Global Trends on Adoption of Online Distance Learning and Access to Higher Education Institutions for Visually Impaired Students During COVID-19: A Bibliometric Analysis

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ABSTRACT

This study conducted the bibliometric analysis global trends on adoption online distance learning and access to higher education institutions for visually impaired students during COVID-19 pandemic of which 54 empirical article publications were analysed between 2019 to 2025 from dimension scientific database. Using the VOSviewer 1.6.20 software established bibliometric visualization networks on the most influential authors, leading universities, countries, journals and co-authorships. The findings indicate worldwide visually impaired students and parents had inadequate online distance learning skills during lockdown in the period of COVID-19 pandemic. Consequently, the study revealed that developed countries had higher rate of article publications and strong link of collaborations such as Russia, United States and United Kingdom in ODL than the developing countries like Chile and Nigeria in ODL. Also, the results revealed unawareness, limited knowledge of institutions to adopt ODL and lack of clear policies hinder effective implementations of ODL. This bibliometric analysis offers critical understanding for educational stakeholders and policy makers to formulate equitable and inclusive education policies in low-income countries and pave the way for further research on ODL.

Keywords- Online Distance learning, Visual impairments, COVID-19 pandemic, Access to education, Higher learning institutions, Digital inclusion

INTRODUCTION

An estimated 1.6 billion of students were disturbed by university and school closure in the world because of outbreak of the COVID-19 pandemic, which represents 94% of the world-wide student's population of which it is extraordinary record in the history of education (UNESCO, 2020a). A bibliometric analysis was conducted from between 2019 to 2025 to explore the trend of adoption of online distance learning (ODL) in higher learning institutions for pupils with visual impairments during COVID-19 pandemic. Following this situation, learning among students became challenge because students at home could not afford learning resources. Mode of delivering education were changed from face to face to online distance learning (ODL). This sudden change has detrimental implications for disadvantaged students specifically those with disabilities including visually impaired students. ODL brought an opportunity to enhance access to education by students with visual impairments in higher learning institutions, while, Higher learning institutions dealt with the pressure of the pandemic, the need of digital learning environment urgently increased (UNICEF, 2020b; OECD, 2020). In Alignment of International agreements, including United Nations Sustainable Development Goals (SDGs, goal 4), the African Charter on the Rights and Welfare of the Child (ACRWC), the United Nations Convention on the Rights of the Child (UNCRC) (article 28) focus on safeguarding visually impaired students receive the support they need to succeed by advocating the implementation of integrative education polices and frameworks that carter to diverse education needs. Most of Higher learning institutions adopt online learning education following the lockdown rules indorsed during COVID-19 pandemic period (Ouma, 2019; Menzli et al., 2022;

Manyengo, 2021; Ndibalema, 2025; Sungwa, 2025; United Nation, 2015). Although there was abrupt shift to ODL during COVID-19 pandemic, higher learning institutions faced number of difficulties and obstacles due to lack of awareness, unclear ODL polies and guidelines and improper monitoring and evaluation practices of ODL (Marín et al., 2022; Mičunović et al., 2023; Ndibalema, 2024).

Current evidence reveals that implementation of ODL in higher learning institutions faced inadequate support system mechanisms, poor Institutional management support, infrastructures, and absence of digital culture (Ndibalema, 2025; Ndibalema, 2024; Tlili et al., 2022; Asadullah and Bhattacharjee, 2022). The implementations of ODL in many higher learning institutions were inadequate due to limited knowledge. However, evidence indicated that the use ODL remain minimal, specifically for those students with visual impairments, who face critical hinderance on accessing digital resources (Cheung et al., 2023; Hatzigianni, M., et al., 2023; UNICEF, 2020; Mishra, 2017). It is noticed the exiting of ethical violation on adoption of ODL due to limited skills and understanding, improper monitoring and evaluation practices. Basing on this study, ODL considered as medium of teaching and learning higher learning institutions which enhance access to education by student with visual impairments through flexible education and adaptive technologies, emphasize made on sufficient support systems, integrated education and international design (UNESCO, 2020a).

Most of developing countries adopted Online distance learning since the outbreak of COVID-19 pandemic to help students access to education in higher learning institution particularly those with visual impairments, it is revealed that less developing countries faced limitations in alignment of regulatory principles of Lockdown from COVID-19 pandemic including poor learning management system to ensure quality of adoption of ODL. In Tanzania, a study by Ndibalema (2024) reported that Instructors in Higher learning Institutions face limited technological competences on accessibility of Online distance learning during COVID-19 pandemic, which hinder learning process for students with visual impairments at home context. Further evidences shows that most of higher learning institutions in face numerous numbers of challenges on assisting students with visual impairments during lockdown period such as shortage of computer labs, lack of reliable internet, lack of pedagogical skills, limited computer skills among instructors to prepare resources for ODL (Sungwa, 2025; TCU, 2024; Ndibalema, 2022; Tanyanyiwa & Madobi, 2021; Sari & Nayır, 2020; Mwinyimbegu, 2019). In reflection of these many-sided challenges face higher learning institutions, students with visual impairments in countryside areas continue missing the lessons due to inequalities in access to digital resources (Tang, 2023; Sera et al., 2021; European Agency for Special Needs and Inclusive Education, 2022; UNESCO, 2020a; Lestiyanawati, 2020). Online distance learning thought to be a solution during the COVID-19 pandemic outbreak, many visually impaired students in higher learning institutions lagged behind with the modality of using distance education programmes because of poor background of digital technological skills.

Though international initiatives were launched to improve the use of inclusive digital technologies for visually impaired students for example, UNESCO`s Global Education Monitoring Report which advocates inclusive learning and integration of assistive technology and World Intellectual Property Organisation Accessible Books Consortium which sponsors the manufacturing and supply of books in the format of audio, Braille and e-text. But, most of higher learning institutions in low-income countries noticed to have limited strategies to help student with visual impairment to utilize open distance learning facilities since they have limited digital understanding (Mathrani, A., et al., 2022; Iivari, N., et al., 2020).

Although, online distance learning should be continued, there is the necessity of a change digital implementation within Higher Learning Institutions (HLIs). Nevertheless, the rate of implementation in higher learning institutions is freezing, and the timeline for full immersion unclear. Currently Open Distance Learning (ODL) systems are attributed in refining the excellence of learning, there is limited of empirical studies on how instructors and student with visual impairments use ODL. Also, scarce evidence is available on the trends and forms of ODL adoption in HLIs. In order to bridge these gaps, the bibliometric analysis build on existing literatures about global ODL adoption trends, opportunities and challenges. Because many higher learning institutions are just commencing to use Online Distance Learning, this analysis offers valuable understandings to guide institutions in addressing technological barriers and promoting all-encompassing digital learning environments.

Research questions

Who are the most cited and influential authors on online distance learning and access to higher education for visually impaired students during COVID-19, and what differentiates their contributions?

Which organizations have made the most substantial contributions to online distance learning and access to higher education for visually impaired students during COVID-19?

Which countries are at the forefront of publishing research on online distance learning and access to higher education for visually impaired students during COVID-19 and its contribution on world-wide scale?

Which journals have significantly shaped research and discourse in the field of online distance learning and access to higher education for visually impaired students during COVID-19?

What are the key patterns in keyword co-occurrence within online distance learning and access to higher education for visually impaired students during COVID-19 and how do they reflect evolving research themes?

METHODOLOGY

This study employs bibliometric analysis to offer critical overview of the online distance learning and access to higher learning institutions for visually impaired students during COVID-19 in academic literature. Bibliometric analysis defined as a quantitative method used to examine and evaluate citation analysis patterns, authorships, publication patterns, academic literatures (Ndhlovu & Bunju, 2025; Ndibalema, 2024; Sungwa, 2025; Aria & Cuccurullo, 2017; Kirby, 2023). Use of bibliometric tools in this study helps to offer picture of implementation of ODL in higher learning institutions for students with visual impairments which identify contributions and patterns that inform upcoming research direction. A bibliometric analysis was conducted basing on PRISMA model for data extraction and analysis (Ndibalema, 2025; Sungwa, 2025; Donthu, N., et al., 2021; Page, M.J., et al., 2021; Cronin, 2001).

Search database and strategy

Dimensions scientific database employed to review articles from different sources of data such as Europe PMC, Crossref and Research Papers in Economics (Donthu, N., et al., 2021). Dimension database was chosen over other prominent databases like Scopus and Web of Science because it offers metadata and wider data coverage at no cost, integration of diverse scholarly research outputs and access of comprehensive scholarly articles obtained in peer-reviewed journals with multiple data for analysis which involve authorships, citations, collaborations and funding sources. In contrast, Scopus and web of science basically focus on journal articles and provide limited access of literature and documents. The use of dimension database tools brought solid insights for comprehensive analysis for this study.

Literature search strategy

During keyword search strategy, the study employed two Boolean operators, "AND" and "OR" to retrieve articles using VOSviewer tool. The keywords involved in search query was "Online distance learning" OR "Digital learning environment" AND "Student with visual impairments" OR "Visually impaired Students" AND "COVID-19 pandemic" OR "COVID-19" AND "Higher learning institutions" OR "Higher education institutions" AND "Access to education" literature search was based on publications from 2019 to 2025. Open-access journal articles were only included for this study to ensure access of full text from the title and abstract parts. Consequently, exclusively inclusion of open access journal articles in this bibliometric study was crucial since it provides critical comprehensive analysis of research finding. Conversely, the exclusion of closed-access publications was done to avoid the limitation of representativeness of data and generalizability of research findings in the world. Therefore, the study excluded monographs, book chapter, edited book, preprint and conference proceedings because they lack comprehensive details of global trends on adoption online distance learning and access to higher learning institutions for visually impaired students during COVID-19 pandemic. A total of 13,612 were identified and exported in Excel for extensive analysis.

Inclusion and Exclusion criteria

In this bibliometric study inclusion and exclusion criteria used as a key component for determining which articles or sources to be included or excluded from the study analysis. Consideration of these criteria help to analyse focused, high quality and relevant data about adoption of online distance learning and access to higher learning institutions for visually impaired students during COVID-19 pandemic (Ndhlovu & Bunju, 2025; Öztürk, O., et al., 2024; Kambona & Ndibalema, 2025). As shown in table 1 the criteria included Scientific database, accessibility (Open-access articles), article published between 2019 to 2025, Only articles written in English language, articles that use quantitative, qualitative or mixed research approach, articles concentrating on online distance learning and access to higher education for visually impaired students during COVID-19 pandemic, documents type (articles from peer-reviewed journals).

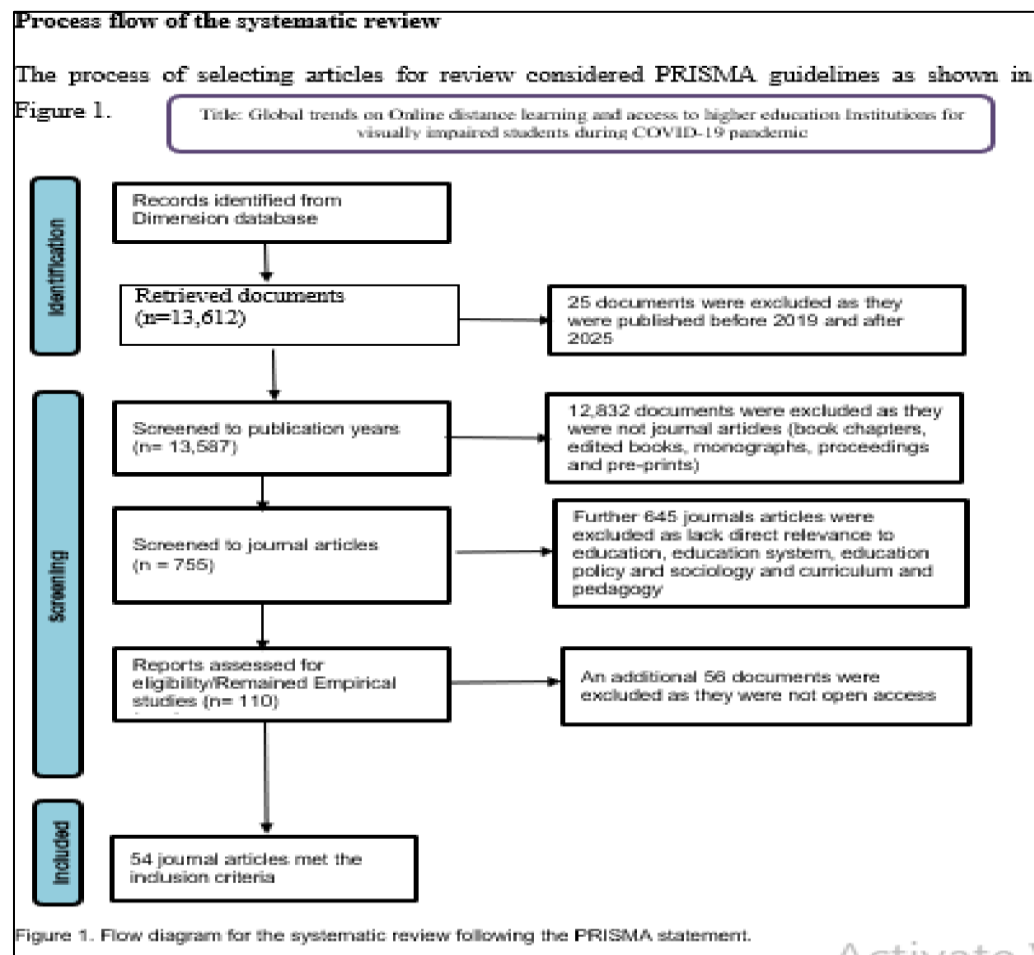Table 1. Inclusion and exclusion criteria for Literature

Criteria	Inclusion criteria	Exclusion
Database	Dimension database	Other scientific databases
Accessibility	Open access empirical articles only	Closed-access empirical articles
Publication year	Articles published between 2019 to 2025	Articles published before 2019
Document type	Articles from a peer-reviewed journals	Monographs, conference proceedings, Book chapter, thesis, dissertations and edited books.
The focus of the articles	Articles focusing on online distance learning and access to higher education for visually impaired students during COVID-19 pandemic	Articles that did not address online distance learning and access to higher education for visually impaired students during COVID-19 pandemic
Language	Only articles written in English language	Articles not reported in English language
Research methods	Articles that use quantitative or qualitative and mixed research methods	Articles that do not use research methods such as quantitative or qualitative and mixed research methods
Population (Students/Learners/Children with visual impairments).	Students/Learners/Children with visual impairments in higher learning Institutions	Students/Learners/Children without visual impairments in higher learning Institutions.

Data Visualization

In recent study, a software of data visualization was exported by Dimension scientific database in the form of text. Dimension database explores descriptive statistical distributions of the journals, authors, language of the articles, institutions, co-occurrence keywords and nations the world (refer to Figure 5 presents the top 10 countries map). On top of that, VOSviewer tool for data analysis employed to analyse citations, co-citations, co-authorship, bibliographic coupling and co-occurrence (Cronin, 200; Dullah N et al., 2021; Ndibalema, 2024; Ndhlovu et al., 2025).

Data analysis procedures

Data analysis of this study was conducted by VOSviewer 1.6.20 software to visualize and generating bibliometric networks (Donthu, N., et al., 2021; Dullah, 2021; Ndibalema, 2025). Dimension database tool helps to extract data into CSV format to present network visualization and collaboration of most influential authors, leading countries, institutions, journals, keywords co-occurrence, and citations. The analysis of total link strengths uncovers the relationships of the patterns such as authors and co-authors, bibliometric coupling and citations, and thematic clusters. The use of bibliometric method of data analysis offers the comprehensive overview of article publications for worldwide trends and contributions in adoption of ODL for visually impaired students in HLIs during COVID-19 pandemic.

Process flow of the systematic review

The process of selecting articles for review considered PRISMA guidelines as shown in Figure 1.

Title: Global trends on Online distance learning and access to higher education Institutions for visually impaired students during COVID-19 pandemic

Figure 1. Flow diagram for the systematic review following the PRISMA statement.

RESULTS

This section presents the results of the bibliometric analysis conducted on Global Trends on Online Distance Learning and Access to Higher Education Institutions for Visually Impaired Students During COVID-19 pandemic. The results indicate trends, patterns, collaborative networks and most influential authors, most popular counties which focus on progress and recent situation of Online Distance Learning and Access to Higher Education Institutions for Visually Impaired Students.

Research outputs over the period of time

Global trends in research about Online Distance Learning and Access to Higher Education Institutions for Visually Impaired Students During COVID-19 pandemic

The analysis was made on the trends on number of publications per year from 2019 to 2025 on online distance learning and access to higher education institutions for Visually Impaired Students During COVID-19. Figure 2 illustrate the trends;
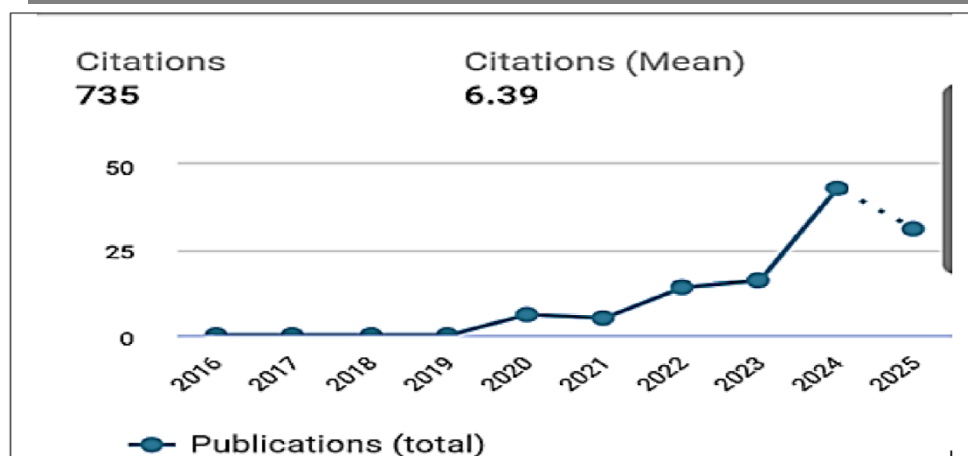
Figure 2. Trends in publications (2019-2025) on Online Distance Learning (ODL) in Higher Learning Institution by year for students with visual impairments.

Figure 2: Trend of publications on Online Distance Learning (ODL) in Higher Learning Institution by year for students with visual impairments. The growth rate is at least above past years, especially compared to 2020 to 2024. Much of this growth is a result of the rapid move to ODL that we've seen over 2020 as a result of the COVID-19 pandemic, with many Universities forced into deploying an online distance learning at breakneck speed. Further, rate of publications increased in 2020 with 558 Publications in response to COVID-19 pandemic. For the sake of addressing learning difficulties among students with visual impairments during COVID-19 pandemic. In 2021 the field reached its peak with 1523 publications, which underline high needs of academic interest in understanding the effect of COVID-19 pandemic to students with visual impairments. Whereas, in 2022, publications decline to 2018. Yet, in 1502 followed by 2024 with 997 publications, publication volume decline to 433 articles in 2025 as research activity calmed post-pandemic.

Most influential authors

The bibliometric analysis was based on authors with highest number of documents. Consideration based on number of documents had minimum of 5 citations of which only 54 articles were involved in the analysis. Out of 54 documents, only 30 documents met the threshold. Table 2, presents the top 10 most influential authors with highest number of documents. The results in table 2 show that Smagulova, Laura was the leading authors with 7 publications, followed by Tony, Mohamed Abdallah and Assilbayeva, Rakhila each authoring 6 publications with strong connectivity. These strong networks regarded as tool to shape educational debate.

Interestingly, some authors attained higher citation impacts although they have few publication documents. For example, Serkbayeva, Nurgul has three publications with 154 citations and Trukmenbayev, Asset had four publications with 49 citations. This indicates that higher volume of publications output does not reflect the quality and relevance of the topic, rather, findings indicate the importance of producing meaningful study that address critical issues in educational field.

Table 2. Top 10 Most influential Authors with highest number of documents

Rank	Author	Documents	Citations	Total link strength
1	Smagulova, Laura	7	45	1913
2	Tony, Mohamed Abdallah	6	67	1832
3	Assilbayeva, Rakhila	6	121	1811
4	Mukhtarkyzy, Kaussar	4	34	1642
5	Trukmenbayev, Asset	4	49	1021

6	Tokzhigitova, Ainur	4	17	813
7	Sayakov, Olzhas	4	23	639
8	Serikbayeva, Nurgul	3	154	56
9	Koshiry, Amr el	3	12	38
10	El-hafeez, Tarek Abd	2	28	17

Further results indicate that author in figure 3 had higher collaborative links. Scholars such as Tokzhigitova, Ainur emerged as key author among others for having strong interdisciplinary collaboration on the theme under review. Conversely, Authors like Assilbayeva, Rakhila, Koshiry, Amr el and El-hafeez, Tarek Abd had less networks links contribute to the topic.
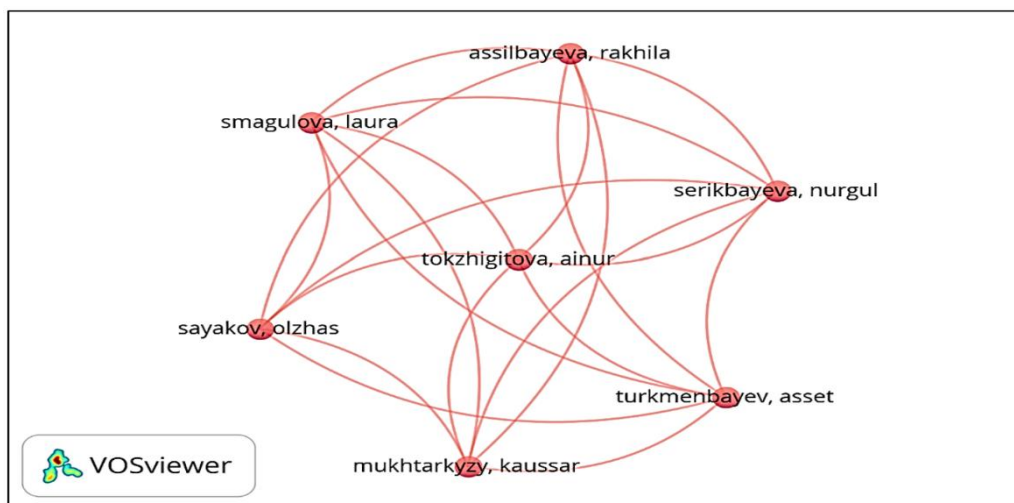
Figure 3. Network visualization of authors with highest citations and links

Journals with highest number of documents, citations and links

The bibliometric analysis from VOSviewer considered journals with a minimum of 5 documents per a source and minimum of 5 citations of which out of 1201 journals analysed only 72 met the threshold in this research topic. The top ten journals with highest number of documents are presented in table 3. Results in table 3 show that International Journal of Bilingual Education and Bilingualism emerged as a leading journal in all parts to the field of which had high total link strengths (35 articles and 63 citations). Conversely, Latin America Journal of Content and language Integrated Learning ranked as a second journal with 17 publications, is placed in Quartile 1 with total citations of 54 and Journal of Computers and Education ranked as third source with 12 articles and 62 total citations, this show that the noteworthy goal positioned on empirical systematic review on the implementation of ODL in higher learning institutions.

Table 3. Top 10 Journals with highest number of documents and links

No	Journal	Documents/Articles	Citations	Total link strengths	Quartile (2025)	H-index
1	International journal of bilingual education and bilingualism	35	63	6489	Q1	76
2	Latin America journal of content and language integrated learning	17	54	5616	Q1	81

3	Computers and Education	12	62	4921	Q1	253
4	Language culture and curriculum	9	37	3917	Q1	48
5	Frontiers in psychology	7	40	3848	Q2	212
6	Iafor journal of education	6	37	3822	Q2	14
7	British Journal of Education technology	5	29	2104	Q1	127
8	Contemporary educational psychology	3	20	1989	Q1	138
9	Education science	3	29	1350	Q1	68
10	Children and youth service review	2	11	997	Q1	123

Other journals such as Frontiers in psychology (7 articles and 40 citations) and Iafor journal of education (6 articles and 37 citations) disclose the meaningful contributions to the study since they indicate to address a critical interdisciplinary aspect in Digital Environmental Learning. In contrast, journal of Education Science (3 articles and 29 citations) and Contemporary Educational Psychology (2 articles and 11 citations) had few publications (articles) but higher network in total link strengths in citations which indicate strong educational impact in the field of ODL.

The network visualization map figure 4 indicates the interconnections of journals. For example, International Journal of Bilingual Education and Bilingualism and Journal of Computers and Education performance a key role of connecting other journals such as Theory and practice, Children and youth service review and sustainability, strengthen its impact. This strong network visualization brought high total link strengths that demonstrate a noteworthy interdisciplinary network in addressing ODL in higher learning education for students with visual impairments during COVID-19 pandemic.
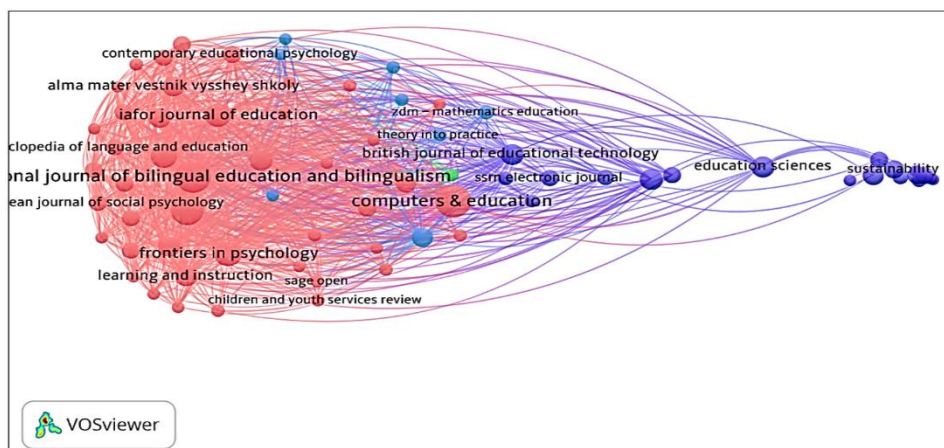

Figure 4. Network visualization of journals with high frequency of publications and strong link strength

Countries with the highest production of the articles with the highest citations

A bibliometric coupling analysis using VOSviewer recognised the most productive countries with highest citations in ODL in higher learning institutions for students with visual impairments during COVID-19 pandemic study. The analysis considered minimum of 2 documents per countries and 5 citations, out of 54 countries, 25 countries met threshold. Total link strengths of the citations were calculated for each of 25 countries. The top 10 countries are presented in table 4.

Results indicate that Russia emerged as a leading country with 8 documents and United States with 4 documents about the adoption of ODL in higher learning education for students with visual impairments during COVID-19 pandemic. Most of publication were from developed countries and few publications from middle-income countries such as South Africa (2 documents) and Chile (1 document).

Table 4. Top 10 countries that have published widely about the topic with the highest citations

No.	Country	Documents/ Articles	citation	Total Link strength
1	Russia	8	57	2
2	United States	4	270	3
3	United Kingdom	3	135	2
4	South Africa	2	29	0
5	Mexico	2	6	4
6	Germany	1	44	0
7	Bangladesh	1	18	0
8	Nigeria	1	8	0
9	Eswatini	1	7	0
10	Chile	1	5	0

The network visualization from VOSviewer in adoption of ODL in higher learning education for students with visual impairments during COVID-19 pandemic (Figure 5) demonstrates how United States and United Kingdom rise as a keystone of collaboration between countries in the productions of documents for ODL. Further, these countries enhance partnership across the border which contribute to global knowledge sharing on adoption of ODL in higher learning education for students with visual impairments during COVID-19 pandemic.
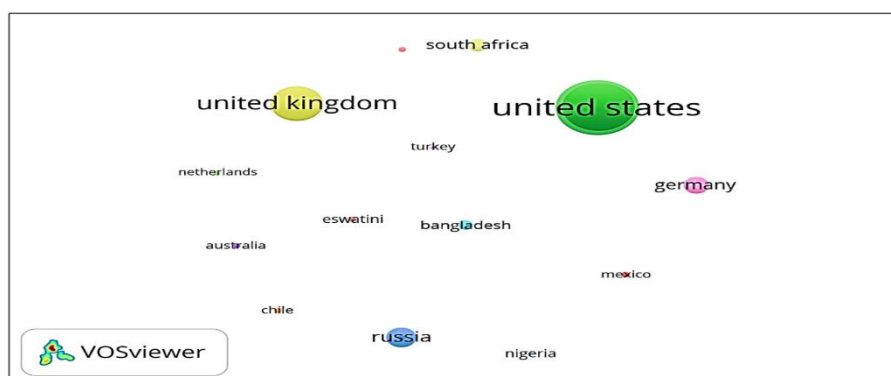

Figure 5. Bibliographic coupling network visualization of countries in ODL for visually impaired students.

Institutions with articles with high citations and co-authorship links

An analysis of the most productive organizations in the field of open and distance learning (ODL) for visually impaired students during the COVID-19 pandemic was conducted using the VOSviewer tool. This analysis focused on organizations with a minimum of 2 documents and at least 5 citations each. Out of a total of 102 organizations, 45 met these criteria. Table 5 displays the top 10 organizations in terms of productivity. The data in Table 5 reveals that the University of Bari Aldo Moro, the University of Alcalá, and Arish University are the

leading contributors in publishing related documents. Interestingly, some organizations with fewer publications demonstrated a high impact in terms of citations. For instance, the University of South Africa received 29 citations, and Ural Federal University accumulated 23 citations.

This suggests strong collaborative networks among these institutions. Besides, the analysis emphasizes that organizations like Belgorod National Research University, which had only one publication and five citations, still exhibited a remarkably high total link strength of 2,200. This indicates a strong network of partnerships that enhances their visibility and influence within the academic community.

Table 5. Top 10 organisations with articles with high citations and co-authorship links

No	Organisation/Institutions	Number of articles	Number of citations	Total link strengths
1	University of bari aldo moro	2	216	252
2	University of south Africa	1	29	40
3	Ural federal university	1	23	2200
4	Centre of the rehabilitation of the parameters	1	18	132
5	Cherepovets state University	1	16	0
6	University of alcala`	2	6	193
7	Southern federal University	1	6	4
8	Belgorod National research university	1	5	2200
9	Arish University	2	4	185
10	Bournemouth university	1	1	123

Further, the VOS viewer network visualization of institutions as shown in figure 6 offers insight on collaborative relationships of the most productive organisations in ODL. For example, Organisations like Belgorod National research university and Ural federal university reveal strong world collaborations in academic networks.
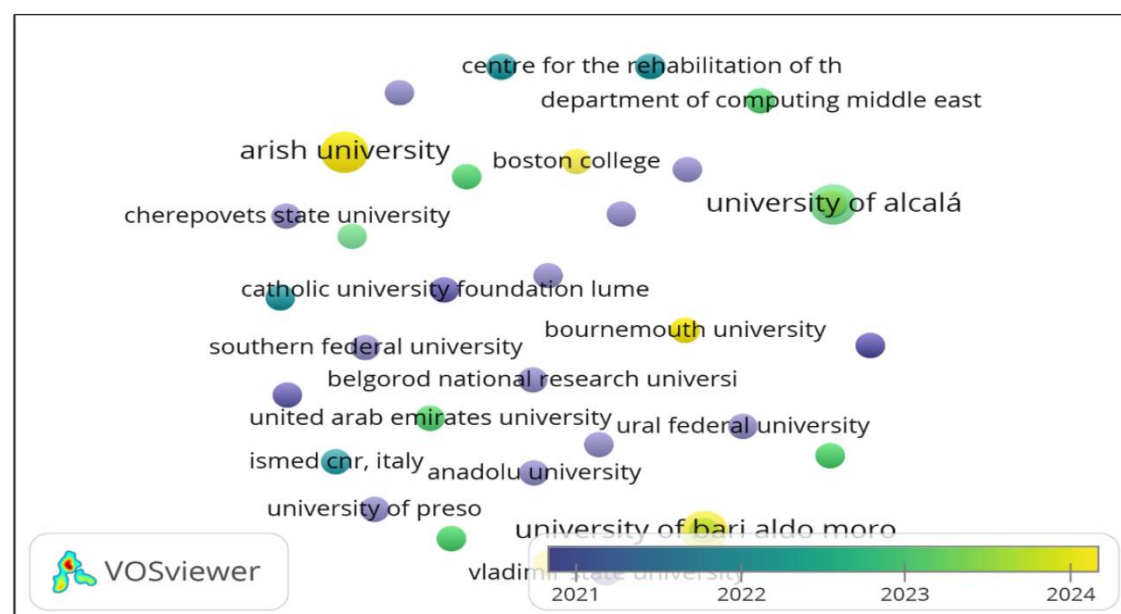

Figure 6. Network Visualization of institutions links on bibliographic coupling and citations

Co-occurrence of keywords about ODL with visual impairments

The analysis of co-occurrence keywords in the field of ODL for visually impaired students during COVID-19 pandemic was conducted using VOSviewer, disclosed a remarkable insight in the respective study objectives. The analysis of keywords involved 54 articles grounded on titles and abstracts fields, composed of 271 terms, and minimum number of occurrences of term was 3 key terms, of which only 35 terms met the thresholds. For example, for each of the 35 terms, a relevance score was calculated, based on 35 terms, the most relevant terms were selected, the default choice to be selected was 60% of most relevant terms. Figure 7 demonstrates the links and analysis of key terms based on the field of study.
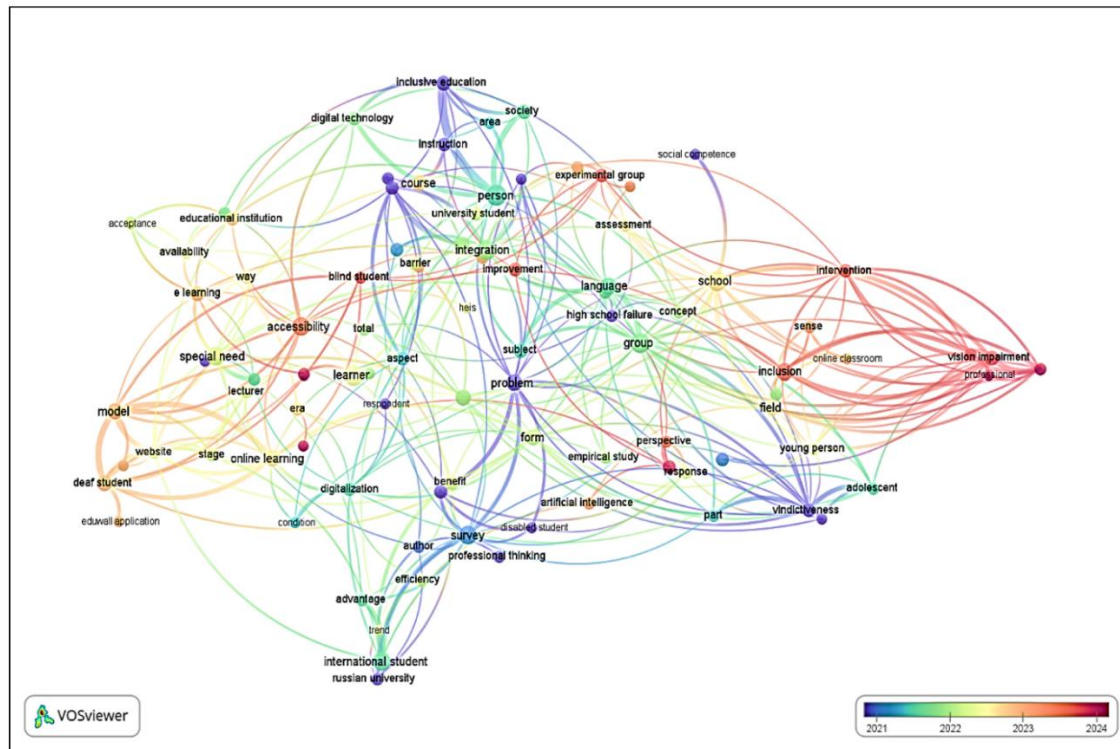
Figure 7. Figure 6. Network Visualization of keywords occurrences from titles and abstract field

Results indicate that digital technology, integration, perspectives, accessibility, improvement rose as the most commonly keywords during the VOSviewer analysis on the field of online distance learning for visually impaired students during COVID-19 pandemic in higher learning institutions. For instance, "digital technology" arose as a leading term since it reflects the access to education by students with visual impairments through adaptive devices and screen recorder which support inclusive education in higher learning institutions. Likewise, "perspectives" indicates a strong emphasis to instructors, students and parents on addressing the exceptional challenges emerged during COVID-19 pandemic on adoption of ODL in higher learning institutions for students with visual impairments. While "integration" reports the critical role on combining both accessible technologies and existing educational curriculum to enhance access to education to meet the needs of visually impaired students during COVID-19 pandemic. Further, "improvement" played a key role on support services and accessibility during pandemic to develop digital tools and resources to enhance integrated learning environment.

Conversely, less commonly occurring keywords for example, digitalization, field, assessment and instructions arose as they emphasize the integration pf digital devices in addressing inclusivity agenda in education during COVID-19 pandemic. For instance, the presence of "digitalization" discloses use of digital tools during teaching and learning process, while "field" emphasize the need of practical learning for students with visual impairments while they are learning from home. Besides, "instructions" and "assessment" notably to emphasize the best way of assessing students with visual impairments learning at home during pandemic. Figure 7 present the network visualization of keyword co-occurrences which demonstrate the interconnectedness of study of which themes were linked.

DISCUSSIONS

Undoubtedly COVID-19 pandemic eruption led to school closure world widely quicken digital revolution in education systems (Ndibalema, 2025; Sungwa, 2025; Ndibalema; 2022, Jiang, 2022; Kan, 2022). The Shift towards online distance learning in higher learning institutions were inevitable since instructors were incorporated technology in teaching and learning process to employ virtual space more intensively (Momani, M.A.K.A et al., 2023; Lase, et al., 2022; Francom, et al., 2021; Garbe, et al., 2020). During lockdown period homes were used a centre of learning for students particularly visually impaired students of which parents took a fundamental role to supervise and guide students on their learning process (Greenhow et al., 2021; Elsayed, et al., 2021). Although, the outbreak of COVID-19 pandemic brought digital transformation in education, most of higher learning institutions lagged behind on integrating technology in teaching and learning visually impaired students from home land. Both instructors, students and parents lack suitable digital skills for instance, online teaching and learning and online assessment basing on students with special needs (Ndibalema, 2025; Ndibalema, 2022; Francom et al., 2021).

The quick shift to Online distance learning during COVID-19 pandemic lockdown posed fundamental challenges to both instructors, and university and parents in supporting visually impaired students learning from home. Universities, often faced obstacles in providing, procuring and accessibility of adaptive technologies to support learning for student with visual impairments at home. Instructors encountered the limited knowledge of teaching using integrated digital devices to fulfil needs of visually impaired students, parents faced difficulties on managing and using assistive digital technologies at home (OECD, 2020). Home schooling faced number of difficulties such as unclear guidelines, unprepared parents to use digital technologies, limited infrastructures, limited skills, poor parent's attitudes and limited internet access hinders the adoption of online distance learning for visually impaired students mostly to low-income countries.

Results report the fluctuations of trends of article publications on adoption of online distance learning in higher learning institutions for students with visual impairments during COVID-19 pandemic due to global economic and social transformations. 2019 to 2020 findings show few article publications on a study area this indicate the presence of little attention on writings (Ndibalema, 2025). In contrast, from 2021 to 2023 publications were pointedly increased on study because international committee and forum presses intensive emphasis toward the agenda on the table following its impacts to the entire world community. International committee such as UNESCO, Sustainable Development Goals 4(SDG), World Bank's Human Capital Project, OECD, the African Charter on the Rights and Welfare of the Child (ACRWC), the United Nations Convention on the Rights of the Child (UNCRC) played a central role on global fighting against COVID-19 pandemic to ensure equity and equality in education during lock-down period (Sungwa, 2025; UNESCO, 2020a; UNICEF and ITU, 2020; Wang, et al. 2022). Notably, findings exposed that in 2023 to 2024 there were a great increase of article publications which show world stabilized itself on research activities to a competing study area. This is in line with Ndibalema (2025) reported that soon after eruption of COVID-19 pandemic in the world scholars wrote intensively to explore and address different challenges facing education system following lock-down and school closure. Consistently, A study by Thiab et al., (2022) assessed health-related behaviors among Jordanian children during COVID-19 pandemic, this study reported the need of massive publications during COVID-19 by examining the pharmacists` perception of the presence of children`s health related behavior during pandemic resulting to social, physical and mental problems.

On top of that, the analysis of authorship shows how important teamwork and collaborations are when it comes to publishing good articles on adopting online distance learning (ODL) in universities during the COVID-19 pandemic. For example, the strong partnership between Smagulova, Laura, and Assilbayeva, Rakhila really emphasizes how connecting across different fields can be beneficial. This matches what Sungwa (2025) mentioned about how international collaborations really helped solve issues with online learning for visually impaired students during the pandemic. Interestingly, Serikbayeva, Nurgul, and Trukmenbayev, Asset became some of the top authors with high citation numbers, even though they haven't published many papers on this topic. This supports Kirby (2023) `s idea that research should aim to address urgent community issues, and that collaborations help bring together different disciplines to deal with complex problems. These partnerships can also lead to innovative frameworks that improve teaching methods for visually impaired students. Similarly, Kan

et al., (2022) pointed out that authors who publish frequently and focus on interdisciplinary and urgent community issues tend to have extensive collaborative networks because the problems are so sensitive and impactful, leading to important educational change.

Overall, authors worldwide played an essential role in tackling COVID-19 by bringing together multiple fields to find real solutions. Meanwhile, using VOSviewer to analyse countries shows some interesting trends globally regarding the adoption of online learning for visually impaired students in higher education. Russia has established itself as a trailblazer, producing many publications and collaborating with other nations, though these papers are still developing in impact and global relevance. This could be due to quality and significance of their research (Akintunde, T. Y., et al., 2021). On the other hand, Mexico has strong network connections despite having fewer publications and citations, which suggests that their work is influencing other scholars and helping spread key insights (Ndibalema 2022). The United States stands out for having the highest citation impact rate over a certain period, even though they publish fewer papers, indicating that their research is highly influential and well-regarded in the field of ODL for visually impaired students (Barasa, 2021; Zyoud, 2023; Asadullah & Bhattacharjee, 2022; Limone & Toto, 2021). Overall, these patterns show how different countries contribute uniquely some focus on quantity, others on quality and impact, all playing important roles in advancing this area of research.

On the other hand, institutional analysis reports strong bond between institutions and provide an overview picture of the quality and quantity of the document outputs. Institutions, for instance Arish University and University of alcala` arise as the leading institutions in a respective research study with low citations impacts, this advocates a that institution has to produce documents focusing on the quality to impact academic arena. Conversely, University of bari aldo moro arise as the chief university with high citation impacts from 2019-2025 ODL during COVID-19 pandemic, signifying the need of writing high quality documents for innovations and academic improvements. Also, limited involvement of institutions such as Bournemouth university accentuates the potential to develop their collaborative efforts, as strong networks are important for increasing both influence and visibility.

However, the analysis of keyword co-occurrence reports the most emerging terms relatively to the concept of ODL in higher learning institutions for students with visual impairments. Such as "Digital technology" raised as a prominent term, reflecting how visually impaired students access education through adaptive devices and screen recorders that support integrated learning in higher education. Similarly, the term "perspectives" shows the substantial focus placed on the views of instructors, students, and parents in addressing the unique challenges that arose during the COVID-19 pandemic regarding the adoption of Open and Distance Learning (ODL) for visually impaired students in higher learning institutions.

Overall, the findings accentuate the complex and multi-layered nature of Open and Distance Learning (ODL) in higher education institutions for students with visual impairments. They highlight the need of balancing educational productivity with quality, strengthening collaborative networks, and aligning with emerging global priorities. This study lays a serious foundation for future research to explore how national strategies, resource allocation, and institutional partnerships shape the progress and direction of ODL research. Besides, it calls for the incorporation of interdisciplinary perceptions and the formulation of integrated policies to guarantee ODL initiatives remain responsive to meet the needs of visually impaired students and the wider social setting.

CONCLUSION

Despite notable valuable insights into how Open and Distance Learning (ODL) supports students with visual impairments in higher education; there are still important challenges that need our urgent attention. Most of the available research originates from Europe and North America, which raises questions about whether we're capturing the full range of experiences worldwide. It's essential to promote more collaboration across various regions and to develop fair funding mechanisms, particularly to assist lower-income countries. Focusing on regional equity in ODL policies will help ensure that diverse cultural, economic, and social perspectives are part of the global conversation. Finally, this approach will lead to more comprehensive, relevant, and practical educational experiences for all learners.

Recent analyses emphasize several key themes that are becoming increasingly central to conversations around Open and Distance Learning (ODL). These include using digital tools, promoting fairness, and supporting students' emotional well-being. While awareness of these topics is growing, many regions have yet to fully explore them, mainly due to limited resources and a lack of research personalized to their unique contexts. To address this gap, targeted initiatives such as specialized training programs are critical for equipping researchers in underrepresented areas with the knowledge needed to advance both local efforts and the global understanding of ODL. Effective integration of digital tools also depends on the development of policies that encourage equitable access to technology an especially critical step in resource-constrained regions. Such policies are essential for closing the digital divide and enriching the learning experience for students with visual impairments.

Besides, these findings emphasize the importance of developing policies that are both flexible and comprehensive. Addressing global challenges such as pandemics and environmental concerns requires strategies that can readily adapt to developing circumstances. By identifying key authors, leading organizations, and influential journals in this field, this study provides practical insights for guiding future research and encouraging collaborations. Eventually, encouraging cross-regional partnerships, assisting the exchange of locally relevant knowledge, and making sure that Open Distance Learning (ODL) policies are customized to specific local contexts are critical steps. These actions are critical for bridging educational gaps and building a sustainable, globally oriented ODL framework that genuinely supports all learners.

RECOMMENDATIONS

The findings from this bibliometric analysis revealed that strengthening of institutional collaborations and authors network on adoption of ODL in developed and developing countries is essential to enhance reasonable research outcomes (Dulla, 2021; Carrell Moore, 2022; DeCoito and Estaiteyeh, 2022). Future researches are needed to investigate stakeholders' perceptions such as (instructors, teachers, students, parents and policymakers) since the current study did not investigate the primary data from stakeholders about the topic. Again, the current study employed only Dimension scientific database on obtaining research articles focusing on adoption of ODL in HLIs. The future study may consider other databases and other level of education. Lastly, policymakers recommended to engage actively to address the need of visually impaired students in a speedily changing world (Sungwa, 2025; Garbe, A., et al., 2020).

Limitations

Notwithstanding of the strengths of the current study in addressing ODL for students with visual impairments in HLIs during COVID-19 pandemic, some limitations were acknowledged. The scope of literature analysis was limited only by Dimension database, thus excluded some relevant article publications which were not indexed in this database despite its wide-ranging academia coverage (Ndibalema, 2025; Donthu, N., et al., 2021). In this regard, Future studies should consider multiple scientific databases to explore global trend on adoption of online distance learning in higher learning institutions for visually impaired students during COVID-19 pandemic. Also, this bibliometric analysis was much limited to visually impaired students left behind other students with special needs such as students with deaf impairments, physical impairments and normal students. Thus, future research should focus on other population during COVID-19 pandemic.

DECLARATIONS

Ethics approval and consent to participate

The study adhered to the institution's guidelines and the Institutional Humanities and Social Sciences Research Ethics Committee - IRB (HSSREC IRB) approved it with an approval letter referenced HSSREC -2024-NOV-006 of the University of Zambia.

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Availability of data

Data will be available under special request at jbunju66@gmail.com

Decleration on Generative AI

Author declares that he has not used AI tools in writing of this article.

Consent for publication

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Competing interest

All authors mentioned in this work declare that they have no competing interest

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