

Literacy and Disabilities in Education : How Involved Are We? (A Systematic Literature Review)

H. Husamah^{1*}, Abdulkadir Rahardjanto², Dyah Worowirastri Ekowati³,
Lesy Luzyawati⁴, Miza Nina Adlini⁵

^{1*,2}Department of Biology Education, ³Department of Primary Education, Faculty of Teacher Training and Education, Universitas Muhammadiyah Malang, Indonesia

⁴Department of Biology Education, Faculty of Teacher Training and Education,
Universitas Winalodra, Indonesia

⁵Department of Biology Education, Faculty of Education and Teacher Training, Universitas Islam Negeri Sumatera Utara, Indonesia

*Corresponding Author. Email: usya_bio@umm.ac.id

Abstract: This study aims to review, investigate, and compare various research published in Scopus-indexed journals related to the theme of literacy for disabilities so that it will contribute to the development of literacy studies for disability groups. This study used the systematic literature review method with the PRISMA 2020 model. The search was conducted in the Scopus database, inclusion-exclusion, to obtain 41 articles. Data were collected from the Scopus database tend to increase in 2019-2023. Data were analyzed using thematic analysis techniques. The study results showed that this theme (literacy and disability) has broad dimensions and involves all parties. Various aspects of literacy can be promoted for people with disabilities, although there are adjustments. Ahlgrim-Delzell is the dominant researcher, the reference, and the pivot. The disability aspect was related to education, children, and young adults. Interestingly, the theme "literacy and disabilities" is the focus of researchers from all continents and is generally written in groups. Although this theme deserves global attention, it is not yet interesting for international cooperation. We discuss all aspects of the trend. Researcher interest continues to increase regarding "literacy and disabilities," which can be seen based on distribution year, research types/methods, instruments, study aspects, author, keywords, author's nationality, and collaboration.

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Introduction

Literacy is a theme that has received great attention in the last few decades. Literacy has penetrated cultural practices related to social, political, and technological issues. Literacy has many goals and benefits, for example, increasing a person's understanding in drawing conclusions or decisions based on the information received or processing information; helps someone think critically and creatively and not easily react without basis; help increase people's knowledge by reading and writing; and help grow and develop moral values and social life or good life skills in a person (Yao et al., 2022). Initially, literacy was interpreted as a person's ability to process and understand information when carrying out the process of reading and writing (Montoya, 2018). In its development, the definition of literacy evolved following the challenges of the times, and the concept of literacy experienced an expansion of meaning.



Apart from appearing in various fields, the concept of literacy has experienced an evolution in meaning over time along with the development of human civilization. Due to evolution, what was seen as literacy in the past may be less relevant today or what was understood as literacy skills in the past may be considered insufficient today (Hanemann & Robinson, 2022). Today's more precise definition of literacy is knowledge or skills in a particular field or activity. Literacy also means an individual's ability to process information and knowledge critically for life skills (van Laar et al., 2020). Everyone must have good literacy, regardless of background or physical condition (Ito, 2013). UNESCO mandates that literacy skills are everyone's right and are the basis for lifelong learning. Literacy is also a human right for everyone, including those with disabilities (Ferrell, 2021). Therefore, it is important to review the extent of research conducted by literacy scientists focused on disabilities.

Literacy is important for all individuals, including those with disability status. Literacy has a positive impact on their quality of life. Literacy will undoubtedly provide access to essential and needed information. Individuals with disabilities will be able to access various needed resources through the ability to read and understand information. Of course, literacy is essential in making decisions that will affect their lives. Literacy is the foundation for effective education. Meanwhile, we certainly agree that a good education will provide many opportunities in life, both in terms of career and personal development. Literacy also really helps individuals with disabilities in various aspects of life. Literacy such as communication, managing finances, and participating in social life will certainly enable them to become more independent, productive, equal, and contributive (Fernández-Villardón et al., 2021).

Literacy is key to improving the quality of life for individuals with disabilities, giving them better access to opportunities, rights, and independence. However, it should be realized that everyone with a disability may have different literacy needs based on the type and level of their disability. Therefore, an inclusive and tailored literacy approach is essential to support efforts to achieve their potential (Kluth & Chandler-Olcott, 2023).

In this regard, based on the results of a search on the Scopus database carried out in October 2023, it was found that there were 328 publications on the theme of literacy and disability in the last 60 years or 1963-2023 (out of a total of 74,339 for the all-fields category). These publications must be in-depth analyzed to find interesting information, trends, and new research. So far, only one SLR-based article related to literacy has been found, namely about health literacy interventions for people with disabilities (Nam et al., 2023). Thus, it can be said that no SLR has been found that focuses on the extent of research trends regarding literacy for disabilities and how to formulate literacy for disabilities based on references available in the Scopus database.

Therefore, the study aimed to review, investigate, and compare various research studies published in original articles in Scopus-indexed journals related to literacy for disabilities. Hopefully, this SLR will contribute to developing literacy studies for disability groups. The data mining results on how much research on literacy for people with disabilities has been carried out by researchers worldwide will show how far and how strong our support for them is to date. Thus, this SLR provides novelty in the field of research focused on disability.

Research Method

This study used Systematic Literature Review (SLR), a research method for identifying, evaluating, and interpreting all relevant research results related to particular

research questions, certain topics, or phenomena of concern (Chigbu et al., 2023). The Research Question was, "What are the publication trends related to the theme "literacy and disabilities" in the Scopus database?" This aspect of the trend refers to various previous SLRs (Husamah et al., 2023; Nurwidodo et al., 2023), namely distribution year, research types/methods, instruments, study aspects, author, keywords, author's nationality, and collaboration.

We used the words "literacy AND disability OR inclusive" in the disbursement menu in the Scopus database. The data obtained is exported in *CSV format to be processed or simulated in VOSviewer and *RIS, which can be synchronized with Mendeley. VOS-viewer software is used to visualize data. The search history in Scopus is as follows: "TITLE (literacy AND disability OR inclusive) AND (LIMIT-TO (DOCTYPE, "ar")) AND (LIMIT TO (LANGUAGE, "English")) AND (LIMIT-TO (OA, "all")) AND (LIMIT-TO (SUBJAREA, "SOCL"))." The search yielded 444 articles, so they must be filtered to focus the analysis. Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) is used in inclusion and exclusion (Page et al., 2021). PRISMA consists of four stages, namely identification, screening, eligibility, and inclusion (Selcuk, 2019). The sequence of inclusion and exclusion is carried out as shown in Figure 1.

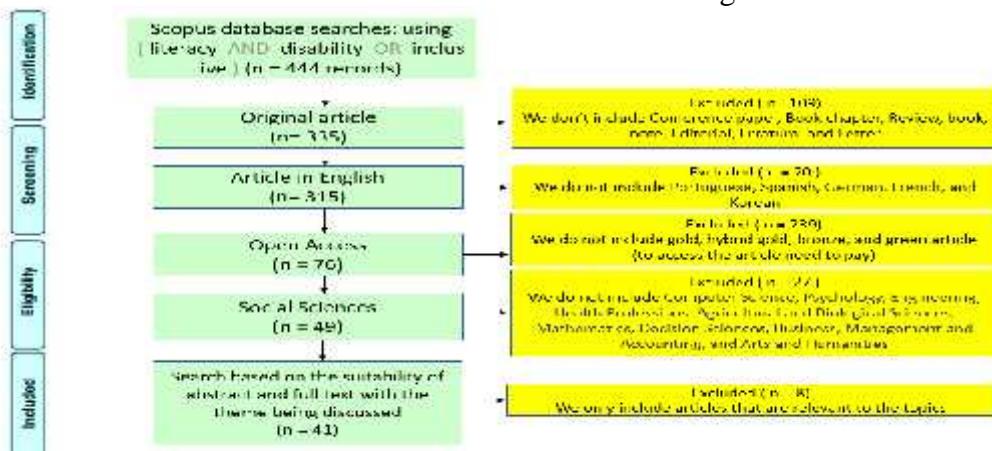


Figure 1. PRISMA flow diagram

Results and Discussion

Distribution year

Figure 2 shows the number of articles published annually from 2005 to 2023.

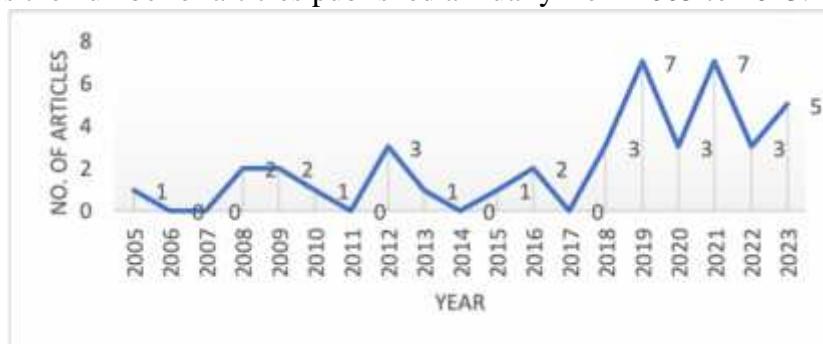


Figure 2. Distribution year of article

Based on Figure 2, it can be seen that the trend of publications on the theme "literacy and disabilities" in the database tends to increase from 2019 to 2023. However, there was fluctuation; for example, there was a decrease in 2020 (the beginning of the pandemic) and

2022 (the end of the pandemic). The number of publications from 2005 to 2018 ranged from 0 to 3. Especially for 2023, publications on the theme "literacy and disability" may increase, considering that this data search was carried out in October 2023. Many may be currently in the indexation process in Scopus, which will cause the number to increase significantly at the end of 2023.

There has been an increasing trend in publications on the theme "literacy and disabilities" in the last five years. It shows that researchers' attention increases as the equality campaign intensifies. Research and publication trends on literacy for disabilities tend to increase because globally, there is increased awareness of human rights, social inclusion, and technological developments that enable accessibility for everyone (Saran et al., 2023). Individuals with disabilities and their families increasingly recognize the importance of literacy in supporting independence (Liaaen & Söderström, 2023). In addition, there has been increased public awareness and support from various parties, encouraging research and publications in this field (Fernández-Batanero et al., 2022). The research results provide scientific evidence that supports the development of better policies and services, accommodates diverse types of disabilities, and advances science in optimizing literacy for individuals with disabilities (Khalil et al., 2023). The various factors above have encouraged increased interest and investment in research and publications on literacy for disabilities.

Research types/methods, instrument, and Literacy aspect

The trend of types of research/methods, instruments, and literacy aspects related to "literacy and disabilities" themes is presented in Table 1. This section provides an overview of the conceptual and practical implications of the results of this research in an educational context. By knowing the types of research, instruments/tools, samples, and literacy aspects of "literacy and disability" themes, we can get a real picture of how far and how strong our support for them is to date. This information can be a reflection and, simultaneously, a baseline for what we should do regarding literacy and disability research in the educational context.

Table 1. Types of research, instrument/tools, sample, and literacy aspect on "literacy and disability" themes

No	Reference	Instrument/tools	Population/sample	Aspect
Type of study: Quantitative				
1	(Rashid et al., 2005)	<ul style="list-style-type: none">• WRMT-R• WRAT-3• K-BIT• WISC-III• 13 questions home literacy questionnaire	62 children	Home literacy
2	(Mellard & Patterson, 2008)	<ul style="list-style-type: none">• WRMT-R• CASAS• WAIS III	713 learners	Adult Literacy
3	(Flewitt et al., 2009)	Not explained	Students	Multimodal literacy
4	(Coyne et al., 2012)	<ul style="list-style-type: none">• UDL Principles• LBD E-book Features	Nine teachers of K–2 students (23 students)	Literacy in general
5	(Hemingway et al., 2015)	10-item questionnaire	49 practitioner and student nurses	Health literacy
6	(Pears et al., 2016)	LNF and ISF subtests of the DIBELS	209 pre-kindergartens	Early literacy
7	(Sanders et al., 2018)	Wechsler Intelligence Scale for Children, fourth edition	Students in Grades 4 through 9 (N = 103) with SLDs in	Literacy in general

No	Reference	Instrument/tools	Population/sample	Aspect
8	(Garrels, 2019)	Researcher developed the individualised continuous measures for each of the student goals	subword handwriting (dysgraphia, n = 25), word reading and spelling (dyslexia, n = 60), or oral and written language (oral and written language learning disabilities, n = 18) five adolescents	Literacy in general
9	(Jenko & Stopar, 2020)	AP LES	61 fifth grade students	Reading literacy
10	(Wackerle-Hollman et al., 2020)	<ul style="list-style-type: none"> • PM-IGDIs • Family survey LEER 	325 Spanish-speaking preschool-age Children, from 90 classrooms.	Early literacy
11	(Rice & Ortiz, 2021)	Interviews form	32 parents	Digital literacy
12	(Nogueira et al., 2022)	<ul style="list-style-type: none"> • Mathematics Reference Matrix of the BEAS, specifically using the descriptors for the 5th-grade of Elementary Education digital behavior and technology acceptance—being possible to measure them by psychometric scales 	19 5th-grade students	Digital literacy
13	(Weissman et al., 2022)	IFP's first and core physical literacy phase is called QuickStart	13 coaches (eight females, five males) who	Physical literacy
14	(Ibraimkulov et al., 2022)	Not explained	127 students	Digital Literacy
15	(Rosly, 2023)	PASIPD questionnaire	10 adults	Physical Literacy
16	(Lazou & Tsinakos, 2023)	<ul style="list-style-type: none"> • Pre-course survey (30 questions) The post-course survey (37 questions) 	77 secondary school students (39 female and 38 male) from	Critical Immersive-Triggered Literacy
17	(Zagona et al., 2021)	Paper copies of the observation form	9 student (7 male, 2 female) and 21 educators	Literacy in general
18	(Maher & Hayes, 2023)	IPV index	699,686 women aged 15–49	Literacy in general
Type of study: Qualitative				
1	(Parette et al., 2008)	<ul style="list-style-type: none"> • PowerPoint™ 	Young children	Emergent Literacy
2	(Pierce et al., 2009)	<ul style="list-style-type: none"> • TROLL • The Bridge: A Portfolio Rating Scale of Preschool Literacy Development 	Preschool children	Early literacy
3	(Baker et al., 2010)	Not explained	Children	Emergent literacy
4	(Glaser & van Pletzen, 2012)	IRF sequences	25 students	Literacy in general
5	(Pinto, 2012)	Not explained	High school students,	Financial literacy
6	(Bulgren et al.,	CCSS for Literacy in History and Social	Adolescents	Literacy in

No	Reference	Instrument/tools	Population/sample	Aspect
7	(Prendergast, 2013) (Prendergast, 2016)	Studies LIS research literature reveals	Children's librarians (11) and parents of children (13) with disabilities	general Early literacy
8	(Rice, 2018)	Recorded weekly meetings, instant message logs, course design documents, and course design resources provided by the virtual school	K-12 students	Postmodern Literacies
9	(Gillett-Swan & Sargeant, 2018)	Voice Inclusive Practice framework	Children	Digital Literacy
10	(Ohafunwa et al., 2019)	Bloom's taxonomy learning framework	11 Students (two were male and nine were female)	Policy literacy
11	(Malebese, 2019)	EFAL	Six subjects per grade in Grades Four, Five and Six	English literacy
12	(Anderson, 2019)	Not explained	Children	Critical Literacy
13	(Valtierra & Siegel, 2019)	The topics of neurodiversity and inclusive lesson design	5th year Master of Arts in Teaching candidates (N=13)	Inclusive Literacy
14	(Man & Kangas, 2019)	• DSM- 5 • DM- ID	Forty- one parents	Mental health literacy
15	(Drewry et al., 2019)	• NARA assessments, • teachers' summative and formative assessments, • Student histories	One primary student	Multiliteracies
16	(Hopkins & O'Donovan, 2021)	A hundred chart (the numbers from 1 to 100 arranged in a ten-by-ten grid)	7 students and 21 tutors	Financial literacy
17	(Gándara et al., 2021)	Not explained	14 primary school learners aged	Literacy in general
18	(Doak, 2021)	Critical Discourse Analysis	Five families	Literacy in general
19	(Worm et al., 2021)	Not explained	Students	Ocean literacy
20	(Geleta & Hirpa, 2023)	Semi-Structured interview questions	17 adults	Literacy in general
21	(Danuri et al., 2023)	Interview questions and questionnaires.	9 students and 2 teachers	Numerical Literacy
Type of study: mix-methods				
1	(Calvo et al., 2020)	In-class activities and self-access online activities.	166 students were composed of 88 women and 78 men	Academic Literacy
2	(Matsana et al., 2021)	Meadows teachers' attitudes towards the use of accommodations in the classroom and on standardized tests	214 facilitators (173 were male and 41 were female)	Literacy in general

Research on "literacy and disability" was predominantly conducted using a qualitative approach (21 articles or 51%). However, there were relatively many quantitative studies, reaching 18 articles (44%). It showed that the theme "literacy and disability" could be approached qualitatively or quantitatively. Therefore, some researchers also used mix-methods (2 articles or 5%).



Interestingly, most of the author(s) have conveyed the instruments/tools used or implemented in the research. Only seven articles (17%) did not explain the instrument/tools aspect. It was recorded that 46 instruments/tools were used so that they could be used as a reference for future researchers. In terms of population/sample, all articles have mentioned this aspect, starting from children, pre-kindergartens, learners, students, adults, teachers, practitioners, parents, coaches, and facilitators. This means that all types of populations/samples have been used as research subjects on literacy and disability. Thus, this theme has broad dimensions and involves all parties, without exception.

Regarding the literacy aspect, several aspects are the variables studied, although some raise the general literacy aspect. Several aspects can be promoted explicitly for disabilities, namely home literacy, adult literacy, multimodal literacy, health literacy, early literacy, emergent literacy, reading literacy, digital literacy, physical literacy, critical immersive-triggered literacy, financial literacy, postmodern literacies, policy literacy, English literacy, critical literacy, inclusive literacy, multiliteracies, ocean literacy, numerical literacy, and academic literacy.

The theme "literacy and disabilities" can be approached through quantitative, qualitative, or a combination of both (mix-method). This finding aligns with previous research that found that throughout 2011-2014, three methodologies (qualitative, quantitative, and mixed methods) were used in literacy research. However, qualitative data sources and socio-cultural aspects appear to be increasingly important. Combining the two will provide a holistic picture of the implications. Literacy can be approached qualitatively because it can study various social aspects in detail. This pattern can provide convenience for social scientists, researchers, students, evaluators, and policy makers, the aspects needed to identify and evaluate the quality of research in the field. Qualitative research significantly contributes to the social field and influences public discourse around important social issues, including literacy and disability. Readers likely to favor qualitative research also need access to sufficient information about the researcher's data, field location, or subject so that he or she can independently reanalyze the researcher's interpretations (Jerolmack, 2022).

Most of the author(s) have conveyed the instruments/tools used or implemented in the research. The instrument/tool's function is to identify individuals with disabilities and the general population. This approach has proven useful in previous studies on individuals with disabilities in certain populations. Existing instruments are a valid and reliable way to assess functional limitations in individuals, regardless of the underlying disorder or cause of the limitations. Traditionally accepted and recommended criteria, including validity, reliability, sensitivity to change, and new statistical methods for assessing scaling properties, need to be considered. Special consideration is needed for general instruments whose scales may not be appropriate for disability research. Pragmatic aspects of data collection, including acceptability and disability accommodation, also need to be considered (Nadiyah et al., 2022).

The theme of literacy for disabilities has broad dimensions and involves all parties, all levels, without exception. This theme requires collaboration from all parties and levels in society. Social inclusion is its cornerstone, as literacy is key in enabling individuals with disabilities at any stage of development or age to become active and productive members of society. Disabilities have a very diverse spectrum, from physical, sensory, and intellectual to developmental, so an inclusive and diverse approach is needed to meet various needs. Public awareness of disability issues and support in eliminating stigma are also important components. Additionally, public policies that support disability literacy must be in place to

ensure equal access and fair educational opportunities for individuals with disabilities (Hayes & Bulat, 2017).

Literacy aspects for people with disabilities may be different from normal groups or groups of individuals who do not have disabilities. However, it is important to remember that everyone has different needs and potential, including those with disabilities, so there needs to be an inclusive and diverse approach to literacy. Inclusivity and diversity in approaches to literacy are essential to ensure that individuals with disabilities have equal opportunities to those with disabilities to develop their literacy skills (Hayes & Bulat, 2017).

Author and keywords

Based on Figure 3, it can be seen that the most frequently referred to is L. Ahlgren-Delzell. This name becomes an axis, relates to others, and collaborates on the theme of "literacy and disabilities." Figure 4 shows the trend of keywords widely used by authors on the theme "literacy and disabilities." Based on Figure 4, two main keywords are dominant and interrelated, namely literacy and human.

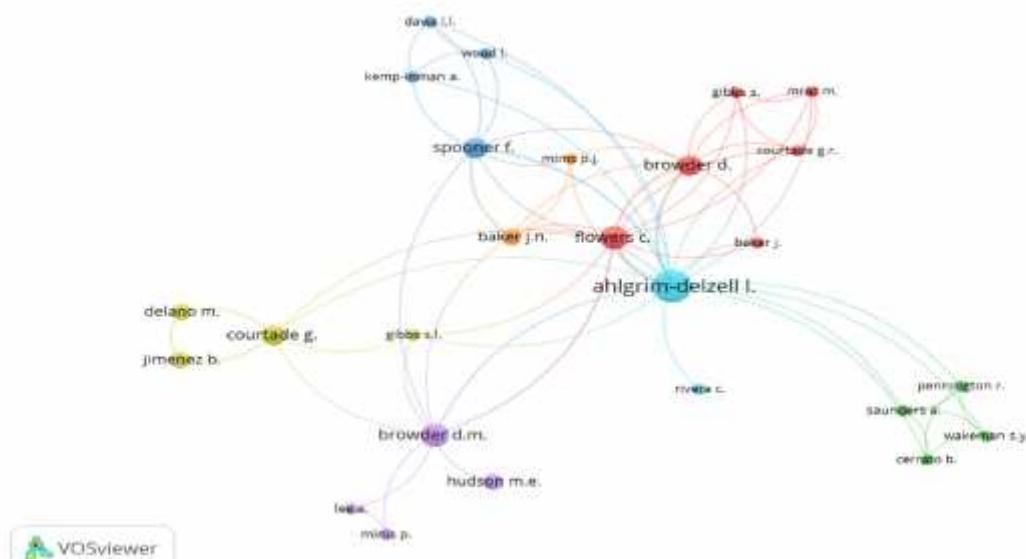


Figure 3. Dominant author and the relationship between authors in the theme "literacy and disabilities"

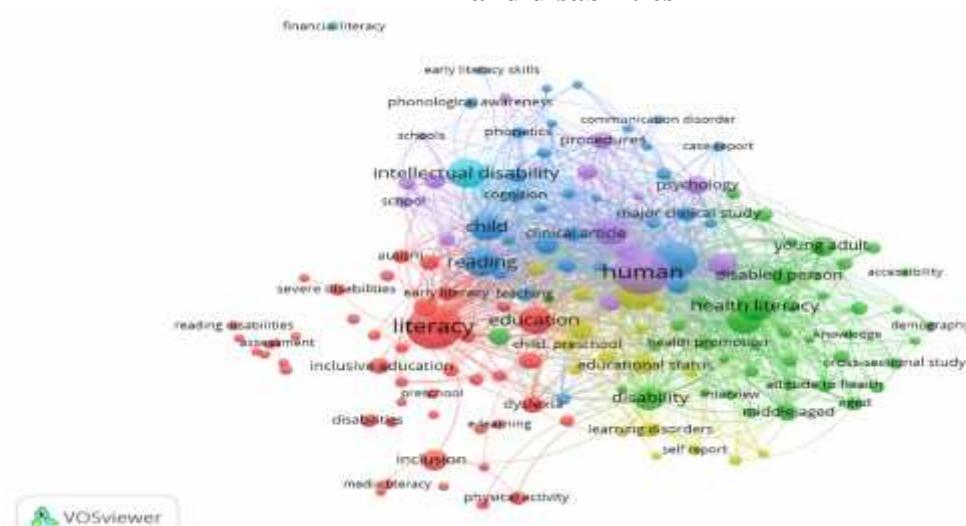


Figure 4. VOS-viewer display for type of analysis "Co-occurrence → keywords"

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Based on Figure 3, it can be seen that the most frequently referred to is L. Ahlgrim-Delzell. This name becomes an axis, relates to others, and collaborates on the theme of "literacy and disabilities." He is a Professor of Research at the University of North Carolina at Charlotte, Charlotte, United States. Since 2000, he has produced 42 documents, a Scopus H-index of 21, and 1,609 citations. Many of Ahlgrim-Delzell's publications with the team are related to literacy for disabilities. Other researchers in the world have widely cited this publication.

The theme "literacy and disabilities" is related to education, children, and young adults. It should be realized that literacy is the basis of effective education. Equal to others, individuals with disabilities have the same right to receive quality education (Hayes & Bulat, 2017). Individuals with disabilities may require special approaches and resources to access education, and inclusive education must include efforts to develop their literacy skills. Inclusive and literacy-oriented education allows disabled groups to reach their full potential, participate in social life, and be independent (Boyle & Anderson, 2020). Therefore, literacy and disability are closely related to efforts to ensure equal access and equality in education (Shields et al., 2017).

Literacy and disabilities are closely related to children and young adults because this period is important in developing literacy skills. Apart from that, the reality is that disabilities are often identified and require special attention during childhood and young adulthood. Inclusive education that encourages the participation of individuals with disabilities in the same classes as their peers is becoming common practice in this age group, and literacy plays a central role in their success in education and the transition to adult life (Hehir et al., 2016).

Author's nationality and collaboration

The trend of the author's nationality of research related to "literacy and disabilities" themes is presented in Table 2. Based on Table 2, there are only 22 countries where the authors come from. If it is a percentage, the number was 11.40% of the total 193 countries in the world. The three countries with the most author involvement on the theme "literacy and disabilities" were the United States (45 people), the United Kingdom (10 people), and Australia (10 people). If based on continents, most European countries are involved (8 countries). It is interesting that research on "literacy and disabilities" has become the focus of authors or researchers from all continents, showing the urgency of "literacy and disabilities" so that it deserves global attention.

Table 2. Author's nationality and continental

No	Country	Continent	Amount
1	United States	America	45
2	Brazil	America	8
3	Canada	America	7
4	Mexico	America	1
5	United Kingdom	Europe	10
6	Spain	Europe	6
7	Slovenia	Europe	2
8	Portugal	Europe	2
9	Greece	Europe	2
10	British Isles	Europe	2
11	Poland	Europe	1
12	Norway	Europe	1
14	Indonesia	Asia	4
15	Kazakhstan	Asia	3
16	Korea	Asia	1
17	Malaysia	Asia	1
18	Cambodia	Asia	1
19	South Africa	Africa	9

20	Ethiopia	Africa	6
21	Australia	Australia-Oceania	10
22	New Zealand	Australia-Oceania	1

Figure 6 shows collaboration in article publication carried out by authors, both cross-country collaboration, collaboration between universities in one country (local), and non-collaboration. Meanwhile, Figure 7 is a depiction of the distribution of scientist collaboration.

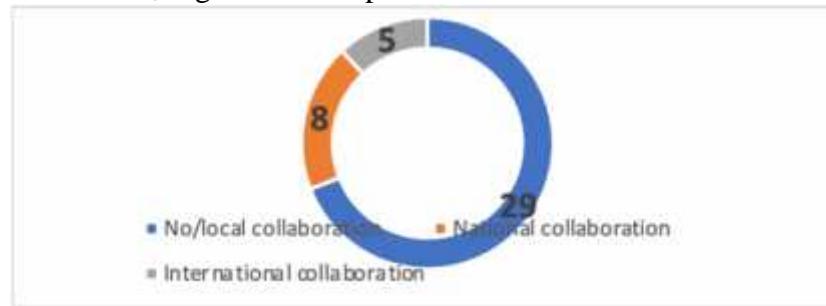


Figure 6. Author collaboration in writing articles

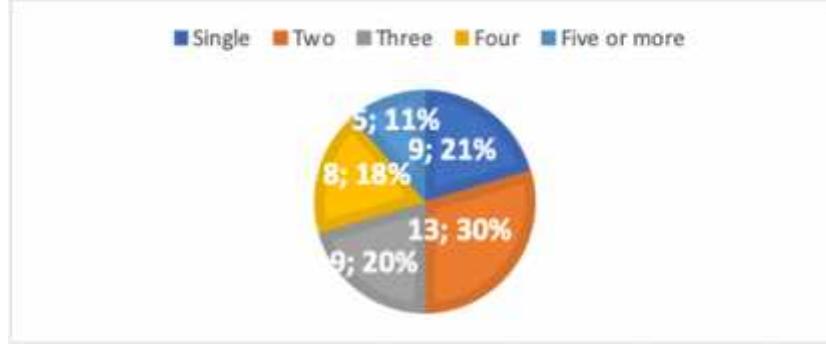


Figure 7. Distribution of scientist collaboration

Based on Figure 6, it can be stated that more articles were published with non-collaboration status (29 articles or 70.73%). If we analyze the 41 articles found (as presented in Figure 7), we will conclude that it is rare to find articles written independently (single author). Thus, even though the article was only written by an author from one university, the researchers still collaborate between scientific fields to transfer knowledge and multidisciplinary problem-solving. Only five articles (11%) were written independently/by a single author.

Research on "literacy and disabilities" has become the focus of authors or researchers from all continents, showing the urgency of "literacy and disability" so that it deserves global attention. However, the theme of "literacy and disability" has not yet become part of much international cooperation. Literacy for disabilities has not yet fully become a theme of global cooperation. Several reasons that can be taken include: (1) There are still many other global issues that dominate attention, so the literacy for disabilities is sometimes marginalized (Buhaug, 2022); (2) A general lack of understanding of the challenges faced by individuals with disabilities in achieving literacy has resulted in a lack of urgency in including this issue on the global agenda, and (3) Literacy issues for disabilities often require a very inclusive and complex approach. Nevertheless, we hope that steps will be taken to increase global cooperation. The results of World Bank analysis show that groups of people with disabilities tend to be left behind in global efforts and collaboration to increase access to education (and, of course, literacy). The gaps that occur certainly require stronger policies and interventions to achieve inclusive education targets (Male & Wodon, 2017). With increased awareness and continued efforts from various parties, it is hoped that literacy for disabilities will become a theme, given more attention in global cooperation.



The data also shows that even though articles are only written by authors from one university, researchers still collaborate between scientific fields so that there is a transfer of knowledge and multidisciplinary or interdisciplinary problem-solving. Good research and publications should result from collaboration, whether in one scientific field, multidisciplinary or interdisciplinary (Frassl et al., 2018). Research collaboration and publication have an important meaning, especially in finding solutions to complex research themes and problems requiring knowledge integration. Various points of view as a collaborative and diverse result encourage breaking down barriers or difficulties. Collaborative research and publications encourage creativity and will have a high impact because they are the result of joint thinking, maximize novelty and innovation (Oliver et al., 2018).

Conclusion

There is a trend in publications on the theme "literacy and disability" in the Scopus database, which tends to increase from 2019 to 2023. It was recorded that 46 instruments/tools were used as a reference for future researchers. In terms of population/sample, all articles have mentioned this aspect, starting from children, pre-kindergartens, learners, students, adults, teachers, practitioners, parents, coaches, and facilitators. Thus, this theme has broad dimensions and involves all parties without exception. Regarding the literacy aspect, several aspects are studied, although some raise the general literacy aspect. The name most often referred to is L. Ahlgrim-Delzell. This name becomes a pivot, relates to others, and collaborates on the theme of "literacy and disability". From the keyword aspect, the disability aspect is related to education, children, and young adults. There are only 22 countries where authors come from. The three countries with the most author involvement in the theme "literacy and disability" are the United States, the United Kingdom, and Australia. If based on continents, most countries in Europe are involved (8 countries). Research on "literacy and disability" has become the focus of authors or researchers from all continents, showing the urgency of "literacy and disability" so that it deserves global attention. More articles were published with the non-collaboration status. Thus, even though the article was only written by an author from one university, the researchers still collaborated between scientific fields to transfer knowledge and multidisciplinary problem-solving.

Recommendation

The findings that we get in this SLR can be a consideration or baseline for researchers to study literacy for disabilities according to their respective interests, needs and missions. These SLr findings can be a reference for policy makers in producing policies, regulations and education systems that are more supportive of efforts to strengthen the literacy of groups of people with disabilities.

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