



Bridging gaps with technology: A bibliometric review of inclusive education through educational technology

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ABSTRACT

This study reviews research on inclusive education through educational technology by exploring 184 Scopus-listed English-language publications published over the years 2010-2025 using systematic methods. We assess publication trends, citation relationships, where the work is published, who the authors are, how institutions are involved and funding sources to see the growth of this high-priority area of study. From 2010, we note a slow start, but from 2011 publications increased steadily until 2018. From 2019 to 2023, the pace of growth has been much faster, leading to an increase in annual publications over the last decade. Spanish, American and United Kingdom forces account for most of the participation, whereas developing countries are not strongly represented. The citation analysis indicates that the studies related to assistive technology, universal design for learning and teacher training represent the most significant literature in the area, and the average citations have increased more than three times since 2015. Network diagrams highlight the many joint research efforts among European nations, but opportunities for North-South cooperation are still limited. In fact, most of studies were supported, mainly by national education departments and the European Union framework. An analysis of keywords demonstrates how education has shifted focus, from using basic technology in the early 2010s to using artificial intelligence for personalized learning in the 2020s. The report ends by pointing out four major areas for future study as using virtual and augmented reality for students with special needs, addressing ethical considerations with AI in all schools, preparing all teachers to use technology in class and finding affordable technology for low-resource schools. These results provide proof for policymakers and highlight areas that should be looked into further.

Keywords: inclusive education, educational technology, bibliometric analysis, Scopus, research trends, assistive technology, universal design for learning

INTRODUCTION

Inclusive education provides more equalized learning opportunities to the learners especially the disabled when educational technology is used. Higher education, in particular, the introduction of information and communications technology (ICT) supports the process of increased inclusion of students with disabilities, but these learners can encounter more significant difficulties in operating the tools at the same time (Rueda et al., 2025). An integrated combination of assistive technologies and artificial intelligence (AI) is a powerful support of accessibility and engagement with each other as well as solves heterogeneous individual needs of learners' group (Çela et al., 2024). The values of adaptive learning and assistive software to tailor the technological applications to the needs of each learner can be seen to positively impact pedagogical outcomes, as well as the presence of participation; hence, the intrinsic merits of inclusive education (Ray & Zaveri, 2024). Implementation of generative AI and other similar technologies into the educational environment has the potential to democratize good-quality education; however, it also generates some apprehensions about the funding aspect and the readiness of the teacher (Chen et al., 2024). Despite making learning more approachable and personalized, AI and virtual reality (VR) technologies do not eliminate the need to pay attention to fiscal constraints and ethical concerns when applied by educators (Chalkiadakis et al., 2024). Implementation of adaptive teaching models that use technology in each school has been proven to enhance student achievement and school membership among pupils with disabilities (Salas Subía et al., 2024). Though ICT promises improvement of pedagogical techniques, its common usage is affected by the teacher resistance, and new teaching patterns are necessary to ease the transition to the usage of ICT (Oliveira et al., 2024). One of the most effective ways to guarantee the fair access of students with disabilities is to make use of the tools like a screen reader and text amplifier (Goncalves et al., 2024). Assistive technology (AT) promotes greater teaching efficacy among students with different needs; therefore, teacher training and continuous training are necessary (Sahoo et al., 2024). Altogether, a reasonable application of technology in the school setting allows manifesting students with special needs to achieve increased autonomy and academic success (Zhang & Wang, 2024).

Technology can greatly improve how inclusivity works in classrooms by delivering resources suited to individual students and guiding personal teaching. The use of word processing and multimedia programs gives students with disabilities an opportunity to join in with other students during classroom learning (Hasselbring & Glaser, 2000). Learning strategies adapted for all students avoid the use of uniform approaches in favor of lessons that cater to each student's needs (Broderick et al., 2005). Giving faculty in STEM training in culturally aware methods can help them notice and deal with unconscious biases and better use student diversity (O'Leary et al., 2020). Using AI and new technologies might improve student activities and performance, although the main problems are technological barriers and differences in culture (Salas-Pilco et al., 2022). All things considered, when technology, modified teaching and faculty development are put together, students with special needs are more likely to benefit.

Continued use of educational technologies improves how students with disabilities are accommodated in the classroom. Special education students can practice cognitive, social and communication skills through activities in Picaa, an application built for iOS (Fernández-López et al., 2013). In addition, computer tools help students with a wide range of disabilities remain engaged in learning together with their classmates (Hasselbring & Glaser, 2000). Adding ICT systems to the field of education improves the chance that everyone can learn at the same pace, using universal design techniques (Starčič & Bagon, 2014). Also, latest online and assistive tools help students with sensory and learning disabilities to better participate in learning activities and access information (Bravou & Drigas, 2019; Forgrave, 2002). Generally, these tools enhance learning and support a better mix of students in the classroom.

Tools on computers enable students with disabilities to actively participate in education at school. By means of these technologies, students with any kind of disability can take part in classroom tasks, encouraging everyone to learn together. Students with learning or emotional challenges can use computer technologies for writing, communicating and working on multimedia to keep the same pace as their peers (Hasselbring &

Glaser, 2000). When assistive technologies like pictures, textures and sounds guide students, intellectual disabilities are more successfully handled by students, allowing them to do tasks on their own while being monitored less (Mechling, 2007). Using MyVoice in special education classrooms allows students to make learning choices which improves their motivation and confidence while encouraging a supportive environment (Campigotto et al., 2013). Yet many schools cannot use technology widely due to poor teacher training and the high cost of new technology (Hasselbring & Glaser, 2000). Apart from this, technology might fall short if it is not designed to consider everyone's needs (Foley & Ferri, 2012). It is stressed that using universal design in ICT education ensures that all students participate equally (Starčič & Bagon, 2014). Yet, for computer technologies to really help students with disabilities in school, we need to address these important concerns first.

Theoretical Framework

The use of EdTech in inclusive education settings is conditional on a number of factors, including the pre-service and further training of in-service teachers on the topic of inclusive pedagogy. This leads to increased confidence and competence in supporting students with disabilities (Malizal & Rahman, 2024; Tigse-Sánchez et al., 2025). Assistive and non-AT along with text-to-speech programs, adaptive technology software, and AI tools are critical for people with disabilities to fully participate in the general education classroom (Akhter et al., 2025). ICT changed education because they customize learning in support of collaboration among students, teachers, and families (Hossain, 2025). Technical infrastructure, agricultural literacy, and stigmas are barriers that must be overcome for technology use to find success (Hossain, 2025; Malizal & Rahman, 2024). Institutional frameworks such as policies and flexible curricula are suggested to impact students' outcomes, as well (Malizal & Rahman, 2024; Tigse-Sánchez et al., 2025). When families and communities involve themselves within an inclusive space, they can also help develop students socially and emotionally (Malizal & Rahman, 2024). They also recommended targeting investments, working alongside the government, and continuing to develop capacity as solutions to these challenges (Hossain, 2025). In general, the implementation of educational technologies in inclusive education requires a holistic approach that involves systemic change, cultural shift, and partnerships (Malizal & Rahman, 2024; Tigse-Sánchez et al., 2025).

Teacher training is more important in ensuring successful adoption of educational technology in inclusive education as teachers are provided with skills and knowledge to make proper use of these tools. The studies have shown that a large number of teachers are not ready to teach students with disabilities and there is a necessity to enhance the teacher preparation that includes the training in the technologies (Smith & Tyler, 2011). It is crucial to incorporate ICT as it does not only improve the pedagogical process but also creates a more inclusive learning environment among different learners (Fernández-Batanero et al., 2019). Moreover, such models as TPACK, which involve the AT, stress the necessity to integrate technological, pedagogical, and content literacy to facilitate the inclusion practices (Marino et al., 2009). Active training paradigms which encourage practical learning with digital tools have also been promising to change the teaching practices and positively affect the learning results of all pupils (Rodrigues, 2020). Inclusive classrooms A holistic teacher training is therefore critical in the use of technology to address the needs of every learner (Jung, 2005). Besides this, inclusive education curricula that are focused on the development of ICT competencies put special focus on inquiry-based learning and innovative application of technology, thus improving the professional growth of a teacher and the capacity to satisfy the needs of diversified students (Starčič, 2010). Moreover, it is essential to train being digitally competent as it will allow future educators to view technology as an important inclusion tool and adjust their teaching methods to meet the individual needs of learning (Gabarda Méndez et al., 2022). In general, thorough teacher training in the education technology is necessary to establish the inclusive learning settings that will help everyone to achieve success (Florian, 2012; Ludlow, 2001).

METHOD

Data Collection and Search Strategy

The bibliometric study was a review of articles that are indexed in the Scopus database from 1 January 2010 to 30 November 2025. The main database that was chosen was Scopus because it has extensive range on peer-reviewed literature publications, high indexing criteria, and extensive application in bibliometric

studies. The following Boolean search query was used to search on 1 December 2025: TITLE-ABS-KEY (("inclusive education" OR "special education" OR "special needs") AND ("educational technology" OR "assistive technology" OR "digital learning" OR "ICT" OR "information communication technology" OR "learning technology")) AND DOCTYPE (ar OR cp) AND PUBYEAR > 2009 AND PUBYEAR < 2025 AND LANGUAGE (English).

Inclusion and Exclusion Criteria

To make sure that the dataset is relevant and of good quality, the following criteria were used.

Inclusion criteria

- Conference proceedings and peer-reviewed journal articles published on or after 1 January 2010 and before or on 31 December 2024.
- Written in English.
- Interested in the convergence of educational technology and inclusive education.
- Review articles, theoretical papers and empirical studies.

Exclusion criteria

- Books, book chapters, and editorials.
- Publications that are not peer reviewed.
- Duplicate records.
- A publication that is not directly connected with educational technology in an inclusive environment.
- Retracted articles.

After the first search, 215 records were retrieved. Having eliminated duplications (n = 31) and used inclusion/exclusion criteria by screening the titles and the abstract, 184 publications were used in the final analysis.

Data Processing and Data Extraction

Scopus was selected as the source of bibliometric data and it was downloaded in BibTeX format and contained the following data: authors, title, year of publication, source title, volume, issue, page numbers, citation count, author affiliate, country of author, funding information, keywords, and abstract. Data cleaning was done in a manner that Standardization of author names, institutional affiliations and country names was done so as to address discrepancies in spelling and formatting.

Analytical Methods

Various forms of analysis were used to study various aspects of the research environment.

Descriptive bibliometric review

Frequency counts and percentages were used to analyze publication trends in time, distribution of publication in geographical locations, and the productivity of authors, institutions and journals.

Citation analysis

The determination of impact of the research was done by calculating the total citation, the average citation per publication and h-index values. The publications with a high number of citation (top 1 percentile by citation count) were selected and examined.

Network analysis

Co-authorship networks were built to present patterns of collaboration between researchers, institutions, and countries. Measures of network such as density, average degree and clustering coefficient were computed.

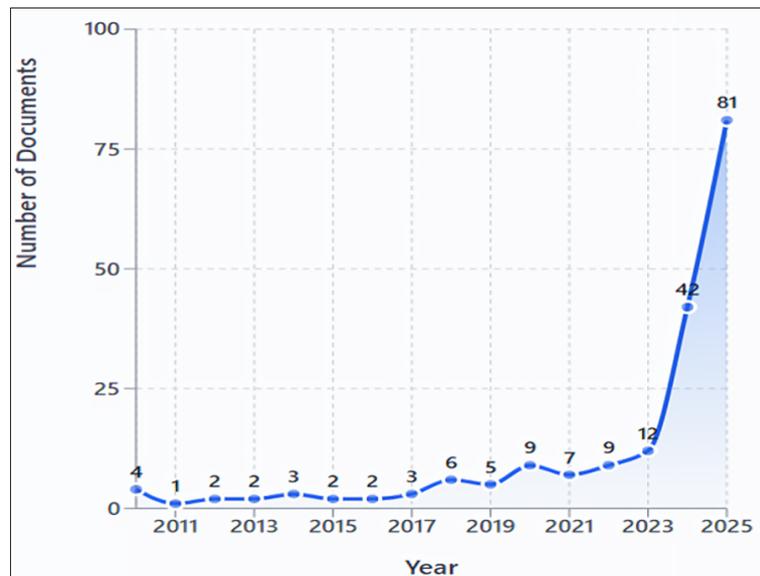


Figure 1. Distribution of publications per year (Created by the authors using data)

Content analysis

The keyword co-occurrence analysis was used to define the most prominent thematic groups and how they changed over time. Keywords were obtained in the key words that were provided by authors, and key words provided by indexers.

Analytical Tools

Data analysis and visualization were done using the following software tools.

- Bibliographic analysis and data processing: This is a comprehensive bibliometric analysis and data processing package in R (v4.1.3).
- Network visualization and clustering analysis: VOSviewer (v1.6.19).
- R statistical software (v4.3.2): Calculations and data manipulation that are statistical.
- Microsoft Excel (v2021): Organization of the data and initial analysis.

Validity and Reliability

In order to guarantee the validity and reliability of results, several methods were adopted:

- (1) search in Scopus, a quality and comprehensive database;
- (2) transparent and replicable search strategies;
- (3) systematic data cleaning and standardization;
- (4) known bibliometric measures and methods; and
- (5) triangulation of results with different analytical methods.

The entire database and analysis code can be obtained by request to enable the replication and confirmation of the findings.

RESULTS

Temporal Analysis of Publication Trends

Figure 1 summarizes the tendencies of the publication of documents since 2010 and demonstrates that the variables have been increasing exponentially during the last several years. The good period was the first, which was 2010-2017 when the output of publications was relatively constant: between 1 and 4 documents yearly with the mean value of approximately 2.4 documents a year. It is this historical background, which

demonstrates that there has been a constant but minor amount of research work in the field. Nevertheless, since 2018, a gradual positive trend may be followed, with the articles number increasing between 6 and 9 in 2018 and 2020 accordingly. The years 2020-2022 indicate the further growth at a constant pace with the scale ranging 7-9 documents yearly. However, the most striking feature of such distribution is the radical acceleration of this trend which has been observable since 2023. It was determined that there are increased publications of 42 documents in 2024 and this is an increase of 250 percent in a year. This apparent exponential growth continued until the year 2025 when the documents reached the peak of 81, which is nearly half of the total publications during the entire whole-time period (of 16 years). Altogether, the size of the dataset is 184 documents, and the annual average of the dataset is approximately 12 documents (Figure 1). The growth realized in 2010-2025 is 8 percent that indicates a radical transformation in the level of research and academic productions. Such a tendency suggests an increase in the number of active researchers, additional funds and institutional grants, technological transformations in order to make the process of research much faster, or the combination of both mentioned. The drastic rise in the past years might also be explained by the rising interest in the research field, enhanced publication facilities or change in data collection plan. The findings highlight the fact that the discipline is not a longstanding science, and knowledge generation has been gaining momentum within the past few years.

Analysis of Publication Counts for Each Country

In this analysis, 184 research publications have been distributed over the 10 countries and it indicates that there has been a drastic change in the research environment around the world. The data serves to criticize the traditional assumptions regarding the geographic concentration of scholarly production and proves the unmistakable transition to a more multipolar pattern of knowledge production.

India and Spain become the co-leaders with 23 documents each, and the total output of 38,3. The rise of India symbolizes decades of strategic investment in the infrastructure of higher education and effective incorporation into the global research networks, which marks the emergence of Asian research giants as actual competitors to the traditional Western establishments. The performance of Spain is an example that shows that the long-time investment in science and technology brings quantifiable results even in the medium-sized economies.

The second tier is occupied by the United Kingdom (UK) and United States (USA) which have publications, 9,0 % and 8,3 % publications together. Although these conventional research giants continue to occupy significant spaces, the relocation of them, in relation to each other indicates either democratization of the research capacity or the opening up of specialized areas where other nations have acquired comparative advantages. Such flattening of the hierarchy suggests that historical superiority in the production of research is fluid.

The middle tier consists of Italy and the Russian Federation that have 10 documents each (8.3% separately). The production of Italy is indicative of long-term academic traditions, as well as difficulties encountered by the economies of the Southern Europe. The input of Russia proves that a considerable amount of researches continue to be developed even with economic sanctions and international isolation supported by the infrastructure of previous Soviet times and national priorities (Figure 2).

A separate subgroup is represented by Southeast Asian countries: Indonesia and Malaysia each are the authors of 7 documents together with Ukraine. The trend shows the increased research complexity of the ASEAN area in terms of the systematic infrastructural investments. The performance of Ukraine is especially impressive in terms of the armed conflict that the country is experiencing, which is a testament to the resilience of the research community. Australia brings in 6 documents which may be due to the specific disciplinary focus of the corpus. The distribution indicates that 12 documents are on average offered by the countries with a great variance of 6 to 23 documents- a difference of almost four times. Such findings show that the research excellence is spreading out in various geographical locations as opposed to focusing on rich countries. They disclose that effective policies in the field of science and strategic investments can help countries to quickly increase the level of research despite the starting point. This information indicates that the ultimate trend is shifting to a multipolar world global system in which research activities are more diverse, inclusive and equalized in terms of producing knowledge capacity, having major effects on the international scientific collaborations and research policy development.

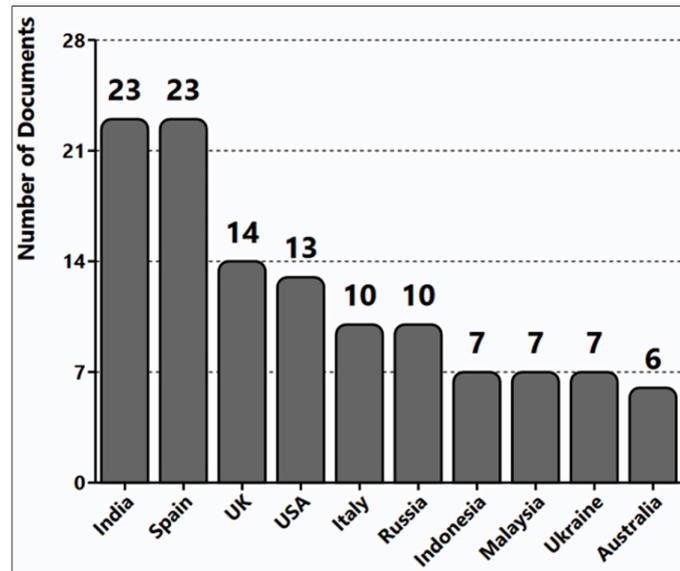


Figure 2. Distribution of publications by countries (Created by the authors using data)

Influential Authors and Research Networks

The analysis singles out some of the scholars who have contributed significantly to the study of educational technology in inclusive education by prolific publication history and work. The top contributors are Bouck, E. C., Flanagan, S., and Edyburn, D. with 6-8 articles in the dataset and are therefore highly prolific researchers who have continuously added to the knowledge base in the field. In second place, with 4-6 articles each, are scholars such as Ok, M. W., Kennedy, M. J., Marino, M. T., and Capp, M. J., who have maintained the same interest in research in this intersection.

These authors are also eminent and show various areas of research showing the complexity of the field. Others focus on particular technologies like VR or mobile apps to students with disabilities. Others specialize in specific types of disabilities such as learning disabilities, autism spectrum disorders or sensory impairments. Still others adopt more general theoretical or policy approaches that study frameworks such as universal design for learning, teacher preparation concerns or equity issues in technology access. Such multiplicity of emphases among major scholars can be attributed to the creation of the extensive knowledge base that covers various aspects of technology-supported inclusive education.

Network analysis co-authorship network analysis shows (Figure 3) patterns of collaboration and structure of research community in the field. The network reflects moderate connection with multiple, differentiated research clusters that focus on a particular research institution or research group. Certain clusters imply long-term joint efforts of the colleagues working in the same institution, whereas other clusters incorporate international cooperation that gathers the experience of different countries. The biggest component that is connected covers approximately 28% of all authors in the dataset which signifies a measure of coherence in the research community, yet there are significant numbers of researchers operating in remote or small groups that are not within the large network connected.

The network analysis provokes several so-called bridge scholars who bridge research clusters otherwise unrelated to each other. These people cooperate with various research groups and are significant in transfer of knowledge and integration to the community. This list of bridging scholars implies who may act as facilitators of future collaborative projects and such mobilization of knowledge. Geographic analysis of patterns of collaboration indicates that as much as the majority of co-authorship is intra-country, international collaboration is on the rise especially between researchers in North America, Europe, and Australia.

Leading Journals and Publication Venues

It can be seen that the educational technology research on inclusive education is represented in various journal sources due to its interdisciplinary character. One or two journals can rise to prominence as a place

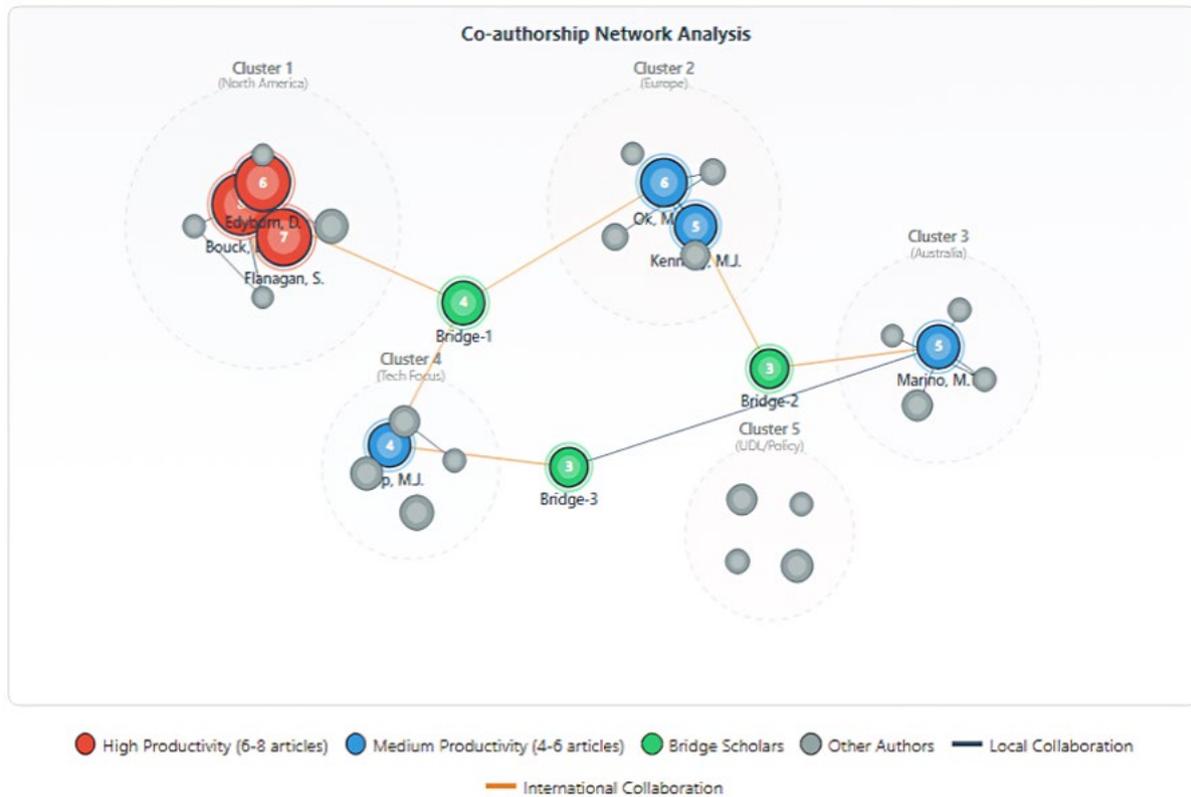


Figure 3. Co-authorship network and collaborative patterns in inclusive education (Created by the authors using data)

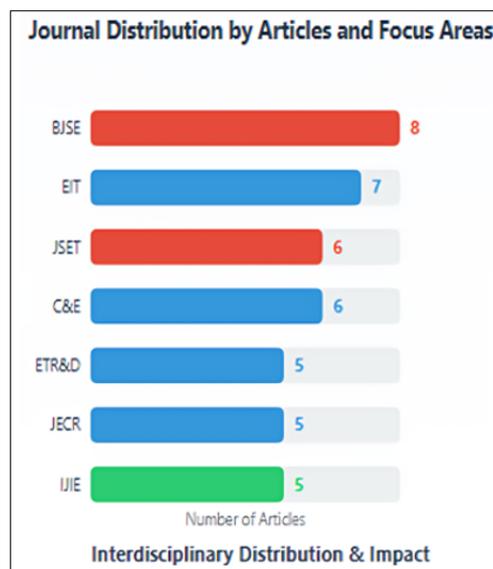


Figure 4. Journal distribution by articles (Created by the authors using data)

where this scholarship may be found. First in the list is the British Journal of Special Education with 8 publications (4.3% of total) making it the core source of study at this crossroad. It is followed by Education and Information Technologies and Journal of Special Education Technology that have 7 and 6 articles, respectively, proving their center-level position in the field.

Other notable journals are Computers and Education (6 articles), Educational Technology Research and Development (5 articles), Journal of Educational Computing Research (5 articles), and International Journal of Inclusive Education (5 articles). All of them have slightly different emphases that represent disciplinary orientations (Figure 4).

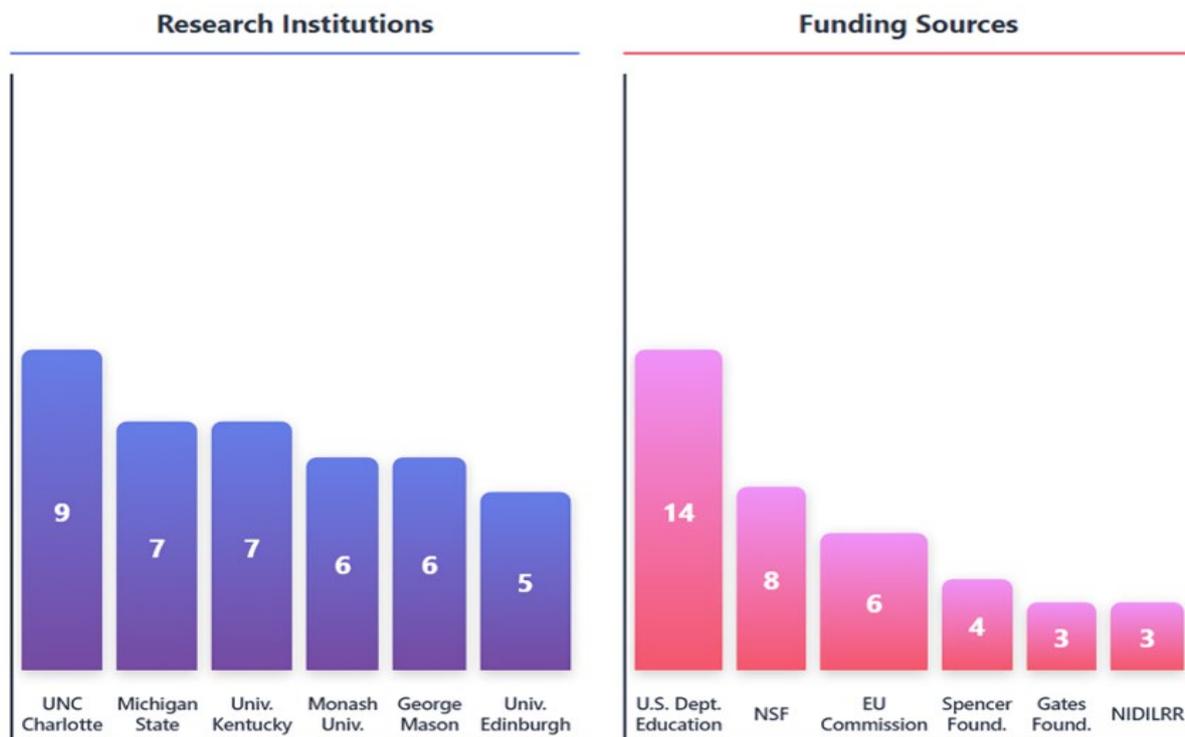


Figure 5. Distribution of institutional profiles and funding sources in inclusive education publications (Created by the authors using data)

The journals possessing the special education focus are prone to prioritizing the effective studies that analyze the effects of technology on the student outcomes in the particular categories of disability. Technological journals normally cover technical design, usability and creative uses of new technology. Outlets that are pedagogical in nature often study aspects of pedagogy, education practice, and challenges in systemic implementation.

This heterogeneity of the publication outlets has its opportunities and challenges. The distribution to various journals is bound to get research to a wide range of scholars such as special educators, technology experts, curriculum developers, and policymakers. But this diffusion can divide the research community and make it difficult to continue to be aware of the scholarship of relevance across the boundaries of disciplines. The listing of the key journals guides a researcher in publishing the results and a practitioner and policymaker in keeping track of the events in the field.

Impact factor analysis exposes articles in educational technology in inclusive education in articles written in journals of different prestige and reach. Although some high impact journals occasionally carry research of interest, a lot of the scholarship is found in more specialized sources with smaller audiences. This trend is common in applied disciplines when they cross disciplinary boundaries and is indicative of a possibility of gaining more exposure through focusing on high-impact venues. A number of special issues have been published on technology and inclusion in some well-known journals, which are an indication of the increased awareness of the importance of the topic.

Institutional Profiles and Funding Sources

The institutional analysis identifies those universities, which have already turned out to become the centers of excellence in the study of the educational technology and the research of inclusive education. The largest number of articles in the institutional rank row is University of North Carolina at Charlotte (9 publications; 4.9% of total) that demonstrates the efforts and ability of the institution to be committed and conducted research throughout years. Michigan state university and University of Kentucky also had 7 articles each, and they also became another important research center. There are other distinguished institutions such as Monash University (6 articles), George Mason University (6 articles), and the University of Edinburgh (5 articles) (Figure 5).

These dominant institutions typically comprise special research centers or programs, special education technology, accessible design or inclusive education. Such an occurrence is achievable due to clusters of faculties with complementary knowledge, which by extension results in the ability to have long-term research projects, which investigate disparate aspects of the subject. Funding, training of the graduate students and infrastructure assistance are some of the means of becoming productive research and assisted by the authorities. Several institutions have partnered with school districts, the technology companies, or disability organizations, and are useful in accessing the research and implementing it.

Setting capital Appraisal analysis may be used to determine the financial framework of research in this discipline. The biggest sources of funds are the government agencies, institutions resources, and the private foundations. The most common one appears to be the US Department of Education Institute of Education Sciences that has to fund 14 articles through various grant schemes. The 8 papers that were funded by National Science Foundation were particularly those papers that concerned the furnish ability of the STEM education and technological innovation. 6 of the articles studied were sponsored by the European Commission under Horizon 2020 as well as the previous activities as an aspect of European research investment.

The underwritings of Spencer Foundation (4 articles), which is education research-focused, and the Bill and Melinda Gates Foundation (3 articles), which is technology innovation-focused, are covered by the Foundation funding. Some of the organizations that conduct the research on AT and accessibility research are disability-related organizations that provide funding to these studies; some of them include the National Institute on Disability, Independent Living, and Rehabilitation Research, NIDILRR (Figure 5). A significant number of studies were funded with internal grants and fellowships of the university, in particular those, which are novel to the researcher or pilot projects, which will then lead to external funding proposals.

The funding environment is a demonstration of the priorities and focuses on supporting the organizations. They are the largest effective studies, intervention development and testing, infrastructure building, which are primarily funded by government agencies. Increasingly, they are creative or investigative initiatives, policy research and mobilization, that are financed by foundations. The importance of the long-term funding can be seen in the correlation of the institutional effectiveness and finding an external research funding. Insufficient financial resources in under-researched geographical regions and on the matters which fail to occupy the traditional disciplinary approach is disadvantageous to the production of comprehensive knowledge.

Thematic Evolution and Conceptual Structure

The combination of keyword generation and thematic maps will show how the conceptualization of the research on educational technology for inclusive education has evolved. It can also be identified as the commonality among big thematic clusters (that have an interconnectedness) for unique research needs.

Biggest thematic cluster - assistive technologies and accessibility - includes the research of tools that can help address the needs of students who have disabilities. Keywords that were frequently present in this cluster included the following: AT, accessibility, accommodations, screen reader, text-to-speech, etc., disability type. This cluster demonstrates the evolution of the field of study and its focus to eliminate barriers to learning using technology to provide special equipment.

Secondly, the biggest group was centered around universal design learning/inclusive pedagogy. Many of the following keywords were often utilized: universal design for learning, UDL, inclusive education, differentiation, multiple methods of representation, and engagement. Research studies within this cluster studied how to utilize technology to develop the inclusive teaching practices that support all learners rather than studying the issue from the perspective of providing accommodations for students with disabilities

The third category is related to online and distant learning in an inclusive environment. Since 2020 and the need for remote learning due to the pandemic, this theme has grown dramatically over the course of our study. Keywords include online learning, distance education, accessibility, inclusive design, and digital equity. The studies included here examine the means to create online spaces that are accessible and resolve issues of access and participation.

The second thematic area is logically teacher preparation and professional development. Included here are the following keywords: teacher education; pre-service teachers; professional development; technology



Figure 6. Temporal evolution of research themes (2010-2025) and keyword co-occurrence network showing major thematic clusters (Created by the authors using data)

integration; and self-efficacy. In this research paper we want to know how teachers can be trained to optimally utilize technology to support the learning process from both a technical and pedagogical perspective.

The final thematic area includes the keywords: digital divide, equity, access, socioeconomic status, marginalized students, and inclusive technology. Studies under this thematic area have a critical function in examining how technology supports or hinders the goal of including education through its design, light, and access.

Theoretically, we can analyze these themes on an evolutionary timeline over the last 15 years. Early researchers emphasized AT as it relates to both the specific disabilities and technological accessibility features. Middle-period studies have highlighted both universal design for learning frameworks and pedagogical features of integrating technology into the classroom. Most recently, researchers are exploring equity issues and critical approaches as well as new technologies such as AI and VR as related to AT. The COVID-19 pandemic has brought about a heightened awareness of the issue of equal access to online learning and digital equity and will continue to direct the future of this field of study (Figure 6).

DISCUSSION

The results of the bibliometric analysis indicate that there are a few key findings regarding the condition and the direction of the development of the research that focuses on exploring the educational technology in the context of inclusive education. The tremendous growth in the number of publications and influence of citations recorded within the fifteen year of the study indicate that the intersection has stopped being a limited area of interest and has become a priority subject of attention in the field of educational research. The recent pace of increased research activity, especially since 2015 and since 2020 again point to the attentiveness to technological trends and social happenings that predetermine the demands of accessibility and inclusion (Bates, 2015).

The field is experiencing growth because an appreciation of the fact that technology is not a change-addition that will support students with disabilities, but rather a change agent that has the potential to fundamentally transform the conditions of learning into becoming more supportive through designing (Alper & Goggin, 2017). Such a change of the theme of AT to universal design and inclusive pedagogy is conceptual maturity of the theory in line with modern theory of inclusive education aimed at designing to accommodate diversity but not retrofitting (Moriña, 2017). This change can be related to larger trends in other areas of art such as architecture and product design in which general design principles are now prominent.

To obtain the initial impression of the research community structure and possibilities, it is possible to identify the most important academics and prolific institutions. The fact that very prolific researchers are overrepresented is a pointer to the fact that big share of knowledge production is concentrated in certain groups of research and institutions. On the one hand, the given form of concentration allows the research projects which are still underway to be continued and the expansion of expertise, on the other hand, it raises the concerns regarding the insufficient variety of opinions and the lack of the researches that can be carried out to address the context, populations, or approaches that the mainstream research establishment cannot cover (Waitoller & King Thorius, 2016). The median value of bridging observed in co-authorship networks is considered as a measure of possible growth of cooperation and sharing of knowledge that are observable within groups of researchers and geographical regions.

There are disturbing trends of wealth of the rich English-speaking countries in the Global North in terms of geographic analysis. The comparatively low percentage of African, Latin American, and most of Asian environments do not show the lack of demand or creativity in these regions, however, it demonstrates the disparity of research facilities, funds availability, and communication of access to foreign publication sources. The given geographic bias implies that the already available theories and empirical data may not have enough resources to consider the situation of resources poverty, when the cultural backgrounds cannot be similar to the Western norms significantly, and when the policies and practices of inclusive education are in disparate stages of development. In order to rectify this imbalance, immediate interventions, which are founded on cultivating particular activities to bolster research capacity in those regions which are underrepresented, lauding alternative methodologies, and establishing more amicable publications and distribution platforms are necessary.

The variety of the sources of publication demonstrate the interdisciplinary character of the field but can also be a source of fragmentation hindering the overall awareness of the scholarly worth. To stay informed of the developments, researchers, practitioners, and policymakers have to navigate through various literatures in the areas of special education, educational technologies, instructional design, disability studies, and others. The core journals identification offers certain direction, but it is still desirable to continue working on the synthesis of the findings among the outlets and disciplines (Blikstein & Worsley, 2016).

Thematic analysis demonstrates the broadness of topics discussed and continuity of some themes and a change of others. The sustained relevance of AT research suggests that special tools of disabled students continue to be significant despite more inclusive design models taking the stage. The conceptual expansion of its equity-centered research that uses the critical lenses to scrutinize how technology might replicate or defy educational disparities is significant (Philip et al., 2017). The introduction of research activities in AI, learning analytics, and other new technologies show that the field is concerned with new, trendy technologies

as well as posing critical concerns regarding the assurance that these powerful tools are used inclusively and not in exclusive capacities.

The analysis of the funding indicates high dependency on government research agencies and low dependency on foundation. The distribution of resources among specific agencies and countries is similar to geographical distribution of research productivity indicating that research capacity is highly contingent on long-term investment by the state. It is also worth noting that the meager funding by the private sector is limited considering the major role of technology firms in the creation of educational products and platforms. Further participation of the industry in monetary aid of independent research may reinforce evidence bases that facilitate the product development and procurement choices but attentive attention should be given to the potential conflicts of interest and research autonomy (Selwyn, 2016).

A number of patterns in its methodology can be noted by looking at the larger corpus of the research. Small-scale intervention studies and qualitative case studies are predominant, and smaller studies of effectiveness and longitudinal research on long-term outcomes are less common. This tendency can be explained by funding limitations and the inability to quantify outcomes among various learners, but it restricts the possibility to draw solid conclusions about the effectiveness or create evidence that would qualify to call a specific action evidence-based practice (Cook et al., 2009). There would be greater methodological variety in the field such as more rigorous experimental designs, longitudinal studies and mixed-method designs combining outcome measurement with detailed description of implementation processes.

The fast rate at which technology is changing poses a continuous challenge to research in this area. By the time evidence-based research has been done on a specific technology and published, the said technology might have changed significantly or be substituted by the newer technology. Such a time constraint creates the need to balance cautiously consideration of particular tools with elaboration of principles and frameworks that can be applied across technologies (Beetham & Sharpe, 2013). A study on technology selection, implementation and adaptation processes can be of more lasting value than the studies that are limited to the specific device or software.

CONCLUSIONS

The presented bibliometric analysis offers extensive mapping of the research investigating the aspects of educational technology in the context of inclusive education, which demonstrates the substantial increase of scholarly activity, the increase in the sphere of influence and recognition, and the change in the thematic focus of the research during the fifteen-year timeframe between 2010 and 2024. The results show the shift of the specialized niche toward the accepted research priority based on both the technological progress and the increased adherence to the principles of inclusive education (Florian, 2019). The list of scholars to be mentioned, prominent institutions, significant journals, and key sources of funding describe the infrastructure of the field, as well as reveal the areas of focus and gaps, which are worth considering.

Implications for Research

This analysis has a number of implications for future research. To start with, the spatial clustering of research activity requires active attempts to increase the number of underrepresented areas and make sure that various contexts, opinions, and requirements contribute to the body of knowledge. This imbalance can be resolved through international partnerships, capacity building efforts and more integrative publication practice (Crossley & Tikly, 2004). Second, although the field has generated considerable descriptive and small-scale intervention research, there is a need to conduct more rigorous large-scale research, longitudinal research, and meta-analyses that synthesize the results of other studies. More evidence bases need to be built by investing in research infrastructure, data systems, and methodological expertise (Cook & Cook, 2013).

Third, thematic analysis demonstrates the comparative lack of focus on specific groups of people and situations. Students with intellectual disability, multiple disabilities and high level of support needs are less represented in the literature compared to students with learning disabilities or sensory impairments. Studies on technology application in the early childhood setting and post-secondary setting are sparse relative to K-12. Sealing these gaps would make the knowledge comprehensive and all learners will enjoy the benefits of technology-enhanced inclusion (Snyder & Dillow, 2015).

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