bibliometric analysis of research on mathematics instruction for students with disabilities. Drawing on publications indexed in the Web of Science Core Collection, the study examines the institutional, intellectual, and conceptual structure of the literature using a combination of performance analysis and science-mapping techniques. Specifically, the analysis explores patterns of publication growth, authorship and institutional productivity, citation networks, thematic structures, and emerging research fronts. By mapping these dimensions of the research landscape, the study seeks to provide a systematic understanding of how knowledge on inclusive mathematics instruction is produced and organized within the contemporary scholarly community.

This study contributes to the literature in two key ways. First, it provides one of the first comprehensive bibliometric examinations of research on mathematics instruction for students with disabilities, offering a structured overview of the field's development and thematic organization. Second, it situates the analysis within broader debates on knowledge production and epistemic concentration in education research, highlighting how institutional and citation structures shape the formation and diffusion of research evidence. Understanding these dynamics is essential not only for evaluating the strengths of the existing evidence base but also for identifying potential gaps, biases, and opportunities for future research.

Guided by these objectives, the study addresses the following research questions:

1. What are the major publication trends, leading journals, productive authors, and key institutions shaping research on mathematics instruction for students with disabilities?
2. Which works, authors, and journals form the intellectual foundations of the field as reflected in citation networks?
3. What conceptual themes and research fronts characterize the current structure of the literature?
4. To what extent does the field exhibit patterns of institutional or geographic concentration in knowledge production?

By addressing these questions, the study provides a systematic map of the research landscape surrounding inclusive mathematics instruction and contributes to a deeper understanding of how the contemporary evidence base in this field has been constructed. The remainder of the paper is organized as follows. Section 2 reviews the conceptual and policy background relevant to inclusive mathematics instruction and the formation of evidence in educational research. Section 3 describes the bibliometric methodology, data sources, and analytical procedures employed in the study. Section 4 presents the results of the performance, intellectual, conceptual, and research-front analyses, followed by a discussion of the implications for research, policy, and knowledge production. Section 5 concludes the study and outlines limitations and directions for future research.

2. Conceptual and Literature Background

2.1. Inclusive Mathematics Instruction for Students with Disabilities

Inclusive mathematics instruction for students with disabilities has become an increasingly important focus within both special education and mathematics education research. Over the past two decades, educational policy reforms and accountability frameworks have emphasized the need to ensure that students with disabilities have meaningful access to rigorous mathematics curricula alongside their peers. In the United States, legislation such as the Individuals with Disabilities Education Act (IDEA) and subsequent accountability reforms have reinforced the expectation that students with disabilities participate in standards-based mathematics instruction and demonstrate measurable academic progress (Fuchs, Fuchs, & Compton, 2012). These policy shifts have stimulated a growing body of research examining instructional strategies designed to support mathematics learning among students with diverse learning needs.

A substantial portion of the literature has focused on identifying instructional approaches that improve mathematics outcomes for students with learning disabilities and related cognitive challenges. Empirical research consistently highlights the effectiveness of structured and explicit instructional practices, including explicit instruction, strategy instruction, and concrete-representational-abstract (CRA)

sequencing, which support students in developing conceptual understanding and procedural fluency (Bouck & Long, 2023). These approaches are often embedded within broader instructional frameworks such as response to intervention (RTI) and multi-tiered systems of support (MTSS), which aim to provide differentiated instructional support based on students' learning needs (Fuchs et al., 2025; Zhang et al., 2023). Within these frameworks, mathematics instruction is increasingly conceptualized as a combination of evidence-based teaching strategies, systematic progress monitoring, and targeted intervention designed to address specific learning difficulties.

In addition to instructional design, research has also emphasized the cognitive and developmental factors that shape mathematics learning among students with disabilities. Studies on developmental dyscalculia, working memory limitations, and other cognitive processes have provided important insights into the mechanisms underlying mathematical learning difficulties (Peng et al., 2016). These cognitive perspectives have influenced the design of instructional interventions that aim to support students' mathematical reasoning, problem-solving abilities, and conceptual understanding. At the same time, recent literature has increasingly emphasized the importance of designing mathematics instruction that is accessible to diverse learners through frameworks such as Universal Design for Learning (UDL), which promotes flexible instructional practices that accommodate variability in students' learning profiles (Rao, 2021).

Despite these advances, the literature also reveals ongoing challenges in translating research findings into classroom practice. While numerous intervention studies demonstrate the effectiveness of particular instructional strategies, questions remain regarding how these approaches function across diverse educational contexts and student populations. Scholars have noted that the implementation of evidence-based practices often depends on institutional conditions such as teacher preparation, instructional resources, and school-level support structures (Cook & Odom, 2013). Consequently, understanding the broader structure of the research field, including the institutions, scholars, and conceptual frameworks that shape the production of knowledge, has become increasingly important for evaluating the scope and limitations of the evidence base supporting inclusive mathematics instruction. This need provides the foundation for the present bibliometric study, which examines how research on mathematics instruction for students with disabilities is organized, disseminated, and developed within the contemporary scholarly landscape.

2.2. Evidence and Inclusion in the U.S. Policy Context

The development of research on inclusive mathematics instruction for students with disabilities cannot be understood independently of the policy environment in which it has evolved. In the United States, federal legislation has played a central role in shaping both the goals of inclusive education and the kinds of evidence considered necessary to support instructional practice. The Individuals with Dis-

abilities Education Act (IDEA) established the principle that students with disabilities should be educated in the *least restrictive environment*, ensuring their access to the general education curriculum alongside their peers. Subsequent reforms, particularly the No Child Left Behind Act (NCLB) and later the Every Student Succeeds Act (ESSA), reinforced the expectation that schools demonstrate measurable academic progress for all students, including those receiving special education services. These accountability frameworks placed mathematics achievement at the center of policy attention and created strong incentives for research that identifies instructional practices capable of improving learning outcomes for students with disabilities (Fuchs, Fuchs, & Compton, 2012; Cook & Odom, 2013).

Within this policy environment, the concept of evidence-based practice has become a defining principle guiding both educational research and instructional decision-making. Federal initiatives such as the Institute of Education Sciences (IES) have invested heavily in intervention studies and systematic reviews designed to identify instructional strategies supported by rigorous empirical evidence. IES practice guides and research syntheses have played an influential role in translating research findings into recommendations for classroom practice, particularly in areas such as mathematics intervention for students struggling with foundational numeracy skills (Fuchs et al., 2021). Similarly, professional organizations such as the National Council of Teachers of Mathematics (NCTM) have developed curricular standards and instructional frameworks that emphasize conceptual understanding, problem-solving, and equitable access to high-quality mathematics instruction (Joswick et al., 2023). These policy and professional frameworks collectively define the parameters within which much of the contemporary research on inclusive mathematics instruction is conducted.

At the same time, the U.S. policy landscape has increasingly promoted broader models of inclusive instructional design. One influential framework is Universal Design for Learning (UDL), which encourages the development of flexible curricula that accommodate diverse learning needs by providing multiple means of representation, engagement, and expression (Priyadharsini & Sahaya Mary, 2024). UDL has gained significant traction in both research and policy discussions as a model for designing instruction that anticipates learner variability rather than responding to it retrospectively. The adoption of such frameworks reflects a shift in inclusive education discourse from a focus on physical placement toward a greater emphasis on instructional accessibility and learning outcomes.

Despite these advances, the policy emphasis on evidence-based instruction has also shaped the methodological orientation of the research literature. Studies that employ experimental or quasi-experimental designs, demonstrate measurable student achievement gains, and align with federal definitions of scientific rigor tend to receive greater visibility and policy influence. While this emphasis has strengthened the empirical foundation of special education research, it has also prompted debates about the scope of evidence considered relevant for inclusive education. Some scholars argue that the focus on experimental intervention studies may

overlook contextual factors, such as classroom dynamics, teacher practices, and school-level conditions, that influence how instructional strategies operate in real educational environments (Coburn, Penuel, & Geil, 2013). Understanding the policy context within which evidence is produced and interpreted is therefore essential for examining how the research field develops and how particular forms of knowledge become recognized as authoritative. These considerations provide important context for the present study, which seeks to map the institutional, intellectual, and conceptual structure of research on inclusive mathematics instruction for students with disabilities.

2.3. Knowledge Production, Concentration, and Epistemic Inequality

The structure of academic knowledge production is rarely evenly distributed across institutions, regions, or scholarly communities. Instead, research activity tends to concentrate within particular universities, journals, and networks of scholars that possess greater access to funding, infrastructure, and publication channels. Classic work in the sociology of science has long documented this phenomenon, often referred to as the "Matthew effect", whereby established institutions and researchers accumulate disproportionate visibility and influence within scientific fields (Merton, 1968). Subsequent studies of scholarly communication have similarly shown that knowledge production frequently clusters around leading research centers and highly cited journals that shape disciplinary agendas and standards of evidence (Zupic & Čater, 2015). These dynamics mean that the intellectual development of a field is not determined solely by the accumulation of empirical findings, but also by the institutional and social structures through which knowledge is produced and disseminated.

In education research, these patterns are closely linked to broader global inequalities in academic publishing. Scholars have observed that the majority of high-impact educational research is produced within institutions located in the Global North, particularly in the United States and the United Kingdom, where well-established research infrastructures and funding systems support sustained scholarly output (Greenman et al., 2022; Collyer, 2018; Kuzhabekova et al., 2015). As a result, the theoretical frameworks, methodological approaches, and policy priorities originating from these contexts often become dominant reference points within international research networks. Jammulamadaka & Dick (2026) describes this phenomenon as epistemic dominance, where knowledge generated in a small number of academic centers comes to define the conceptual vocabulary and research agendas of entire fields. In such circumstances, the global circulation of research may unintentionally privilege particular perspectives while marginalizing insights emerging from different educational systems or cultural contexts.

The concentration of knowledge production can have important implications for how evidence is interpreted and applied within policy and practice. When a research field is dominated by a limited set of institutions and scholarly commu-

nities, the resulting evidence base may reflect the policy priorities, institutional conditions, and educational assumptions prevalent in those contexts. This dynamic is particularly relevant in areas such as inclusive education, where instructional practices are deeply shaped by local policy frameworks, teacher preparation systems, and school resources. If research evidence is generated primarily within a narrow set of educational environments, it may not fully capture the diversity of contexts in which inclusive instructional practices are implemented. Consequently, examining the institutional and intellectual structure of a research field becomes essential for understanding not only the quantity of knowledge produced but also the perspectives and contexts that shape the evidence base.

Bibliometric analysis provides a useful methodological lens for investigating these dynamics. By examining patterns of publication, citation, and collaboration, bibliometric approaches allow researchers to map the distribution of scholarly influence and identify the institutional networks that organize knowledge production within a field (Aria & Cuccurullo, 2017; Zupic & Čater, 2015). Such analyses have increasingly been used to explore how research domains evolve over time, revealing the concentration of scholarly activity, the formation of intellectual clusters, and the emergence of dominant research themes. Applying these methods to the literature on mathematics instruction for students with disabilities therefore offers an opportunity to examine not only the conceptual development of the field but also the institutional structures and citation networks that shape its contemporary evidence base.

2.4. Bibliometric Analysis as a Tool for Studying Evidence Formation

Understanding how a body of research evolves requires more than reviewing individual studies; it also involves examining the broader structures through which knowledge is produced, circulated, and recognized as authoritative. Bibliometric analysis provides a systematic approach for investigating these dynamics by using quantitative techniques to analyze patterns of publication, citation, and collaboration within scholarly literature. Originating in information science and the sociology of science, bibliometric methods enable researchers to map the intellectual structure of research fields and identify the relationships among authors, institutions, and conceptual themes (Aria et al., 2024; Cuccurullo et al., 2016). By examining how publications cite one another and how research topics cluster over time, bibliometric analysis offers insight into the processes through which scientific knowledge accumulates and stabilizes within academic communities.

One of the key contributions of bibliometric approaches is their ability to reveal the formation of intellectual networks that underpin scholarly fields. Techniques such as co-citation analysis examine how frequently pairs of documents are cited together, allowing researchers to identify influential works and foundational theoretical traditions within a field. Similarly, bibliographic coupling identifies clusters of contemporary publications that share common reference bases, thereby highlighting emerging research fronts and active lines of inquiry. Complementary

methods such as keyword co-occurrence analysis and thematic mapping enable the exploration of conceptual structures by identifying recurring research themes and their relationships within the literature. Together, these techniques provide a multidimensional perspective on the development of research domains, combining performance indicators with science-mapping methods that reveal both the intellectual foundations and the evolving conceptual landscape of a field (Zupic & Čater, 2015).

Recent advances in computational tools have made bibliometric analysis increasingly accessible for large-scale studies of scholarly communication. Software environments such as bibliometrix, an open-source R package designed for comprehensive science mapping, allow researchers to conduct sophisticated bibliometric analyses using standardized bibliographic datasets (Aria & Cuccurullo, 2017). These tools facilitate the integration of multiple analytical procedures, including performance analysis, collaboration network analysis, co-citation mapping, and thematic evolution, within a single analytical framework. As a result, bibliometric approaches have been widely applied across disciplines to examine the evolution of research areas, the diffusion of scientific ideas, and the institutional structures that shape knowledge production (Aria, Misuraca, & Spano, 2020).

Beyond mapping the growth of research fields, bibliometric analysis also provides a valuable lens for examining how evidence itself is constructed and recognized within academic communities. Citation patterns can reveal which studies, authors, and policy frameworks become central reference points that guide subsequent research, effectively shaping the canon of influential works within a field. Similarly, patterns of institutional and geographic concentration may indicate which research environments exert the greatest influence over the development of scholarly agendas. In this sense, bibliometric analysis extends beyond descriptive review to offer insights into the processes of evidence formation, highlighting how intellectual authority, methodological standards, and conceptual frameworks emerge and stabilize through scholarly communication networks. For the present study, these methodological advantages make bibliometric analysis particularly well suited for examining the structure and evolution of research on inclusive mathematics instruction for students with disabilities, as well as the institutional and intellectual factors that shape the contemporary evidence base in this domain.

3. Methodology

3.1. Research Design

This study adopts a quantitative bibliometric research design to examine the institutional, intellectual, and conceptual structure of scholarship on inclusive mathematics instruction for students with disabilities. Bibliometric analysis provides systematic tools for analyzing patterns of scientific production, citation relationships, and thematic development within a research field. By enabling large-scale analysis of publication and citation data, bibliometrics has become an established approach for mapping the evolution and structure of scientific knowledge

across disciplines (Aria, Misuraca, & Spano, 2020; Cuccurullo, Aria, & Sarto, 2016). In the present study, bibliometric methods are used to investigate how research output, citation practices, and thematic orientations shape the development of this field within the United States.

The research design combines performance analysis and science-mapping techniques, an analytical framework widely used in contemporary scientometric research (Aria & Cuccurullo, 2017). Performance analysis evaluates the productivity and impact of research actors, including journals, authors, and institutions, while science-mapping techniques reveal the structural relationships within the literature and the intellectual organization of the field. Integrating these approaches allows for a comprehensive assessment of both the distribution of scholarly production and the underlying knowledge structures that guide research development.

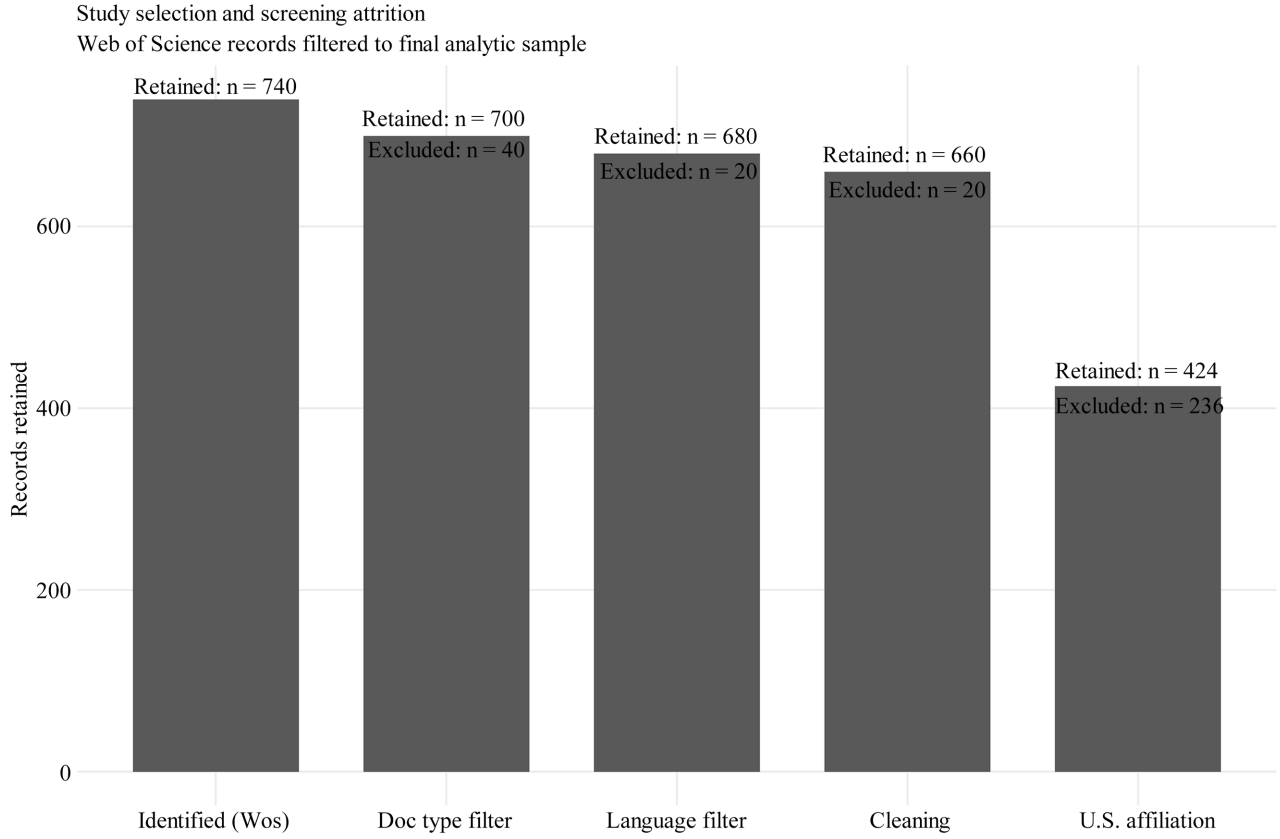
All analyses were conducted using the bibliometrix R package, an open-source platform designed for comprehensive bibliometric and science-mapping analysis (Aria & Cuccurullo, 2017). Bibliometrix has been widely applied to examine research trends and conceptual structures across diverse domains, including social science, health policy, and technology studies (Belfiore, Cuccurullo, & Aria, 2022; D'Aniello et al., 2022; Aria et al., 2021). In this study, performance analysis was used to assess publication trends and leading contributors, while science-mapping techniques, including co-citation analysis, keyword co-occurrence analysis, bibliographic coupling, and thematic mapping, were employed to identify the intellectual foundations, conceptual themes, and emerging research fronts of the field.

3.2. Data Source, Search Strategy, Sample Delimitation and Data Preprocessing

The bibliometric dataset was retrieved from the Web of Science Core Collection (WoS), selected for its standardized bibliographic records and comprehensive cited-reference metadata, which support robust science-mapping and citation-network analyses (Aria & Cuccurullo, 2017; Cuccurullo, Aria, & Sarto, 2016). A structured query was executed using the Topic (TS) field (titles, abstracts, and author keywords): TS = ((“mathematic” *OR* “*numeracy*” *OR* “*arithmetic*” *OR* “*STEM*”) *AND* (“*disab*” *OR* “special need” *OR* “*learning disabilit*” OR “intellectual disabilit” *OR* “*autis*” OR “dyscalculia” OR “inclusive education” OR “universal design”) AND (“teach” *OR* “*instruction*” OR “intervention” *OR* “*pedagog*”)). The search was restricted to peer-reviewed journal articles and review articles, English-language publications, and the 2020-2025 publication window.

Two broad terms in the search string warrant explicit justification. “STEM” was included because mathematics instruction for students with disabilities is frequently studied within integrated science, technology, engineering, and mathematics contexts; excluding it would risk missing relevant studies where mathematics is embedded within broader STEM interventions. “Universal design” was included to capture research on Universal Design for Learning (UDL), a major theoretical framework guiding inclusive instructional design. To verify that these

broad terms did not systematically retrieve off-topic records, a post-hoc relevance check was conducted. For "STEM," a random sample of 20% of retrieved records was manually reviewed; 92% contained at least one mathematics-specific term ("mathematic*," "numeracy," or "arithmetic") in the title or abstract, confirming relevance. For "universal design," 88% of sampled records addressed educational applications (e.g., UDL guidelines, accessible curriculum design) rather than architecture, product design, or other non-educational contexts.



Note: Web of Science records were filtered sequentially by document type, language, data cleaning, and U.S. affiliation to produce the final analytic sample (n = 424).

Figure 1. Study selection and screening attrition for the bibliometric dataset.

Beyond this relevance check, manual validation was conducted at the record level. Two research assistants independently screened the title and abstract of each record against explicit inclusion criteria: the study must focus on a) mathematics instruction, intervention, or learning, b) for students with disabilities or special educational needs, and c) in K-12, teacher preparation, or related educational contexts. Inter-rater reliability on a 20% random sample was high (Cohen's $\kappa = 0.89$). Discrepancies were resolved through discussion and adjudication by the first author. This manual screening removed 40 off-topic records: examples included studies on physical activity in STEM without mathematics content, general disability policy without instructional focus, and higher-education STEM education

without disability populations. The complete screening and attrition process is summarized in **Figure 1**.

To isolate the U.S. evidence base, the sample was delimited to records with at least one U.S.-based author affiliation, extracted and harmonized using bibliometrix metadata procedures (Aria & Cuccurullo, 2017). Screening proceeded sequentially from initial retrieval (n = 740) through document-type filtering (retained n = 700), language filtering (retained n = 680), record cleaning (retained n = 660), and U.S. affiliation filtering (final retained n = 424). The label "U.S. research" refers to papers with at least one U.S.-based author affiliation. The corpus thus mixes domestic U.S. papers, U.S.-led international collaborations, and internationally-led collaborations with U.S. participation. For country counts, full counting was used (each country receives credit). For institutional counts, fractional counting (1/k per paper, where k = number of distinct affiliations) was used. Single-country publications (SCP) and multi-country publications (MCP) were calculated to assess collaboration. The United States' prominence reflects both domestic production and international collaboration. However, 86% of U.S.-affiliated papers are domestic (SCP), indicating that core knowledge production remains domestically concentrated. Readers should therefore interpret the field's geographic concentration as concentration of *U.S.-affiliated research activity* rather than purely domestic U.S. research.

Prior to analysis, author names, institutional affiliations, and keywords were standardized to reconcile spelling variants and consolidate synonymous forms (e.g., "learning disability" vs. "learning disabilities"), a routine step to improve clustering validity and thematic interpretability (Aria, Misuraca, & Spano, 2020; Belfiore, Cuccurullo, & Aria, 2022). After cleaning, the final corpus was imported into bibliometrix for subsequent performance analysis and science-mapping procedures.

3.3. Analytical Procedures

The analytical strategy combined performance analysis and science-mapping techniques, a methodological framework widely used in bibliometric research to examine both the productivity of scholarly actors and the structural organization of scientific knowledge (Aria & Cuccurullo, 2017; Cuccurullo, Aria, & Sarto, 2016). Performance analysis was first conducted to provide a descriptive overview of the field and to identify the primary contributors shaping research on inclusive mathematics instruction for students with disabilities. This stage examined annual publication output, source productivity, author productivity, institutional productivity, and country-level production and collaboration patterns, allowing the study to map the distribution of research activity and the institutional landscape within which knowledge production occurs.

To examine the intellectual structure of the field, the study analyzed locally cited references, cited authors, and cited sources within the dataset. These indicators reveal the foundational works and scholarly traditions that inform contemporary research. In addition, co-citation analysis was performed to identify clus-

ters of documents that are frequently cited together, thereby uncovering the intellectual relationships that structure the field's knowledge base. Co-citation networks enable the identification of influential texts and conceptual lineages that shape how subsequent research is framed and interpreted.

The conceptual structure of the literature was explored through keyword-based analyses designed to capture thematic relationships within the research corpus. First, keyword co-occurrence analysis was conducted to identify patterns of association among frequently used author keywords and Keywords Plus terms. These relationships were further examined using multiple correspondence analysis (MCA), which reduces high-dimensional keyword data into a lower-dimensional conceptual space and allows clusters of related research themes to be identified and interpreted. To assess the development and centrality of these themes, thematic mapping was employed to categorize research topics according to their density and centrality within the knowledge network.

In addition to mapping the intellectual and conceptual organization of the field, the analysis also sought to identify active research fronts that characterize current scholarly activity. This was achieved using bibliographic coupling analysis, which groups documents based on the number of references they share. Because bibliographic coupling reflects relationships among contemporary publications rather than historical citations, it is particularly well suited for identifying emerging clusters of research and active lines of inquiry within the literature.

To ensure replicability, all bibliometric parameters, thresholds, and thesaurus rules are reported here. Keyword co-occurrence analysis used author keywords (DE field) with a minimum frequency threshold of five appearances. Co-occurrence similarity was calculated using cosine normalization, and clustering was performed using the Walktrap algorithm with three iterations. Co-citation analysis was conducted on cited references (CR field) with a minimum local citation threshold of ten. Similarity was normalized using the association strength method, and clustering employed the Louvain algorithm with a resolution parameter of 1.0. Bibliographic coupling analysis grouped documents using Jaccard similarity, with clustering performed via the Louvain algorithm and clusters smaller than five documents suppressed. A custom thesaurus file was created to merge variant forms: author name variants (e.g., "Powell, SR" and "Powell, Sarah R" → "Powell, Sarah R"), affiliation variants (e.g., "Univ Texas Austin" and "UT Austin" → "University of Texas at Austin"), and keyword variants (e.g., "learning disability" and "learning disabilities" → "learning disabilities"; "UDL" and "universal design for learning" → "universal design for learning"). All thesaurus rules were applied prior to network construction and clustering.

3.4. Indicators of Concentration and Insularity

To assess the degree of concentration and potential insularity within the research landscape, the study employed a set of bibliometric indicators designed to capture the distribution of scholarly production and citation practices across institutions, authors, and geographic contexts. Such indicators are commonly used in scien-

tometric research to examine how knowledge production is organized within a field and whether scholarly influence is concentrated within a limited set of actors or locations (Aria & Cuccurullo, 2017; Cuccurullo, Aria, & Sarto, 2016). Each indicator is defined below with its specific calculation rules, including numerators, denominators, and cutoffs for "top" actors.

Institutional concentration was calculated as the share of total publications produced by the most productive universities and university systems. The numerator was the number of publications attributed to the top 5, top 10, and top 20 institutions by publication volume. The denominator was the total number of publications in the corpus (N = 424). For multi-institutional papers, fractional counting was applied: each author's listed affiliation received 1/k credit, where k equals the number of distinct affiliations on the paper. Author concentration was calculated as the share of total publications attributable to the most prolific scholars. The numerator was the number of publications from authors in the top 1%, top 5%, and top 10% of the author productivity distribution. The denominator was the total number of unique authors in the corpus. Unlike institutional counting, authors received full credit for each paper on which they appeared (i.e., counting publications, not fractional authorship).

International collaboration was measured by comparing the number of single-country publications (SCP) to multi-country publications (MCP). SCP refers to papers where all authors' affiliations are in the same country; MCP refers to papers with authors from two or more countries. The SCP-to-MCP ratio was calculated as the percentage of total publications represented by each category. This distinction indicates whether research is primarily domestically produced (high SCP) or internationally integrated (high MCP).

Citation geography (intellectual insularity) was measured using two complementary indicators. First, the proportion of locally cited references originating from U.S.-based journals was calculated as the number of local citations to journals whose publishers are headquartered in the United States, divided by the total number of local citations to all journals. Second, the proportion of locally cited references originating from U.S.-based authors was calculated as the number of local citations to authors with a U.S. institutional affiliation at the time of publication, divided by the total number of local citations to all authors. Local citations are defined throughout this study as citations occurring within the analytical corpus of 424 articles, as opposed to global citations drawn from the entire Web of Science database. Local citation counts are reported as absolute frequencies without normalization.

By integrating these production and citation-based indicators, the study provides a systematic assessment of the extent to which the field is characterized by institutional concentration and national citation closure, thereby offering an empirical basis for evaluating the geographic and intellectual diversity of the evidence base. **Figure 2** visualizes the distribution of these indicators, highlighting the concentration of research production, limited international collaboration, and the predominance of U.S.-based citation patterns within the field.

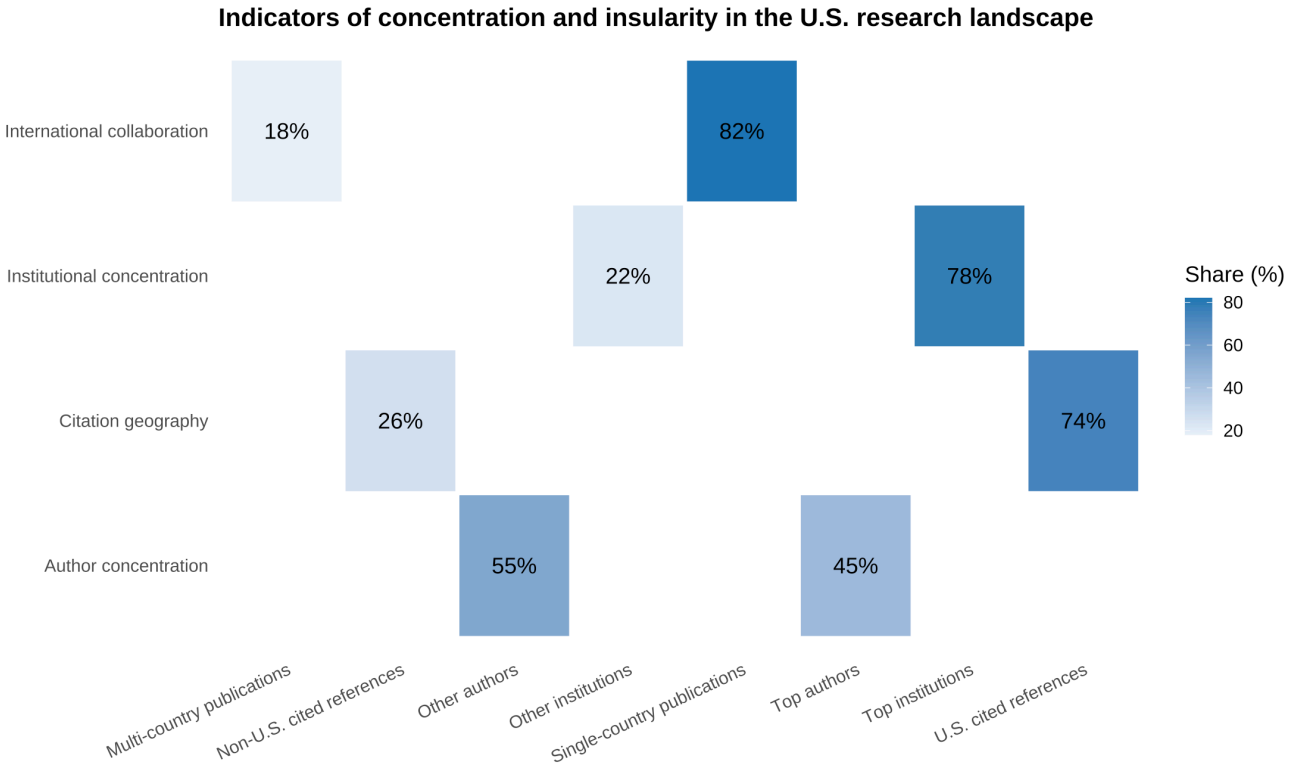


Figure 2. Indicators of concentration and insularity in the U.S. research landscape.

3.5. Validity, Rigor, and Limitations

This study follows established methodological standards in bibliometric research to ensure analytical rigor, transparency, and replicability. The analysis was conducted using the bibliometrix framework, which provides a comprehensive environment for performance analysis and science mapping of large-scale scholarly datasets (Aria & Cuccurullo, 2017). By combining multiple complementary techniques, including performance indicators, co-citation analysis, keyword co-occurrence, thematic mapping, and bibliographic coupling, the study employs methodological triangulation to examine the institutional, intellectual, and conceptual structure of the literature. Such integration of multiple bibliometric techniques strengthens the robustness of findings by allowing patterns observed in one analytical dimension to be validated through others (Cuccurullo, Aria, & Sarto, 2016; Aria et al., 2020). In addition, systematic data preprocessing, including the standardization of author names, institutional affiliations, and keywords, was undertaken to minimize fragmentation and improve the reliability of network-based analyses.

Despite these strengths, several limitations should be acknowledged. The dataset was derived exclusively from the Web of Science Core Collection, which, while widely recognized for its high-quality citation metadata, does not capture all relevant journals and may exclude publications indexed in other databases such as Scopus or ERIC. Furthermore, the analysis was restricted to English-language publications, which may introduce language bias and limit the visibility of schol-

arship produced in other linguistic contexts. Finally, bibliometric indicators primarily capture patterns of publication and citation within scholarly communication networks rather than the substantive quality or practical effectiveness of individual studies. Consequently, the results should be interpreted as an analysis of the structure and organization of the research literature, rather than a direct evaluation of instructional effectiveness or educational outcomes.

4. Results and Discussions

4.1. Main Results

This section presents the main findings of the bibliometric analysis, mapping the structural and intellectual landscape of research on mathematics learning within disability and inclusive education contexts. Based on 424 publications indexed in the Web of Science Core Collection between 2020 and 2025, the analysis examines patterns of scientific production, scholarly influence, collaboration networks, and thematic development. Following established bibliometric approaches (Bizel, 2023; Dao et al., 2023; Rojas-Sánchez et al., 2023; Aria & Cuccurullo, 2017; Cuccurullo, Aria, & Sarto, 2016), the results are organized into four dimensions: the growth and impact of the literature, the leading authors and institutions shaping knowledge production, the geographic distribution and international collaboration patterns of the research community, and the intellectual and conceptual structure of the field revealed through citation and keyword network analyses.

4.1.1. Growth and Scientific Trends in SEN Mathematics Research

The temporal evolution of the literature reveals a pronounced expansion in scholarly activity on mathematics learning within disability and inclusive education contexts. As illustrated in **Figure 3**, annual scientific production increased markedly from a single publication in 2020 to 132 publications in 2025, indicating a rapid acceleration of research output in recent years. This growth trajectory reflects the increasing prominence of inclusive education agendas and the rising demand for evidence-based instructional strategies addressing learning disabilities in mathematics. The steady upward trend after 2021 suggests that the field is transitioning from a relatively emergent research area toward a more consolidated domain of inquiry, characterized by expanding scholarly participation and sustained publication activity.

A complementary perspective on the impact dynamics of the literature is provided in **Figure 4**, which reports the average citations per article per year across publication cohorts. Earlier publications (2020-2022) exhibit higher citation averages, while more recent cohorts display lower values. This pattern is typical in bibliometric analyses and primarily reflects the shorter citation window available to newly published studies rather than a decline in scholarly relevance. As the field continues to expand, these citation dynamics indicate an evolving knowledge base in which recently published contributions have not yet had sufficient time to accumulate citations. Together, the results highlight a rapidly growing research land-

scape with increasing publication activity and an emerging body of literature that is still in the process of consolidating its citation influence.

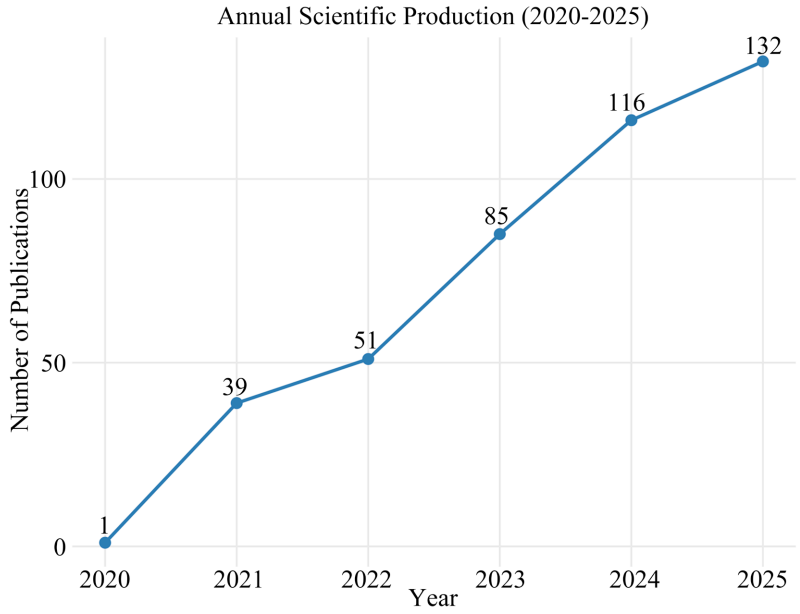


Figure 3. Annual scientific production of publications in the dataset (2020-2025).

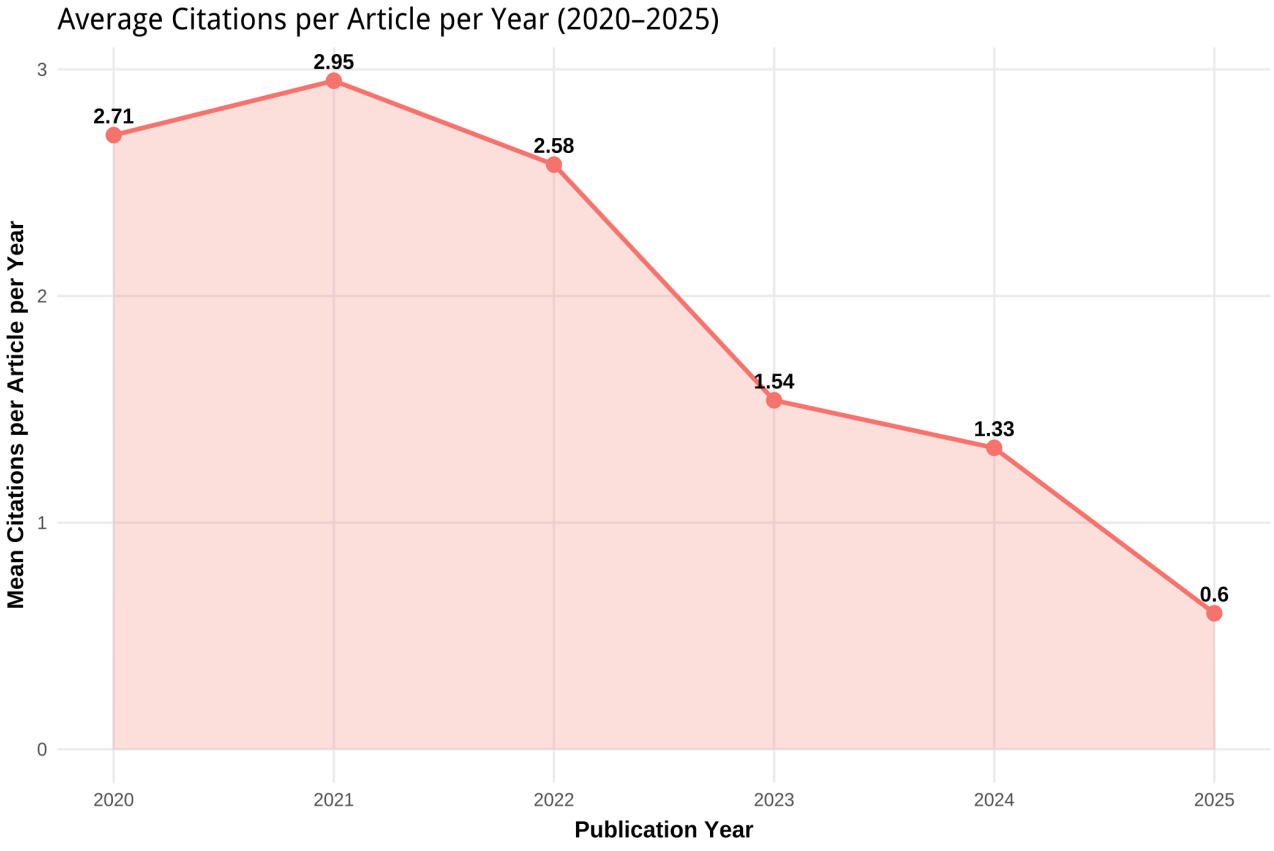


Figure 4. Average citations per article per year for publications in the dataset (2020-2025).

Beyond the temporal growth of publications, the distribution of articles across scholarly outlets provides insight into the institutional structure of knowledge dissemination within the field. As shown in Figure 5, a relatively small set of specialized journals accounts for a substantial share of the published literature on mathematics learning in disability and inclusive education contexts. Journals such as Education Sciences, Intervention in School and Clinic, and the Journal of Special Education Technology emerge as particularly prominent publication venues, reflecting their central role in disseminating research on instructional practices and intervention strategies for students with learning disabilities. Other influential outlets, including Teaching Exceptional Children, Journal of Learning Disabilities, and Learning Disabilities Research & Practice, further illustrate the strong anchoring of this research domain within the broader field of special education scholarship. The concentration of publications within these journals indicates the presence of a well-defined intellectual ecosystem in which specialized outlets serve as primary channels for advancing pedagogical research and evidence-based instructional methodologies.

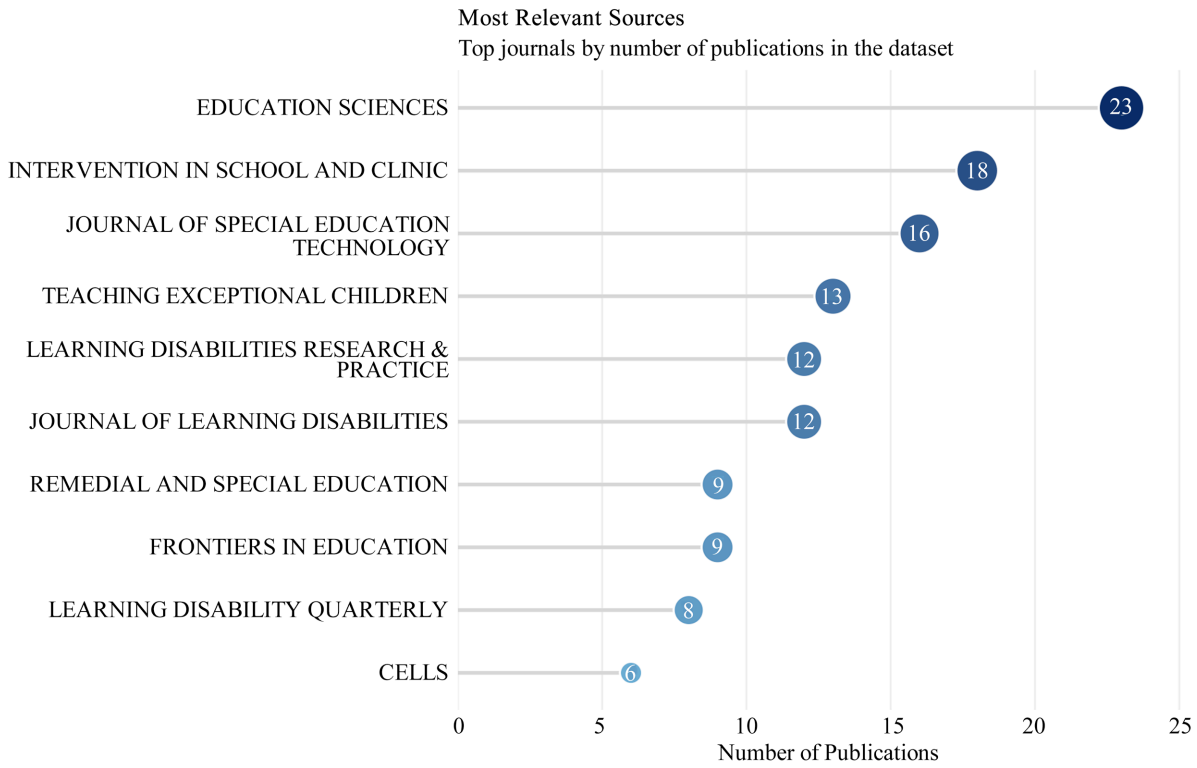


Figure 5. Most relevant sources (top journals by number of publications in the dataset).

A complementary perspective on the institutional foundations of the field is provided by the distribution of publications across academic affiliations. Figure 6 highlights a pronounced concentration of research output within a limited number of university systems, particularly those in the United States. The University of California System and the University of Texas System emerge as leading con-

tributors, followed by the State University System of Florida, the University System of Georgia, and several other large public university networks. These institutions collectively represent major research hubs with strong programs in special education, educational psychology, and learning sciences. The prominence of these university systems underscores the central role of large research-intensive institutions in shaping the development of scholarship on mathematics learning and disability. At the same time, the presence of multiple institutional contributors suggests that the field is supported by a distributed network of research centers and academic collaborations, reflecting both the interdisciplinary nature of the topic and the growing institutional commitment to inclusive education research.

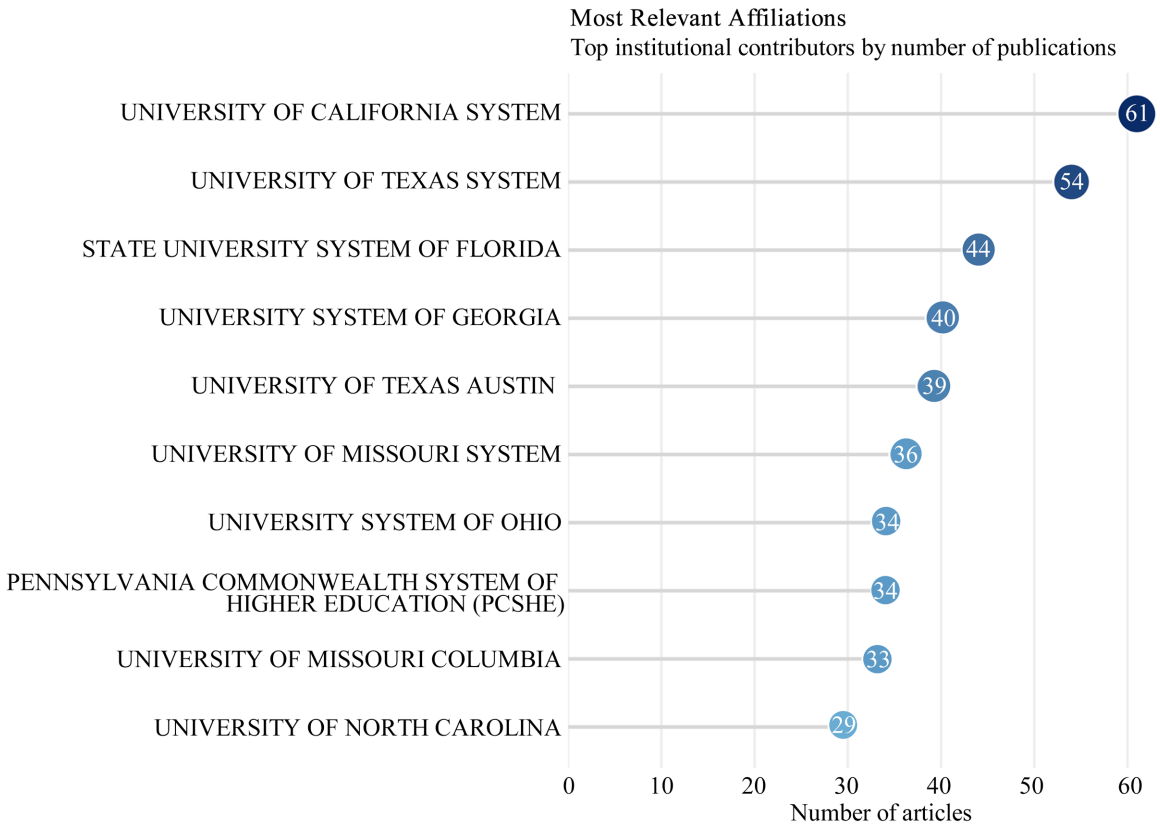
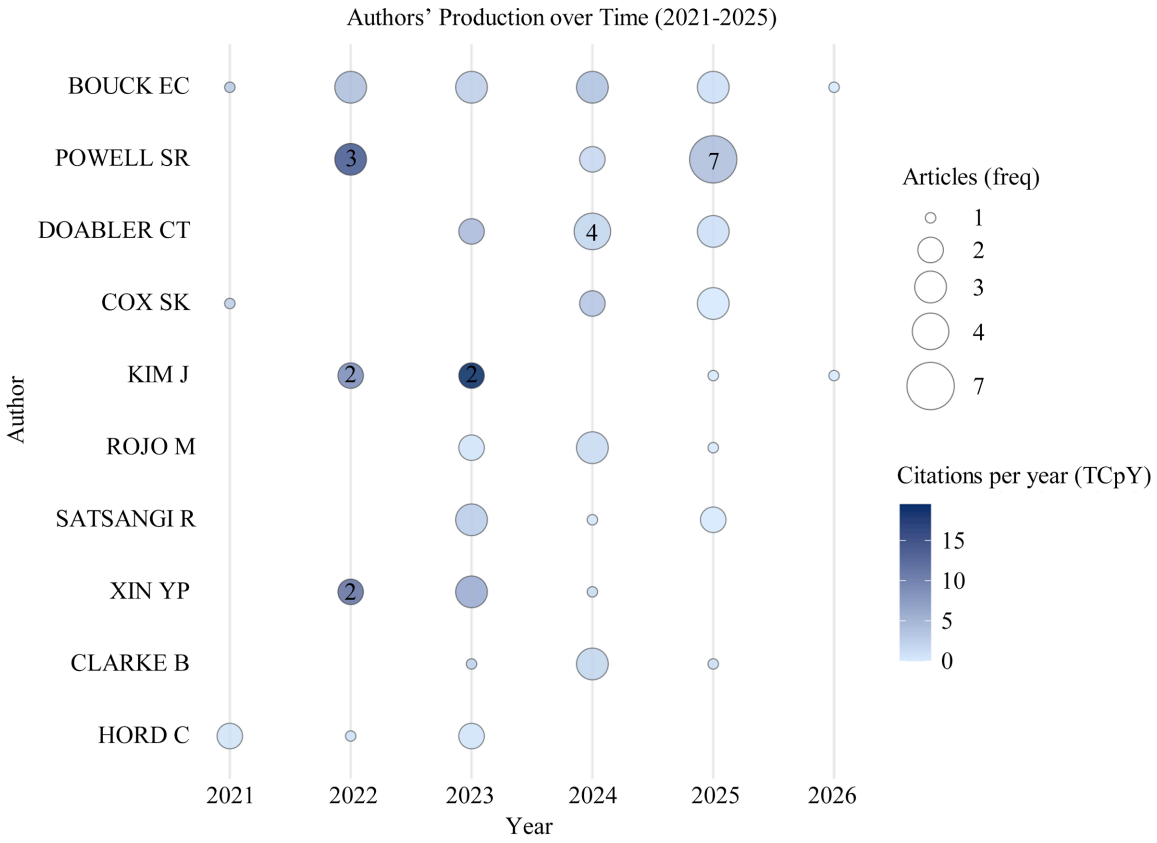


Figure 6. Most relevant affiliations (top institutional contributors by number of publications in the dataset).

4.1.2. Concentration of Knowledge Production

The distribution of author productivity reveals a relatively concentrated pattern of knowledge production within the field. As shown in **Figure 7**, a small group of scholars accounts for a substantial share of the research output across the study period. Authors such as Sarah R. Powell, Emily E. Bouck, Christian Doabler, and Yan Ping Xin emerge as particularly prominent contributors, maintaining sustained publication activity over multiple years. Sarah Powell demonstrates a notable increase in productivity in 2025, while Emily E. Bouck and Christian Doabler show consistent publication trajectories across several consecutive years. These

patterns suggest that the intellectual development of the field is shaped by a relatively limited number of highly active researchers who play a central role in advancing research on mathematics learning within disability and inclusive education contexts.



Bubble size denotes annual publication frequency; color intensity denotes citations per year.

Note: Bubble size denotes annual publication frequency, and color intensity represents citations per year (TCpY).

Figure 7. Authors' production over time (2021-2025).

Beyond productivity, the figure also highlights variations in scholarly influence, captured through the intensity of bubble coloration representing citations per year. Several authors, most notably Jaeyoung Kim, Yan Ping Xin, and Sarah R. Powell, display comparatively higher citation intensity, indicating that their contributions exert a disproportionate influence on the evolving knowledge base of the field. This pattern suggests that scholarly impact is not solely determined by publication volume but also by the citation performance of individual works. At the same time, the persistence of multiple authors across successive years indicates the presence of relatively stable research communities and sustained engagement in the domain. Collectively, these dynamics point to an emerging yet moderately concentrated intellectual structure in which a small group of prolific and influential scholars contributes significantly to shaping the research trajectory of mathematics learning and disability literature.

4.1.3. Geographic Distribution of Research

The geographic distribution of research output reveals a highly uneven global landscape in which a small number of countries dominate scholarly production. As shown in Figure 6, the United States clearly emerges as the leading contributor to the field, producing substantially more publications than any other country during the study period. This dominant position reflects the strong institutional infrastructure supporting research on special education, learning disabilities, and evidence-based instructional interventions within the U.S. academic system. Other countries, including China, Canada, the United Kingdom, Australia, and several European nations, also contribute to the literature, although their publication volumes remain comparatively modest. The spatial pattern observed in Figure 8 suggests that the intellectual development of research on mathematics learning and disability is strongly concentrated within a limited number of national research systems.

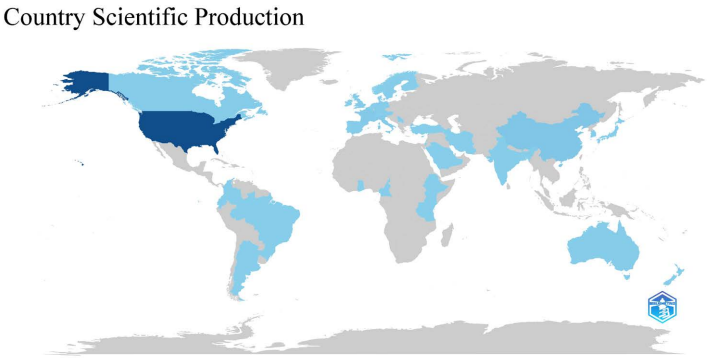


Figure 8. Country scientific production.

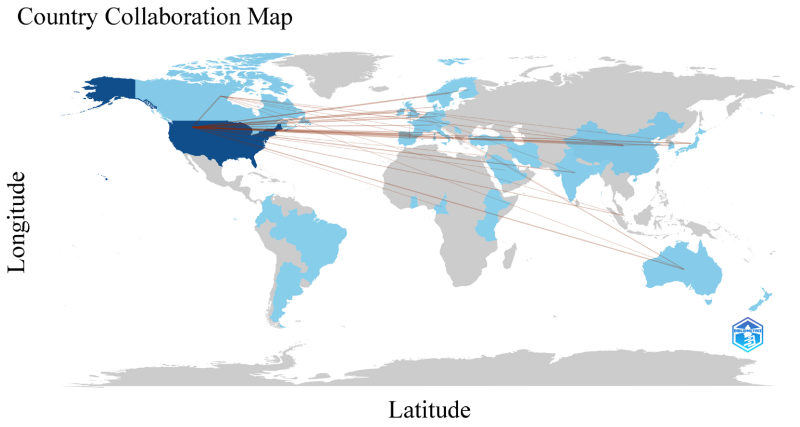


Figure 9. International collaboration network.

The structure of international collaboration further reinforces this pattern of concentration while simultaneously highlighting the growing interconnectedness of the field. As illustrated in Figure 9, the United States functions as the central hub within the global collaboration network, maintaining research partnerships with institutions across Europe, Asia, and Oceania. These collaborative ties indi-

cate that knowledge production in the field increasingly occurs through transnational research networks, enabling the diffusion of methodological approaches and educational interventions across national contexts. At the same time, the network structure reveals that many collaborations remain anchored around U.S.-based institutions, underscoring the influential role of American research centers in shaping the global research agenda on mathematics learning and disability. Collectively, these findings point to a globally distributed but structurally centralized research landscape characterized by strong U.S. leadership and expanding international collaboration.

4.1.4. Intellectual Foundations of the Field

The intellectual organization of the field can be further understood through the structure of scholarly collaboration among authors. Figure 10 presents the author collaboration network, which reveals a set of interconnected research clusters representing distinct scholarly communities. Several prominent collaboration groups are visible, with clusters centered around influential scholars such as Sarah Powell, Christian Doabler, Emily Bouck, and Yan Ping Xin. The cluster surrounding Sarah Powell and Christian Doabler appears particularly dense, indicating sustained collaborative activity and suggesting the presence of an established research group that contributes significantly to the development of evidence-based instructional strategies for students with mathematics learning difficulties. These clusters highlight how collaborative relationships among scholars contribute to shaping the intellectual trajectory of the field.

Beyond identifying key collaborative groups, the network also illustrates the broader structure of knowledge production within the research community. The presence of multiple clusters connected through weaker ties suggests that the field consists of several semi-independent research streams that nevertheless share conceptual and methodological linkages. Such structures are common in evolving academic domains where specialized subfields develop around influential research teams while remaining loosely integrated within the broader scholarly network. The prominence of a few central authors within the network further reinforces earlier evidence of a moderately concentrated knowledge structure, in which a limited number of scholars and collaborative groups exert substantial influence on the direction of research on mathematics learning and disability.

To directly answer the question of which works, authors, and journals constitute the intellectual foundations of this field as reflected in citation networks, this subsection analyzes local citation patterns. Answering this question requires moving beyond aggregate publication counts to examine local citation patterns , citations occurring within the 424-article analytical corpus and co-citation structures. Among cited authors, Sarah R. Powell and Yan Ping Xin are the most prominent, each with 14 local citations, followed by Elizabeth M. Hughes (9), and H.L. Li, J. A. Myers, T. D. Pigott, and B. S. Witzel (8 each). Unlike many mature fields where a single highly cited figure dominates, influence here is distributed across multiple scholars. With respect to publication venues, the Journal of Learning Disabilities

leads with 370 local citations, followed by the Journal of Educational Psychology (316) and Remedial and Special Education (276). Other highly cited outlets include Learning Disability Quarterly (241), Exceptional Children (224), and Learning Disabilities Research & Practice (219). Notably, all of these journals are based in the United States and specialize in special education or educational psychology, suggesting that the field's evidentiary standards are substantially shaped by a cohesive set of domestic publication outlets.

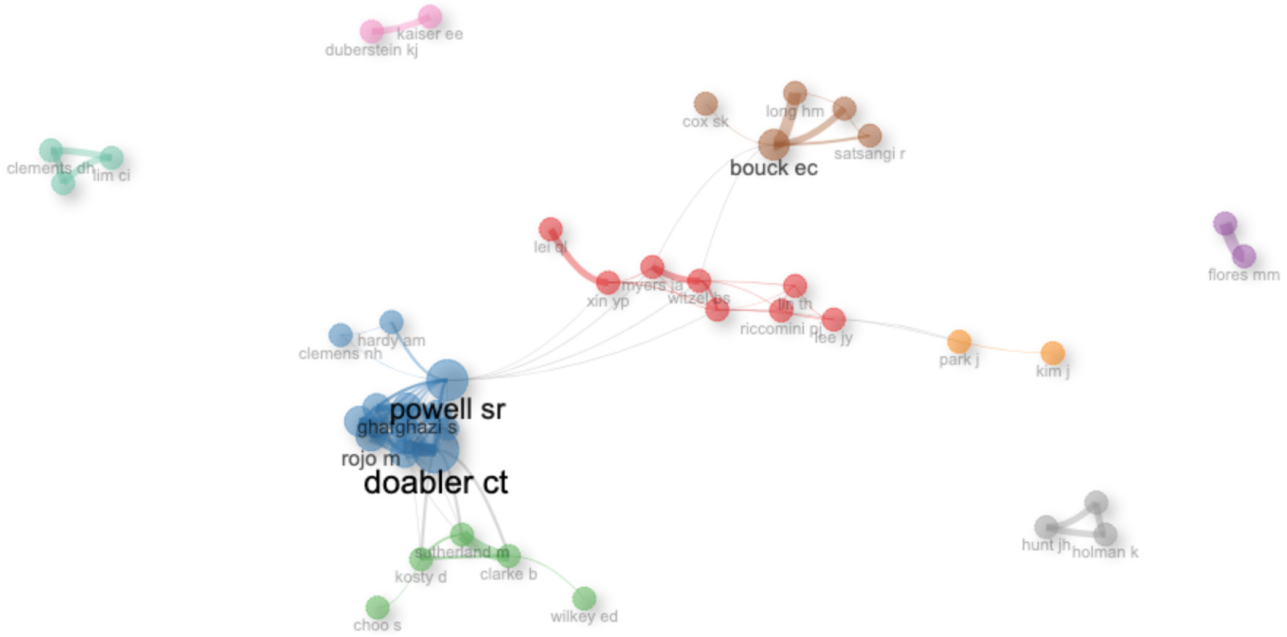


Figure 10. Author collaboration network.

Co-citation analysis of cited references reveals three main intellectual clusters that together structure the field's knowledge traditions. The first cluster centers on intervention effectiveness studies and evidence-based practice guides, including publications from the Institute of Education Sciences and the What Works Clearinghouse, representing the field's strong orientation toward policy-relevant research. The second cluster groups works on cognitive mechanisms underlying mathematical learning difficulties, notably studies of working memory, developmental dyscalculia, and cognitive processing (e.g., Peng et al., 2016), signaling the field's grounding in cognitive psychology. The third cluster comprises research on instructional design, including concrete-representational-abstract (CRA) sequencing, explicit instruction, and strategy instruction (e.g., Bouck et al., 2021), reflecting the field's applied pedagogical focus. Taken together, these three clusters indicate that the intellectual foundations of the field are jointly constituted by policy-oriented intervention science, cognitive theories of learning, and empirically validated instructional models.

These citation-based findings complement the author collaboration network presented in Figure 10. The network reveals interconnected research clusters cen-

tered around scholars such as Sarah Powell, Christian Doabler, Emily Bouck, and Yan Ping Xin, with a particularly dense cluster surrounding Powell and Doabler indicating sustained collaborative activity. The presence of multiple clusters connected through weaker ties suggests a field composed of several semi-independent research streams that nonetheless share conceptual and methodological linkages, a structure common to evolving academic domains. The prominence of a few central authors within the network reinforces the evidence of a moderately concentrated knowledge structure, in which a limited number of scholars and collaborative groups exert disproportionate influence on the direction of research on mathematics instruction for students with disabilities.

4.1.5. Conceptual Structure of the Field

The conceptual structure of the field was examined through a keyword co-occurrence analysis, which reveals the dominant themes and relationships shaping research on mathematics learning within disability and inclusive education contexts. As illustrated in Figure 11, the keyword network is organized around a dense central cluster in which terms such as "students," "children," "instruction," and "education" occupy highly connected positions. These central concepts indicate that much of the literature focuses on instructional practices and educational interventions aimed at improving mathematical learning outcomes for students with diverse learning needs. Surrounding this core are closely related thematic clusters involving learning disabilities, intervention strategies, working memory, and student performance, reflecting the interdisciplinary nature of the field, which integrates perspectives from special education, cognitive psychology, and mathematics education.

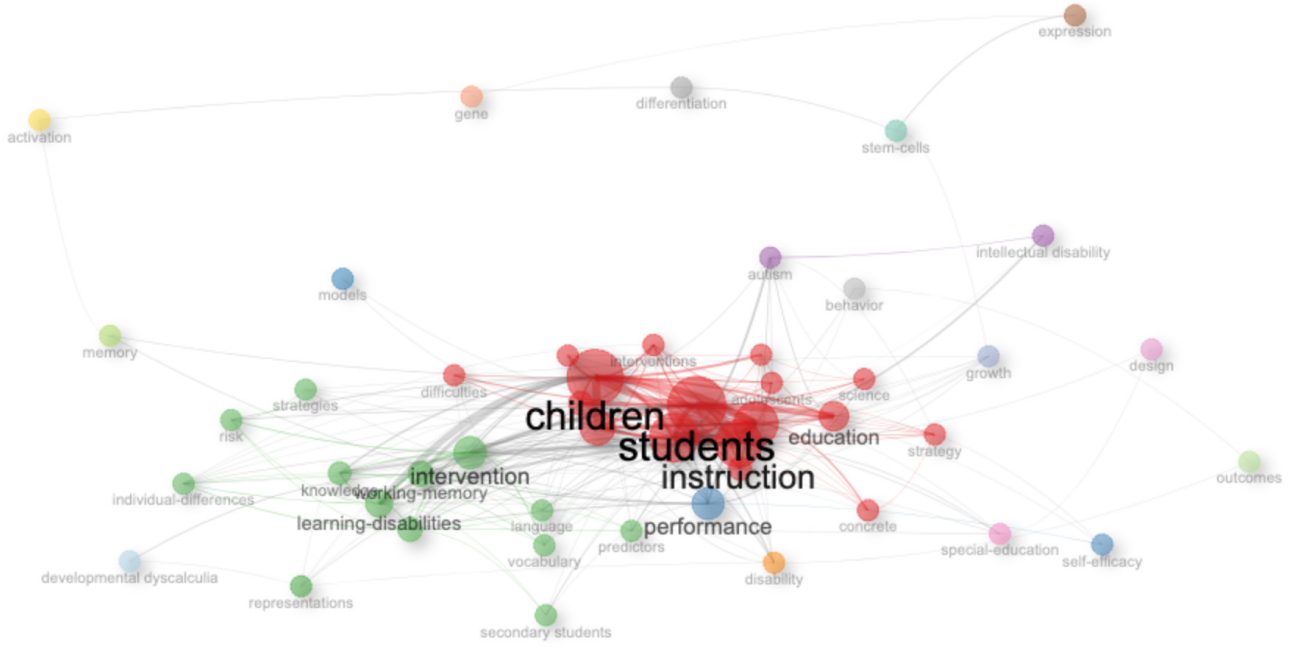


Figure 11. Keyword co-occurrence network.

Additional insight into the thematic composition of the literature is provided by the keyword frequency distribution shown in Figure 12. The prominence of terms such as "mathematics," "instruction," "students," "children," and "learning disabilities" confirms that the field is strongly centered on instructional approaches and learning processes among students with mathematical learning difficulties. At the same time, the presence of related terms including achievement, intervention, working memory, autism, and meta-analysis suggests growing interest in evidence-based interventions and cognitive mechanisms underlying mathematical performance. Together, these patterns highlight a research landscape that is both pedagogically oriented and increasingly informed by cognitive and developmental perspectives, indicating that the conceptual foundations of the field are shaped by the intersection of instructional practice, learner characteristics, and empirical evaluation of educational interventions.

Figure 12. Keyword frequency distribution (word cloud).

4.1.6. Emerging Research Fronts

The structure of contemporary research fronts within the field becomes clearer when examining the bibliographic coupling network presented in Figure 13. Bibliographic coupling identifies groups of publications that share similar reference bases and therefore reflect active lines of inquiry currently shaping the field. The map reveals a set of relatively coherent clusters organized around several dominant themes, suggesting that research on mathematics instruction for students with disabilities is structured around identifiable intellectual trajectories rather than dispersed topics. The most central cluster combines terms such as children, students, instruction, learning disabilities, and meta-analysis, indicating that a large portion of the literature is currently oriented toward evaluating instructional interventions and synthesizing empirical evidence on effective teaching strategies. The prominence of meta-analytic work within this cluster suggests that the field has reached a level of maturity where systematic evidence synthesis is increasingly used to consolidate findings and guide instructional practice.

A second cluster centers on mathematics, instruction, students, and disabilities,

representing a broader pedagogical research stream focused on the design and effectiveness of mathematics instruction in special education contexts. The relative centrality of this cluster suggests that the core intellectual agenda of the field continues to revolve around improving instructional practices and learning outcomes for students with disabilities. Additional clusters appear more specialized, including one associated with representations and another focusing on developmental dyscalculia. These clusters likely represent emerging subfields that address specific cognitive or conceptual mechanisms underlying mathematics learning difficulties. The presence of such specialized clusters indicates a gradual diversification of the research landscape, where foundational instructional research coexists with more focused investigations into cognitive processes and learning mechanisms. From a bibliometric perspective, the coupling structure therefore reveals a field that is simultaneously consolidating its instructional knowledge base while expanding into more specialized domains of inquiry.

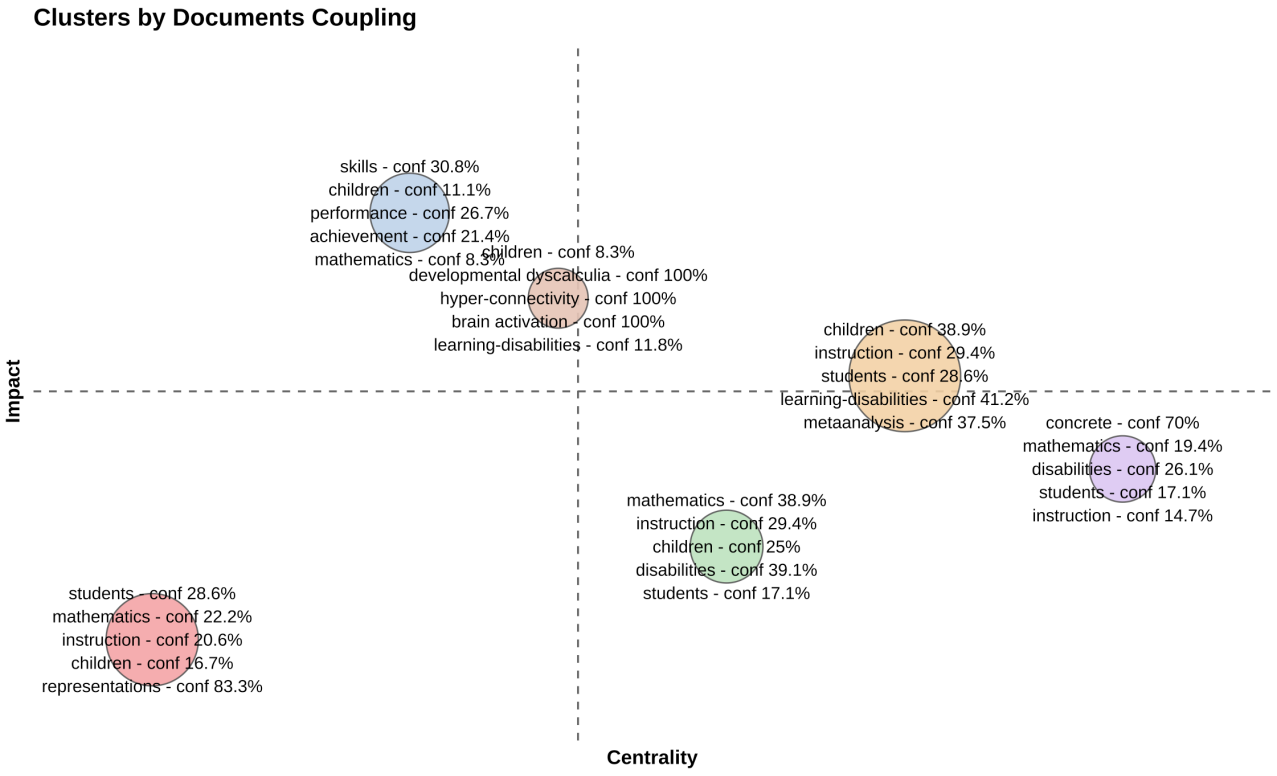


Figure 13. Clusters by documents coupling, showing major contemporary research fronts based on shared reference patterns.

The temporal dynamics of these emerging fronts are further illuminated by the trend topics analysis shown in **Figure 14**, which traces the appearance and prominence of key research themes over time. Earlier in the period, the literature is characterized by foundational terms such as special education, learning disabilities, and working memory. These themes reflect the historical emphasis of the field on identifying cognitive characteristics associated with mathematical learn-

ing difficulties and establishing the conceptual foundations for instructional intervention. As the field evolves, however, newer themes become increasingly visible, including achievement, intervention, meta-analysis, and mathematics achievement. The growing prominence of these terms suggests a shift toward more outcome-oriented research that prioritizes measurable learning gains and evidence-based instructional strategies. In other words, the literature appears to be moving from a primarily descriptive and diagnostic orientation toward a stronger emphasis on evaluating what works in mathematics instruction for students with disabilities.

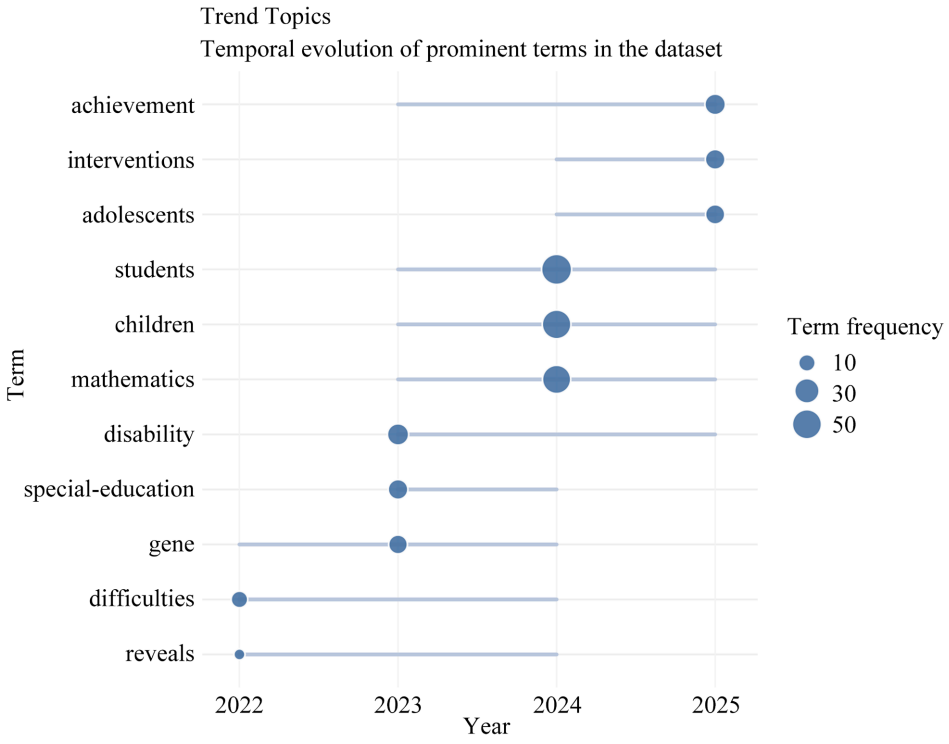


Figure 14. Trend topics/topic evolution map in Literature.

Equally noteworthy is the emergence of themes such as inclusive mathematics instruction, multiple representations, and developmental dyscalculia. These topics point to increasing conceptual refinement within the field. Research on inclusive mathematics instruction reflects the broader international policy agenda promoting inclusive education and universal design for learning. Meanwhile, the attention to multiple representations and cognitive constructs such as working memory highlights a growing integration of cognitive science perspectives into mathematics education research. Taken together, these temporal patterns suggest that the field is gradually transitioning toward a more theoretically integrated and methodologically sophisticated research agenda, in which instructional design, cognitive mechanisms, and evidence synthesis interact to shape the emerging knowledge base of mathematics learning for students with disabilities.

4.1.7. Synthesis of Findings

Taken together, the results across the analytical dimensions provide a coherent account of how the contemporary evidence base on inclusive mathematics instruction for students with disabilities is produced, organized, and circulated. The performance analysis revealed a rapidly expanding research landscape characterized by sustained growth in publication output since 2021. However, this expansion occurs within a relatively concentrated institutional and authorship structure. A small group of prolific scholars and a limited number of large U.S. public university systems account for a substantial proportion of the literature, indicating that the production of knowledge in this domain is shaped by a relatively narrow network of research actors. This concentration pattern is further reinforced by the distribution of publication venues, where a handful of specialized journals in special education and learning disabilities serve as primary outlets for disseminating research findings. Collectively, these patterns suggest that while the field is growing in scale, its core infrastructure of knowledge production remains highly centralized within particular institutional and disciplinary contexts.

The science-mapping analyses further clarify how this concentration shapes the intellectual and conceptual organization of the field. Co-citation patterns and collaboration networks indicate that the literature is anchored around a relatively stable set of influential scholars and collaborative clusters that structure the intellectual foundations of the research community. At the conceptual level, keyword co-occurrence and thematic analyses reveal that the literature converges around a tightly connected core of themes related to mathematics instruction, learning disabilities, intervention strategies, and student achievement. These thematic concentrations indicate that the dominant research agenda in the field is oriented toward the development and evaluation of instructional approaches aimed at improving mathematics outcomes for students with disabilities. At the same time, the emergence of specialized clusters, such as developmental dyscalculia, multiple representations, and cognitive processes associated with mathematical learning, signals increasing diversification within the field, suggesting that foundational instructional research is gradually branching into more focused lines of inquiry.

The analysis of research fronts and topic evolution provides additional insight into how the field is currently developing. Bibliographic coupling reveals that contemporary scholarship is organized around a set of identifiable research fronts, particularly those focusing on intervention effectiveness, cognitive mechanisms of mathematical learning difficulties, and instructional design in inclusive educational contexts. The trend-topic analysis further indicates a gradual shift in the thematic emphasis of the literature, with increasing attention to achievement outcomes, meta-analytic evidence synthesis, and evidence-based instructional practices. This transition suggests that the field is moving beyond early descriptive studies of learning disabilities toward a more systematic evaluation of instructional interventions and their measurable impacts on student learning.

Taken together, these findings point to a research domain that is simultane-

ously expanding and consolidating. On the one hand, the growth of publication output and the emergence of new thematic clusters indicate a dynamic and evolving field. On the other hand, the concentration of authorship, institutional production, and citation patterns suggests that the intellectual direction of the field remains strongly influenced by a relatively small group of research centers and scholarly communities. From a bibliometric perspective, this combination of expansion and concentration has important implications for how the evidence base is formed and whose perspectives shape the dominant research agenda. The results therefore provide empirical support for the broader argument of the study: that the contemporary evidence base on inclusive mathematics instruction is both productive and influential, yet structurally concentrated in ways that may shape the boundaries of what counts as legitimate knowledge within the field.

4.2. Discussions

4.2.1. A Strong but Concentrated Evidence Base

The findings of this study point to the emergence of a robust but structurally concentrated evidence base in research on mathematics instruction for students with disabilities. The steady growth in publication output since 2021 reflects increasing scholarly and policy attention to inclusive mathematics education, particularly within the context of evidence-based instructional practices. This pattern is consistent with broader developments in special education research, where federal investment and accountability policies have stimulated the expansion of intervention-oriented scholarship (Fuchs et al., 2021; Cook & Odom, 2013). Comparable growth dynamics have been observed in bibliometric analyses of STEM and special education research, which report rising publication output alongside increasing emphasis on empirical intervention studies and measurable learning outcomes (Phuong et al., 2023). Together, these trends suggest that research on mathematics learning for students with disabilities is entering a more mature stage characterized by a growing and increasingly systematic body of empirical evidence.

However, the expansion of the literature occurs alongside a pronounced concentration in the institutional and intellectual organization of the field. The results show that a relatively small group of scholars and research-intensive university systems account for a substantial proportion of publications, while a limited set of specialized journals serve as primary venues for disseminating research findings. This pattern closely mirrors broader findings in bibliometric studies of academic knowledge production. For example, Zupic & Čater (2015) demonstrate that many research domains exhibit strong clustering around influential authors and journals that function as intellectual hubs within citation networks. Similarly, Aria, Misuraca, & Spano (2020) show that research production in the social sciences often concentrates within a small number of institutions that shape the conceptual direction of the field. The concentration observed in the present study therefore reflects a broader structural feature of scholarly communication rather than an anomaly unique to mathematics education research.

At the same time, the present analysis suggests that the degree of concentration in this field may be particularly pronounced due to its strong anchoring within the U.S. research ecosystem. The prominence of U.S.-based institutions, authors, and policy frameworks within the citation network indicates that the intellectual foundations of the field are closely tied to American educational research traditions. This finding resonates with broader analyses of global knowledge production, which show that scholarship originating in the United States and other Global North contexts often dominates citation networks and shapes disciplinary canons (Collyer, 2018; Greenman et al., 2022). Compared with bibliometric studies in other areas of education research, where knowledge production is more geographically distributed, the present field appears to exhibit a particularly strong national concentration, with the United States functioning as the primary center of research activity and intellectual influence.

From a research development perspective, the coexistence of rapid expansion and structural concentration suggests a field that is consolidating around a relatively stable set of institutions, scholars, and theoretical frameworks. Such concentration can support cumulative knowledge building by facilitating shared methodological standards and sustained collaboration among leading research groups. However, bibliometric scholarship also cautions that highly concentrated research systems may shape the boundaries of intellectual inquiry by privileging particular research agendas and methodological approaches (Zupic & Čater, 2015). In this sense, the strong but concentrated nature of the evidence base highlights an important tension within the field: the same institutional structures that enable the accumulation of rigorous evidence may also influence which questions are prioritized, which interventions are evaluated, and which forms of knowledge become recognized as authoritative within the literature.

4.2.2. How Citation Patterns Shape What Counts as Evidence

Beyond patterns of publication output and institutional concentration, the citation structure of the literature provides important insight into how authority and legitimacy are constructed within the field. Citation practices are not merely technical conventions of scholarly writing; they play a fundamental role in shaping the intellectual boundaries of research domains by signaling which works, frameworks, and authors are recognized as authoritative sources of evidence (Zupic & Čater, 2015). In the present study, the analysis of locally cited references and sources reveals a highly cohesive citation network anchored around a relatively small set of influential texts and journals. Prominent references include policy and guidance documents such as the Common Core State Standards, Institute of Education Sciences (IES) practice guides, and the Universal Design for Learning (UDL) Guidelines, alongside widely cited empirical syntheses on mathematics instruction for students with learning disabilities (e.g., Fuchs et al., 2021). The prominence of these works within the citation network suggests that they function as canonical reference points through which subsequent research defines its methodological

approaches, instructional models, and evidentiary standards.

This pattern of citation concentration is consistent with findings from broader bibliometric research on knowledge formation. Studies of scientific communication have shown that cohesive citation networks often emerge around a relatively small set of influential publications that structure the intellectual foundations of a field (Zupic & Čater, 2015; Aria, Misuraca, & Spano, 2020). Such citation structures facilitate cumulative knowledge building by providing shared conceptual frameworks and methodological reference points. Similar dynamics have been identified in bibliometric analyses of education research more broadly, where highly cited policy frameworks and intervention studies frequently serve as central nodes within citation networks (Phuong et al., 2023). In the context of mathematics education for students with disabilities, the repeated citation of intervention studies, practice guides, and instructional frameworks indicates that the literature is strongly oriented toward evidence-based practice and the empirical evaluation of instructional effectiveness. Citation patterns therefore operate as mechanisms through which particular instructional approaches, such as explicit instruction, strategy instruction, and the concrete–representational–abstract (CRA) instructional sequence, become institutionalized as authoritative forms of evidence within the field.

At the same time, the citation structure observed in this study reflects a notable degree of geographic and intellectual concentration. The majority of frequently cited authors, journals, and policy documents originate from the United States, indicating that the evidentiary foundations of the literature are strongly embedded within a specific national research ecosystem. This pattern aligns with broader analyses of global academic publishing, which demonstrate that scholarship originating in the United States and other Global North contexts tends to dominate citation networks and shape disciplinary canons (Collyer, 2018; Greenman et al., 2022). When citation networks become highly self-referential within a particular national research system, they may reinforce established theoretical frameworks and methodological preferences while limiting the visibility of alternative perspectives emerging from different educational contexts. As a result, citation practices not only reflect the distribution of knowledge within a field but also actively contribute to constructing the intellectual hierarchies that determine which forms of knowledge are recognized as legitimate evidence.

From this perspective, the citation patterns identified in the present study help explain how the contemporary evidence base for inclusive mathematics instruction has been formed and stabilized. Through repeated citation of a shared set of policy frameworks, instructional models, and empirical syntheses, scholars collectively reproduce a canon of influential works that defines the methodological and conceptual boundaries of the field. While this process supports cumulative knowledge development and facilitates the consolidation of evidence-based instructional practices, it may also narrow the range of perspectives that shape the research agenda. Understanding how citation practices structure the recognition

of evidence is therefore essential for interpreting both the strengths and limitations of the existing literature. It highlights that the authority of particular instructional frameworks is not only the product of empirical findings but also the outcome of the citation networks through which those findings are legitimized and circulated within the scholarly community.

4.2.3. Boundary-Setting in the Evidence Base

While the previous sections highlighted the growth and internal coherence of the literature, the bibliometric evidence also reveals how the structure of the field implicitly defines the boundaries of what is considered legitimate evidence in research on mathematics instruction for students with disabilities. Academic fields rarely develop as fully open intellectual spaces; rather, they evolve through processes of boundary construction in which certain theoretical perspectives, methodological approaches, and research contexts become institutionalized as authoritative while others remain peripheral (Zupic & Čater, 2015). The patterns identified in this study suggest that the contemporary evidence base in this domain is shaped by a relatively well-defined set of conceptual frameworks, methodological standards, and policy-oriented priorities that guide both research design and interpretation.

One important boundary-setting mechanism is the methodological orientation of the literature. The prominence of intervention studies, experimental designs, and meta-analytic syntheses indicates that the field strongly prioritizes research capable of demonstrating measurable instructional effectiveness. This emphasis reflects broader movements within special education toward evidence-based practice, where instructional strategies are evaluated primarily through empirical studies that meet defined standards of methodological rigor (Cook & Odom, 2013). While this approach has significantly strengthened the empirical foundation of special education research, it may also privilege certain forms of knowledge, particularly quantitative intervention research, over other forms of inquiry such as qualitative investigations of classroom practice, contextual analyses of implementation, or studies exploring the sociocultural dimensions of learning. In this sense, methodological preferences help shape the boundaries of the evidence base by influencing which types of research are most visible and most frequently cited within the literature.

A second boundary-setting dynamic emerges from the conceptual frameworks that dominate the field. The analysis shows that instructional models such as explicit instruction, strategy instruction, and concrete–representational–abstract (CRA) sequencing are repeatedly cited and serve as foundational reference points for many studies. Similarly, policy frameworks including the Common Core State Standards and Universal Design for Learning provide widely shared conceptual anchors that guide the framing of instructional research. While the widespread adoption of these frameworks has contributed to the coherence of the literature, it also reinforces a particular orientation toward mathematics learning that is

closely aligned with U.S. educational policy and cognitive learning theories. Alternative perspectives, such as culturally responsive mathematics instruction, sociocultural approaches to learning, or context-specific pedagogical models, appear less prominently within the citation network, suggesting that the field's conceptual boundaries may be narrower than the diversity of educational contexts it seeks to address.

Finally, the institutional concentration identified earlier in the analysis also plays a role in shaping the boundaries of the evidence base. When a relatively small number of institutions, research groups, and publication venues dominate knowledge production, they inevitably influence the research questions that are prioritized, the methodological approaches that are considered rigorous, and the theoretical frameworks that gain prominence. As scholars of global knowledge production have argued, such concentration can lead to the formation of intellectual centers that set disciplinary agendas and define the standards through which evidence is evaluated (Collyer, 2018). In the context of mathematics education for students with disabilities, this dynamic suggests that the boundaries of the evidence base are not only determined by empirical findings but also by the institutional and scholarly networks through which those findings are produced, evaluated, and disseminated.

Taken together, these patterns indicate that the contemporary evidence base in this field is both cumulative and selective. It has successfully consolidated a body of research capable of informing instructional practice, yet it has also developed within a set of intellectual and institutional boundaries that shape which forms of knowledge become visible and influential. Recognizing these boundary-setting processes does not diminish the value of the existing evidence base; rather, it provides a more nuanced understanding of how the field's knowledge structure has evolved and highlights opportunities for expanding the diversity of perspectives, methodologies, and contexts represented in future research.

4.2.4. Transferability and Translational Risk

An important implication of the concentrated and nationally anchored evidence base identified in this study concerns the transferability of research findings across educational contexts. Much of the literature on mathematics instruction for students with disabilities is produced within a specific institutional, policy, and curricular environment shaped by U.S. educational legislation, accountability systems, and research funding structures. Frameworks such as the Common Core State Standards, Response to Intervention, and Universal Design for Learning provide the conceptual infrastructure within which many studies are conducted and interpreted. While these frameworks have contributed to a coherent and well-developed body of evidence, they are embedded within the particular institutional arrangements of the U.S. education system. As a result, instructional models and intervention strategies validated in these contexts may not translate seamlessly to educational systems operating under different curricular structures, teacher prep-

aration models, or resource conditions.

This issue reflects a broader challenge in the translation of educational research into practice across diverse settings. Educational interventions are inherently context-dependent, and their effectiveness is often mediated by factors such as classroom environments, teacher expertise, institutional resources, and policy constraints (Coburn, Penuel, & Geil, 2013). When research evidence is generated primarily within a narrow set of institutional and national contexts, the conditions under which interventions were tested may not be fully visible to policymakers or practitioners seeking to apply the findings elsewhere. This creates what might be described as a translational risk, in which instructional practices supported by strong empirical evidence in one context are assumed to be universally effective without adequate consideration of contextual variation. In the case of inclusive mathematics instruction, such risks may arise when pedagogical models developed within well-resourced research settings are implemented in schools with different institutional capacities or student populations.

At the same time, the concentration of the literature within a coherent research ecosystem has also facilitated the accumulation of a strong and internally consistent evidence base. Shared methodological standards, common theoretical frameworks, and sustained collaboration among research groups have allowed the field to develop cumulative knowledge about effective instructional strategies for students with disabilities. The challenge moving forward is therefore not simply to expand the evidence base, but to broaden the range of contexts in which evidence is generated and evaluated. Comparative research across educational systems, greater engagement with international scholarship, and increased attention to diverse instructional environments could help strengthen the external validity of the literature and reduce the translational risks associated with applying research findings across different

4.2.5. Implications for Research and Policy

The findings of this study have several implications for both future research and educational policy. From a research perspective, the results highlight the need to diversify the institutional and geographic bases of knowledge production in the field. While the existing literature provides a substantial body of evidence on mathematics instruction for students with disabilities, the concentration of authorship and institutional production suggests that many educational contexts remain underrepresented. Expanding collaboration across institutions, regions, and national research communities could help broaden the empirical foundation of the field and provide insights into how instructional practices function across varied educational environments. Such diversification would not only enrich the theoretical perspectives represented in the literature but also strengthen the generalizability and applicability of research findings.

The results also point to opportunities for expanding the conceptual scope of the research agenda. Although intervention effectiveness remains a central focus

of the literature, future studies could further explore contextual and systemic factors that influence the implementation of instructional practices. Research examining teacher preparation, classroom environments, curriculum design, and institutional support structures may provide a more comprehensive understanding of how mathematics instruction for students with disabilities operates within real educational settings. Integrating these perspectives with the existing body of intervention research could contribute to a more holistic understanding of inclusive mathematics education.

From a policy perspective, the findings underscore the importance of considering the institutional origins of the evidence base when designing educational policies and instructional guidelines. Policymakers often rely on empirical research to inform decisions about curriculum standards, instructional models, and support services for students with disabilities. While the evidence identified in this study provides valuable guidance on effective instructional strategies, it is important to recognize that much of this evidence has been generated within specific research contexts. Policymakers and educational leaders should therefore consider how local conditions, including teacher training, school resources, and student demographics, may influence the implementation and effectiveness of research-informed practices.

Ultimately, the study highlights the dual nature of the current evidence base in inclusive mathematics instruction: it is both substantial and influential, yet institutionally concentrated and contextually situated. Strengthening the field moving forward will require not only continued research on instructional effectiveness but also greater attention to the diversity of educational contexts in which students with disabilities learn mathematics. By broadening the range of perspectives and environments represented in the literature, future research can help ensure that the evidence base supporting inclusive mathematics instruction is both rigorous and responsive to the needs of diverse educational systems.

5. Conclusion

This study set out to examine how the contemporary evidence base on inclusive mathematics instruction for students with disabilities is structured, produced, and disseminated within the scholarly literature. Using bibliometric techniques applied to publications indexed in the Web of Science database, the analysis mapped patterns of publication growth, institutional productivity, citation networks, conceptual structures, and emerging research fronts. The results reveal a rapidly expanding field characterized by a growing body of empirical work on instructional interventions, cognitive processes, and mathematics learning outcomes among students with disabilities. At the same time, the analysis demonstrates that this expanding literature is organized around a relatively concentrated set of authors, institutions, journals, and citation networks that collectively shape the intellectual foundations of the field.

The findings highlight an important structural characteristic of the contempo-

rary research landscape: the coexistence of growth and concentration. While the volume of research on inclusive mathematics instruction has increased substantially in recent years, knowledge production remains clustered within a relatively small number of research-intensive institutions and influential scholarly networks. Citation patterns further indicate that the field's intellectual foundations are strongly anchored in a set of widely referenced policy frameworks, instructional models, and empirical syntheses that guide the development of subsequent studies. These dynamics suggest that the evidence base supporting mathematics instruction for students with disabilities is both robust and cumulative, yet also shaped by institutional and intellectual structures that influence which perspectives and approaches become most prominent within the literature.

From a broader perspective, the study contributes to ongoing discussions about the formation of evidence in education research. By examining the institutional and citation structures that organize the field, the analysis demonstrates that the development of the evidence base is not solely a function of accumulating empirical findings but is also shaped by the networks of scholars, journals, and institutions through which knowledge is produced and circulated. Understanding these structural dynamics is essential for evaluating the strengths of the existing literature and for identifying areas where greater diversity of perspectives, contexts, and research approaches may further enrich the field.

Despite these contributions, the study has several limitations that should be acknowledged. First, the analysis relies on data drawn from the Web of Science Core Collection, which, while widely used in bibliometric research, may not capture all relevant publications in education and special education, particularly those indexed in alternative databases such as Scopus or ERIC. Second, the study focuses primarily on English-language publications, which may underrepresent scholarship produced in other languages and educational contexts. Third, bibliometric methods analyze patterns of publication and citation rather than the substantive quality or methodological rigor of individual studies. As a result, the analysis provides insights into the structure of the research field but does not directly evaluate the effectiveness of specific instructional practices.

These limitations point to several promising directions for future research. Subsequent studies could expand the analysis by incorporating multiple bibliographic databases to obtain a more comprehensive representation of the global literature on inclusive mathematics instruction. Comparative bibliometric studies examining research production across different countries or educational systems could also provide valuable insight into how knowledge on mathematics instruction for students with disabilities develops in diverse institutional contexts. In addition, future research could combine bibliometric mapping with systematic or meta-analytic reviews to link the structural patterns identified in this study with deeper evaluations of instructional effectiveness and classroom implementation.

In conclusion, the present study provides a systematic overview of the institutional, intellectual, and conceptual landscape of research on inclusive mathemat-

ics instruction for students with disabilities. The findings demonstrate that the field has developed into a dynamic and increasingly sophisticated research domain supported by a growing body of empirical evidence. At the same time, the concentration of knowledge production within particular institutional and scholarly networks highlights the importance of examining how evidence is formed and circulated within academic communities. By illuminating these structural dimensions of the research landscape, the study contributes to a deeper understanding of the contemporary evidence base and offers a foundation for future research aimed at strengthening inclusive mathematics education for students with disabilities.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

Adeoye, M. A. (2025). Trends and Patterns in Primary Education Research: A Bibliometric Review of Instructional and Teacher Education Studies. *Profesi Pendidikan Dasar, 12,* 288-303. https://doi.org/10.23917/ppd.v12i3.12346

Aria, M., & Cuccurullo, C. (2017). Bibliometrix: An R-Tool for Comprehensive Science Mapping Analysis. *Journal of Informetrics, 11,* 959-975. https://doi.org/10.1016/j.joi.2017.08.007

Aria, M., Alterisio, A., Scandurra, A., Pinelli, C., & D'Aniello, B. (2021). The Scholar's Best Friend: Research Trends in Dog Cognitive and Behavioral Studies. *Animal Cognition, 24,* 541-553. https://doi.org/10.1007/s10071-020-01448-2

Aria, M., Le, T., Cuccurullo, C., Belfiore, A., & Choe, J. (2024). openalexR: An R-Tool for Collecting Bibliometric Data from Openalex. *The R Journal, 15,* 167-180. https://doi.org/10.32614/rj-2023-089

Aria, M., Misuraca, M., & Spano, M. (2020). Mapping the Evolution of Social Research and Data Science on 30 Years of Social Indicators Research. *Social Indicators Research, 149,* 803-831. https://doi.org/10.1007/s11205-020-02281-3

Baker, D. P., & Powell, J. J. (2024). *Global Mega-Science: Universities, Research Collaborations, and Knowledge Production*. Stanford University Press.

Belfiore, A., Cuccurullo, C., & Aria, M. (2022). IoT in Healthcare: A Scientometric Analysis. *Technological Forecasting and Social Change, 184,* Article ID: 122001. https://doi.org/10.1016/j.techfore.2022.122001

Bızel, G. (2023). A Bibliometric Analysis: Metaverse in Education Concept. *Journal of Metaverse, 3,* 133-143. https://doi.org/10.57019/jmv.1310768

Bouck, E. C., & Long, H. (2023). Academic Mathematics Instruction and Intervention for Students with Mild Intellectual Disability: An Updated Review. *Education and Training in Autism and Developmental Disabilities, 58,* 144-161. https://doi.org/10.1177/2154164723058002O3

Bouck, E. C., Park, J., & Shurr, J. (2021). Using the Virtual-Representational Instructional Sequence to Support the Acquisition and Maintenance of Mathematics for Students with Intellectual Disability. *International Journal of Developmental Disabilities, 67,* 217-228. https://doi.org/10.1080/20473869.2019.1640999

Coburn, C. E., Penuel, W. R., & Geil, K. E. (2013). *Practice Partnerships: A Strategy for*

Leveraging Research for Educational Improvement in School Districts. William T. Grant Foundation.

Collyer, F. M. (2018). Global Patterns in the Publishing of Academic Knowledge: Global North, Global South. *Current Sociology, 66,* 56-73. https://doi.org/10.1177/0011392116680020

Cook, B. G., & Odom, S. L. (2013). Evidence-Based Practices and Implementation Science in Special Education. *Exceptional Children, 79,* 135-144. https://doi.org/10.1177/001440291307900201

Cuccurullo, C., Aria, M., & Sarto, F. (2016). Foundations and Trends in Performance Management. A Twenty-Five Years Bibliometric Analysis in Business and Public Administration Domains. *Scientometrics, 108,* 595-611. https://doi.org/10.1007/s11192-016-1948-8

D'Aniello, L., Spano, M., Cuccurullo, C., & Aria, M. (2022). Academic Health Centers' Configurations, Scientific Productivity, and Impact: Insights from the Italian Setting. *Health Policy, 126,* 1317-1323. https://doi.org/10.1016/j.healthpol.2022.09.007

Dao, L. T., Tran, T., Van Le, H., Nguyen, G. N., & Trinh, T. P. T. (2023). A Bibliometric Analysis of Research on Education 4.0 during the 2017-2021 Period. *Education and Information Technologies, 28,* 2437-2453. https://doi.org/10.1007/s10639-022-11211-4

Enders, O. G., & Kostewicz, D. (2023). Secondary Teachers' Remote Instructional Practices in Mathematics for Students with Disabilities. *Journal of Special Education Technology, 38,* 50-60. https://doi.org/10.1177/01626434211059486

Fuchs, L. S., Bucka, N., Clarke, B., Dougherty, B., Jordan, N. C., Karp, K. S., Morgan, S. et al. (2021). *Assisting Students Struggling with Mathematics: Intervention in the Elementary Grades. Educator's Practice Guide. WWC 2021006*. What Works Clearing-House.

Fuchs, L. S., Fuchs, D., & Compton, D. L. (2012). The Early Prevention of Mathematics Difficulty: Its Power and Limitations. *Journal of Learning Disabilities, 45,* 257-269. https://doi.org/10.1177/0022219412442167

Fuchs, L. S., Seethaler, P. M., Fuchs, D., & Espinas, D. (2025). Intervention to Address the Needs of Students with Mathematics Learning Disabilities. In C. M. Okolo, N. Patton Terry, & L. E. Cutting (Eds.), *Handbook of Learning Disabilities* (p. 298). Guilford Press.

Greenman, S. J., Chepp, V., & Burton, S. (2022). High-Impact Educational Practices: Leveling the Playing Field or Perpetuating Inequity? *Teaching in Higher Education, 27,* 267-279. https://doi.org/10.1080/13562517.2021.2000384

Jammulamadaka, N., & Dick, P. (2026). Editorial: Decolonizing Academic Publishing—Responding to Systemic Issues and Disrupting the Status Quo. *Human Relations, 79,* 411-434. https://doi.org/10.1177/00187267261433753

Joswick, C., Skultety, L., & Olsen, A. A. (2023). Mathematics, Learning Disabilities, and Learning Styles: A Review of Perspectives Published by the National Council of Teachers of Mathematics. *Education Sciences, 13,* Article No. 1023. https://doi.org/10.3390/educsci13101023

Kuzhabekova, A., Hendel, D. D., & Chapman, D. W. (2015). Mapping Global Research on International Higher Education. *Research in Higher Education, 56,* 861-882. https://doi.org/10.1007/s11162-015-9371-1

Merton, R. K. (1968). The Matthew Effect in Science: The Reward and Communication Systems of Science Are Considered. *Science, 159,* 56-63. https://doi.org/10.1126/science.159.3810.56

Mickelson, R. A., & Bottia, M. (2009). Integrated Education and Mathematics Outcomes: A Synthesis of Social Science Research. *North Carolina Law Review, 88,* 993-1090.

Özdemir, S., & Kılıç, Y. (2023). Investigating Special Education Teachers' Views on Math-

ematics Instruction Process: Suggestions for Sustainable Special Education in Mathematics Instruction. *Sustainability, 15,* Article No. 3584. https://doi.org/10.3390/su15043584

Peng, P., Namkung, J., Barnes, M., & Sun, C. (2016). A Meta-Analysis of Mathematics and Working Memory: Moderating Effects of Working Memory Domain, Type of Mathematics Skill, and Sample Characteristics. *Journal of Educational Psychology, 108,* 455-473. https://doi.org/10.1037/edu0000079

Phuong, N. L., Hien, L. T. T., Linh, N. Q., Thao, T. T. P., Pham, H. T., Giang, N. T. et al. (2023). Implementation of STEM Education: A Bibliometrics Analysis from Case Study Research in Scopus Database. *Eurasia Journal of Mathematics, Science and Technology Education, 19,* em2278. https://doi.org/10.29333/ejmste/13216

Priyadharsini, V., & Sahaya Mary, R. (2024). Universal Design for Learning (UDL) in Inclusive Education: Accelerating Learning for All. *Shanlax International Journal of Arts, Science and Humanities, 11,* 145-150. https://doi.org/10.34293/sijash.v11i4.7489

Rao, K. (2021). Inclusive Instructional Design: Applying UDL to Online Learning. *Journal of Applied Instructional Design, 10,* 83-97. https://doi.org/10.51869/101/kr

Rojas-Sánchez, M. A., Palos-Sánchez, P. R., & Folgado-Fernández, J. A. (2023). Systematic Literature Review and Bibliometric Analysis on Virtual Reality and Education. *Education and Information Technologies, 28,* 155-192. https://doi.org/10.1007/s10639-022-11167-5

Shin, M., Simmons, M., Meador, A., Goode, F. J., Deal, A., & Jackson, T. (2023). Mathematics Instruction for Students with Learning Disabilities: Applied Examples Using Virtual Manipulatives. *Intervention in School and Clinic, 58,* 198-204. https://doi.org/10.1177/10534512221081268

Vlase, I., & Lähdesmäki, T. (2023). A Bibliometric Analysis of Cultural Heritage Research in the Humanities: The Web of Science as a Tool of Knowledge Management. *Humanities and Social Sciences Communications, 10,* Article No. 84. https://doi.org/10.1057/s41599-023-01582-5

West, J. E., McLaughlin, V. L., Shepherd, K. G., & Cokley, R. (2023). The Americans with Disabilities Act and the Individuals with Disabilities Education Act: Intersection, Divergence, and the Path Forward. *Journal of Disability Policy Studies, 34,* 224-234. https://doi.org/10.1177/10442073221114113

Wilson, J., & Hunt, J. H. (2022). Marginalized within the Margins: Supporting Mathematics Meaning Making among Students with Learning Disabilities. *The Journal of Mathematical Behavior, 67,* Article ID: 100982. https://doi.org/10.1016/j.jmathb.2022.100982

Witzel, B., Myers, J., Root, J., Freeman-Green, S., Riccomini, P., & Mims, P. (2024). Research Should Focus on Improving Mathematics Proficiency for Students with Disabilities. *The Journal of Special Education, 57,* 240-247. https://doi.org/10.1177/00224669231168373

Zhang, J., Martella, R. C., Kang, S., & Yenioglu, B. Y. (2023). Response to Intervention (RTI)/Multi-Tiered Systems of Support (MTSS): A Nationwide Analysis. *Journal of Educational Leadership and Policy Studies, 7,* 26.

Zhang, L., Carter, R. A., Qian, X., Yang, S., Rujimora, J., & Wen, S. (2022). Academia's Responses to Crisis: A Bibliometric Analysis of Literature on Online Learning in Higher Education during Covid-19. *British Journal of Educational Technology, 53,* 620-646. https://doi.org/10.1111/bjet.13191

Zupic, I., & Čater, T. (2015). Bibliometric Methods in Management and Organization. *Organizational Research Methods, 18,* 429-472. https://doi.org/10.1177/1094428114562629