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MULTISENSORY APPROACH IN QURANIC READING WITH DYSLEXIA: A SCOPUS-BASED BIBLIOMETRIC ANALYSIS

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Abstract:

The studies on multisensory research in reading the Qur'an by dyslexic students have been increasing in number, demonstrating a growing academic interest in the inclusive and research-based approaches to the pedagogical process in the religious and special educational contexts. Regardless of this development, there is little systemic review of the trend of publications, influential articles, thematic focus, and global research cooperation in this area. To fill this gap, the current study is a thorough bibliometric analysis to trace the intellectual framework and the worldwide research context of the multisensory technique of Qur'an reading among students with dyslexia. A screening process was performed based on the advanced search query of the Scopus database to retrieve data on the topic, and a total of 298 relevant publications were obtained in the final dataset. Scopus Analyzer was also used to analyze the trend in publications, types of documents, citation patterns, and productivity at the country level. Cleaning and harmonization of data were carried out in OpenRefine so that there was consistency in author names, keywords, and affiliations. VOSviewer was used to produce network visualizations based on the co-occurrence of keywords and international cooperation to find out the most prevalent research

topics and collaborative strategies. The findings show that the number of publications has significantly grown in recent years, which could indicate an increased academic interest in multisensory and inclusive pedagogy in regard to the Qur'an. Several articles with high citations are found as the classical ones, and the keyword analysis demonstrates that there are strong thematic relationships between the following: dyslexia, reading, learning disabilities, multisensory instruction, and inclusive education. The country analysis demonstrates that the output of research is localized in a few countries, and there are different levels of international cooperation. In general, Bibliometric analysis traces the evolution of the field, areas of research interest, and partnerships to inform future multisensory Qur'an reading for dyslexics.

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Keyword:

Dyslexia, Qur'anic Reading, Multisensory



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Introduction

Multisensory methods of reading the Qur'an have lately attracted attention as the key to managing the special needs of dyslexic students. Dyslexia, with its failures in phonological processing and the ability to recognize words correctly, is especially hard to deal with in situations where the Qur'an is considered, as it has a very complicated orthography and phonetics. The complex nature of the Arabic script is further aggravated by the use of vowels and diacritics, which tend to make reading and understanding difficult for dyslexic students. The conventional pedagogic approaches that are often based on heavy memorization and repetition might not be able to meet the unique needs of such students. Researchers and educators, in turn, are actively promoting the use of multisensory methods that combine visual, auditory, tactile, and kinesthetic stimuli as a more viable approach to enhance Qur'anic literacy among the religious population, particularly those with reading challenges (linked to dyslexia) (Al-Dawsari & Hendley, 2022; Sadeghi et al., 2024; Soliman & Al-Madani, 2017; Warnke et al., 1998).

The current academic research has developed and changed to examine how brain-friendly teaching methods can be modified to apply to Qur'anic reading, where empirical research recommends the utilization of multisensory learning activities to enhance decoding capacity and increase reading accuracy. The cultural and spiritual value of the Qur'an adds urgency to the development of new methods of teaching, as students need to overcome the cognitive barriers, emotional, and social difficulties related to dyslexia. Such difficulties involve stigma, lack of self-esteem, and anxiety, which in the religious contexts are aggravated by Qur'anic literacy, which is highly valued. Considering these factors, the implementation of customized multisensory instruction is bound to revolutionize the teaching of the Qur'an, which prompts educators to reconsider the traditional method and focus on the interventions that would

facilitate the academic success of learners with dyslexia as well as their self-esteem (Al-Dawsari & Hendley, 2022; Sadeghi et al., 2024; Soliman & Al-Madani, 2017; Warnke et al., 1998).

Literature Review

There is a large amount of literature that has been conducted to examine the inherent issues of dyslexic students when they are using the Qur'an. According to early research, the Arabic language, as a language possessing its phonetic peculiarities and visual complexity, only aggravates the problems of dyslexia. Scholars have also recorded that the variation in vowel display, as well as the mental effort required in decoding complicated orthographic codes, is a major hindrance to dyslexic students. The neurobiological impairment of the phonological and visual process in orthography is more significant in the Arabic orthography, which is reflected in the specific dyslexia subtypes, including vowel-letter dyslexia and visual dyslexia. These deficiencies are further deteriorated by the socio-cultural and motivational factors, such as stigma and anxiety, that inhibit activity and persistence in Qur'anic reading. Empirical studies have highlighted the necessity of instructional interventions that specifically target these complex issues and, as a result, have provided a conceptual basis for integrating multisensory instructional approaches (Al-Dawsari & Hendley, 2022; Boumaraf et al., 2024; Hanafi et al., 2022; Tarjiah et al., 2023; Vizhi & Rathnasabapathy, 2023; Warnke et al., 1998).

The congruent findings of the studies, which were aimed at the multisensory teaching methods, support their effectiveness in improving the reading abilities of a dyslexic group. Multisensory applications that pair visual, auditory, tactile, and kinesthetic information have been found to enhance phonological awareness, reading fluency, and comprehension. Organized teaching models using these multisensory concepts include structured teaching programs like the Alphabetic Phonics Method, an offshoot of the Orton-Gillingham system, and the Multisensory Structured Language program.

The inclusion of instant and descriptive feedback into the Multiple Sensory Learning Theory (MSLT) is used to reinforce neural processes that are critical in language processing. Multisensory teaching is one of the available prospects for dyslexic learners, especially when technological developments like interactive multimedia tools and educational games are used, enhancing engagement and motivation in dyslexic learners. These investigations point to the fact that by stimulating dyslexic students with a combination of sensory modalities, the neural pathways that control language processing are reinforced, therefore making the reading of Qur'anic text successful (Gosiewska-Turek, 2025; Hazaymeh et al., 2025; Indrarathne, 2022; Joshi et al., 2002; Majzub et al., 2012; Nash et al., 1980; Nijakowska, 2013; Solichah & Fardana, 2024; Soliman & Al-Madani, 2017; Tarjiah et al., 2023).

The fact that empirical studies have been conducted on brain-compatible instructional environments can also be used to support the validity of multisensory pedagogies. The studies prove that the combination of online technologies and interactive multimedia software raises student engagement and strengthens the learning process. These measures reduce the cognitive impairments that come along with dyslexia and reduce emotional distress that is usually related to traditional learning strategies. The subsequent increase in reading accuracy and self-confidence of dyslexic learners can prove the hypothesis that the introduction of modern, technology-based approaches in the teaching of the Qur'an can bring about the change. Moreover, empirical studies that have been performed with instruction multisensory-based in

Arabic-speaking environments have reported impressive improvements in the fluency of reading and comprehension, especially when implemented in a systematic, sequential, and explicit manner of teaching (Basir et al., 2024; EL Rahman, 2021; Hall et al., 2022; Hazaymeh & Khasawneh, 2025; Indrarathne, 2022; Majzub et al., 2012; Soliman & Al-Madani, 2017).

Despite all these, there are considerable gaps in the existing literature. The research literature on multisensory interventions specifically applied to the reading of the Qur'an is still limited, and most of the study findings tend to extrapolate from the general dyslexia literature. Additionally, low-quality teacher training, insufficient access to special resources, and uneven application of these studies in the learning process are only some of the challenges that point to certain aspects that need to be addressed in further research. Madrasahs do not have Qur'an specific multisensory systems and face obstacles to teacher education that hinder the successful transfer of empirical results to the classroom. In the context of multisensory methods to meet the specific needs of dyslexic students in Qur'anic teaching, it will be necessary to fill these gaps with the help of strict experimental designs and situational studies in order to refine and justify the approach (Aly, 2022; Basir et al., 2024; Ji et al., 2025; Martin, 2013; Solichah & Fardana, 2024; Soliman & Al-Madani, 2017).

Research Question

RQ1. What are the temporal publication trends in research on multisensory approaches in Qur'anic reading for students with dyslexia?

RQ2. Which publications are the most influential in this research domain based on citation analysis?

RQ3. Which countries are the leading contributors to research on multisensory Qur'anic reading for students with dyslexia in terms of publication output and citation impact?

RQ4. What are the most frequently occurring and thematically significant keywords in the literature on multisensory approaches to Qur'anic reading for students with dyslexia?

RQ5. What are the patterns of international collaboration among countries in research on multisensory approaches in Qur'anic reading for students with dyslexia?

Methodology

Bibliometric analysis involves the method of collecting, organizing, and analyzing bibliographic data based on scientific publications (Alves et al., 2021; Assyakur & Rosa, 2022; Verbeek et al., 2002). Besides the simplest descriptive clues (e.g., publication sources, year of publication, prolific authors, etc.) (Wu & Wu, 2017), bibliometrics embrace more sophisticated methods of analysis, such as the document co-citation analysis. An intensive literature review involves a repetitive process that entails the proper selection of keywords, effective searching in databases, and thorough analytical processes. The given process helps to build a strong bibliographic dataset and guarantee the validity of the findings (Fahimnia et al., 2015).

In line with this, the current research focused on high-impact articles because the articles provide considerable knowledge regarding the theoretical basis on which the research area is founded. In order to increase the accuracy of data and the level of consistency, Scopus was used as the main data retrieval database (Al-Khoury et al., 2022; di Stefano et al., 2010; Khiste & Paithankar, 2017). To maintain the quality of the academic research, only articles that were published in peer-reviewed academic journals were considered. Books and lecture notes were left behind (Gu et al., 2019). With the help of the Scopus database, which is offered by Elsevier

and was chosen due to its classification of all publications, data of the publications published in 2020 and since December 2023 were also selected and used in the following analysis.

Data Search Strategy

The Scopus database, which Elsevier provides, was the main data retrieval tool in this bibliometric study. A high search level strategy was used to find peer-reviewed articles in the Social Sciences (SOC), in particular, in the area of education and dyslexia. The search query targeted the titles of the articles that included the words education, learning, or sensory integration, in addition to the word dyslexia, therefore, making sure that the resulting corpus was closely oriented toward educational situations. In order to improve the quality and homogeneity of the data, only the publications that were indexed by the subject area of SOC and were composed in English were included in the search. Moreover, a broad time frame of 2006-2025 was used to include the longitudinal growth of the research trends over almost 20 years. The long period allows tracing a long way of development, the evolution of themes, and the alternation of priorities in the field of study.

When the inclusion criteria were used, 298 documents were obtained to analyze. This data can be deemed as strong enough to be used in bibliometric mapping and trend analysis to be able to study the changes in the volume of publications, discover the most influential authors, assess the most common journals, and define the shifting research areas. The methodology of systematic filtering was used in order to make sure that the highest-quality, peer-reviewed, and relevant scholarly contributions were included, which further enhanced the credibility of the results. The study provides a strong empirical basis to further bibliometric research, including co-authors, co-occurring keywords, and citation practices, which can offer fruitful findings on the intellectual landscape of educational research in the area of dyslexia based on a well-defined and replicable search strategy.

Table 1: The Search String

Scopus	TITLE ((“education” OR “learning” OR “sensory integration”) AND dyslexia) AND (LIMIT-TO (SUBJAREA , “SOC”)) AND (LIMIT-TO (LANGUAGE , “English”)) AND (LIMIT-TO (PUBYEAR , 2006) OR LIMIT-TO (PUBYEAR , 2007) OR LIMIT-TO (PUBYEAR , 2008) OR LIMIT-TO (PUBYEAR , 2009) OR LIMIT-TO (PUBYEAR , 2010) OR LIMIT-TO (PUBYEAR , 2011) OR LIMIT-TO (PUBYEAR , 2012) OR LIMIT-TO (PUBYEAR , 2013) OR LIMIT-TO (PUBYEAR , 2014) OR LIMIT-TO (PUBYEAR , 2015) OR LIMIT-TO (PUBYEAR , 2016) OR LIMIT-TO (PUBYEAR , 2017) OR LIMIT-TO (PUBYEAR , 2018) OR LIMIT-TO (PUBYEAR , 2019) OR LIMIT-TO (PUBYEAR , 2020) OR LIMIT-TO (PUBYEAR , 2021) OR LIMIT-TO (PUBYEAR , 2022) OR LIMIT-TO (PUBYEAR , 2023) OR LIMIT-TO (PUBYEAR , 2024) OR LIMIT-TO (PUBYEAR , 2025))
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Table 2: The Selection Criterion is Searching

Criterion	Inclusion	Exclusion
Language	English	Non-English
Subject	Social sciences	Others
Year	2006-2025	< 2006

Data Analysis

VOSviewer is an easy-to-use bibliometric analysis program by Nees Jan van Eck and Ludo Waltman of Leiden University, the Netherlands (van Eck & Waltman, 2010, 2017). It has become popular in the visualization and analysis of academic publications, especially in the creation of network visualizations, the clustering of similar entities, and the creation of density maps. Its methods of analysis provide an opportunity to study co-authority, co-citation, and co-keywords networks, thus providing the researcher with a full picture of research frameworks and dynamics. Additionally, the interactive interface, combined with constant software updates, is used to explore the big data sets of bibliometrics effectively and dynamically. The ability of VOSviewer to calculate bibliometric measures, generate tailored visualizations, and combine data across multiple bibliographic databases further gives it the status of a useful resource in investigating the more intricate research fields.

One of the strengths regarding VOSviewer is the possibility to convert complicated bibliometric data into visualized, understandable maps as well as graphic forms. The software lays significant emphasis on visualization via the network, which makes it especially effective in clustering similar items, determining patterns of co-occurrence of keywords, and creating density maps. Its user-friendly interface can be easily used by both inexperienced and experienced researchers, whereas its continuous development keeps the software at the top of bibliometric analysis. The versatility of VOSviewer to support multiple bibliometric connections, such as co-authorship and citation networks, also supports the position of the program as a useful instrument that cannot be overlooked in scholarly studies.

In this study, the Scopus database was retrieved in PlainText format, and publications published between 2004 and December 2024 were retrieved. Only publications with a year of publication of 2004-2024 and containing the following keywords were included: qualitative research, meta-analyses, and meta-reviews. The VOSviewer version 1.6.19 was used to analyze the data. The software made it possible to generate systematic maps for bibliometric generation and analysis through the use of VOS mapping and clustering techniques. As an alternative to the Multidimensional Scaling (MDS) method, VOSviewer is focused on the position of items in low-dimensional spaces in a way that the distance between any two items can be accurately used to represent the extent to which the two items are associated with each other (van Eck & Waltman, 2010). In this aspect, VOSviewer is conceptually similar to MDS (Appio et al., 2014).

Nonetheless, in contrast to MDS, where similarity measures are usually carried out, as shown by cosine similarity and Jaccard index, the VOSviewer uses a more suitable normalization method on co-occurrence data, which is Association Strength (AS_{ij}) (Van Eck & Waltman, 2007):

The association strength is computed as:

$$AS_{ij} = \frac{C_{ij}}{w_i w_j}$$

This metric represents the proportion between the actual number of co-occurrences involving items i and j and the predicted number of co-occurrences assuming that the occurrences of i and j are statistically independent (Van Eck & Waltman, 2007):

Results and Discussion

RQ1. What Are the Temporal Publication Trends in Research on Multisensory Approaches in Qur'anic Reading for Students with Dyslexia?

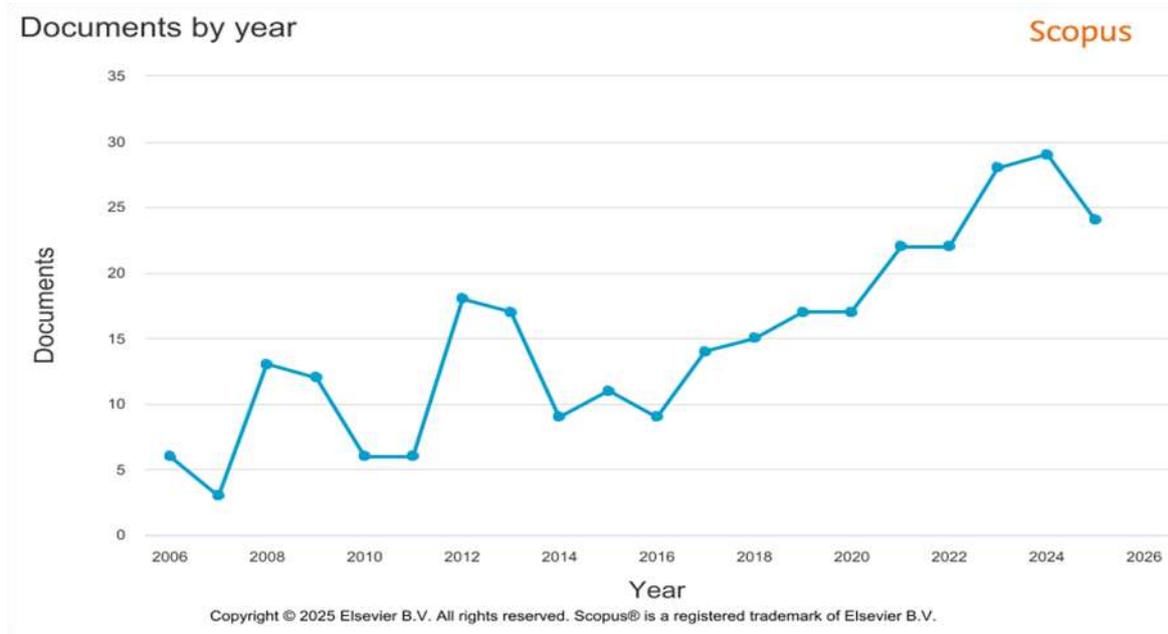


Figure 1: Publication Trend in Research on The Multisensory Approach in Qur'anic Reading for Students with Dyslexia

Table 3: Top Publication Trends in Research on Multisensory Approaches in Qur'anic Reading for Students with Dyslexia

YEAR	NO OF PUBLICATION	YEAR	NO OF PUBLICATION
2025	24	2015	11
2024	29	2014	9
2023	28	2013	17
2022	22	2012	18
2021	22	2011	6
2020	17	2010	6
2019	17	2009	12
2018	15	2008	13
2017	14	2007	3
2016	9	2006	6

Figure 1 and Table 3 uncover the publication pattern from 2006 to 2025, demonstrating a transparent and progressive growth in scholarly attention to **multisensory approaches in Qur'anic reading for students with dyslexia**. The initial years (2006-2011) of the research were when the output was relatively low and irregular, with an average of 3 to 13 publications per year, characterized by an infantile level of study on the intersection of Qur'anic literacy, dyslexia, and multisensory instruction. A slight upward trend can be noted between the years 2012 and 2015, with the highest number of publications in 2012 at 18, and then it leveled off

to 9-11. This may be a time of increased sensitivity to learning disabilities in Islamic education, as well as the slow incorporation of multisensory principles based on special education and literacy studies.

The stronger upward trend is observed since 2016, proving a maturation and consolidation of the area of research. Publications were growing continuously since 2017, with 14 to 17 in 2017 and 2019, and then sharply between 2021 and 2025. It is important to note that the largest number of publications was in 2024 (29) and 2023 (28), and 2025 continues to be highly productive with 24 publications, which can be considered evidence of continued scholarly interest. This new spur can be explained by the growing international interest in inclusive education, the development of multisensory and assistive pedagogies, and the growing interest in the religious literacy of learners with special educational needs. Generally, the trend implies a shift in the exploratory research to a more established and growing body of research, indicating that multisensory Qur'anic reading is gaining credence as an important field in special and Islamic education research.

RQ2. Which Publications Are the Most Influential in This Research Domain Based on Citation Analysis?

Table 4: Top Ten Most Cited Articles

No	Authors	Title	Year	Source title	Cited by
1	Mortimore, T.; Crozier, W.R.	Dyslexia and difficulties with study skills in higher education	2006	Studies in Higher Education	166
2	Konur, O.	Participation of children with dyslexia in compulsory education: Current public policy issues	2006	Dyslexia	154
3	Pino, M.; Mortari, L.	The inclusion of students with dyslexia in higher education: A systematic review using narrative synthesis	2014	Dyslexia	143
4	Gabay, Y.; Thiessen, E.D.; Holt, L.L.	Impaired statistical learning in developmental dyslexia	2015	Journal of Speech, Language, and Hearing Research	132
5	Kirby, J.R.; Silvestri, R.; Allingham, B.H.; Parrila, R.; Fave, C.B.	Learning strategies and study approaches of postsecondary students with dyslexia	2008	Journal of Learning Disabilities	114
6	Miciak, J.; Fletcher, J.M.	The Critical Role of Instructional Response for Identifying Dyslexia and Other Learning Disabilities	2020	Journal of Learning Disabilities	111
7	Chung, K.K.H.; Ho, C.S.-H.	Second language learning difficulties in Chinese children with dyslexia: What are the reading-related cognitive skills	2010	Journal of Learning Disabilities	111

		that contribute to English and Chinese word reading?			
8	Madriaga, M.	Enduring disablism: Students with dyslexia and their pathways into UK higher education and beyond	2007	Disability and Society	103
9	Szmalec, A.; Loncke, M.; Page, M.P.A.; DUYCK, W.	Order or Disorder? Impaired Hebb Learning in Dyslexia	2011	Journal of Experimental Psychology: Learning Memory and Cognition	86
10	Litt, R.A.; Nation, K.	The nature and specificity of paired associate learning deficits in children with dyslexia	2014	Journal of Memory and Language	83

Table 4 reveals that the analysis of the top 10 most frequently cited articles reveals that highly influential studies in this domain have predominantly concentrated on the cognitive, instructional, and inclusion-related dimensions of dyslexia, rather than explicitly on religious or Qur'anic learning contexts. The most frequently cited works address foundational issues such as instructional response and identification of dyslexia (Miciak & Fletcher, 2020), statistical and associative learning deficits (Gabay et al., 2015), and the cognitive skills underpinning reading across languages (Chung & Ho, 2010). These works, appearing in high-impact outlets such as the Journal of Learning Disabilities, as well as the Journal of Experimental Psychology, provide a strong theoretical and empirical basis for understanding how learners with dyslexia process information. This informs the design of effective multisensory instructional approaches, including those applied in Qur'anic reading.

In addition, several highly cited articles emphasize educational inclusion, learning strategies, and policy implications for learners with dyslexia, particularly within secondary and higher education contexts (Mortimore & Crozier, 2006; Konur, 2006; Madriaga, 2007; Kirby et al., 2008; Pino & Mortari, 2014). The popularity of these publications shows that there has been a long-lived academic interest in access, participation, and fair learning opportunities for students with dyslexia. Even though these studies are not Qur'anic education-specific studies, their high citation influence emphasizes the significance of inclusive pedagogical systems and inquisitive strategies that can be applied to Islamic education contexts. Taken together, the patterns of citations indicate that the existing studies concerning multisensory Qur'anic reading are characterized by a high dependency on the existing dyslexia literature in the field of general and special education. This implies that in future research on the topic of Qur'anic literacy and religious learning, there should be a greater effort to place these well-established theories and practices in the context of multisensory Qur'anic reading.

RQ3. Which Countries Are the Leading Contributors to Research on Multisensory Qur’anic Reading for Students with Dyslexia in Terms of Publication Output and Citation Impact?

Table 5: Countries Leading Contributors to Research on Multisensory Qur’anic Reading for Students with Dyslexia

COUNTRY/TERRITORY	NO PUBLICATION
United Kingdom	88
United States	37
Spain	19
Netherlands	18
Australia	10
Belgium	10
China	8
Greece	8
Italy	8
Malaysia	7

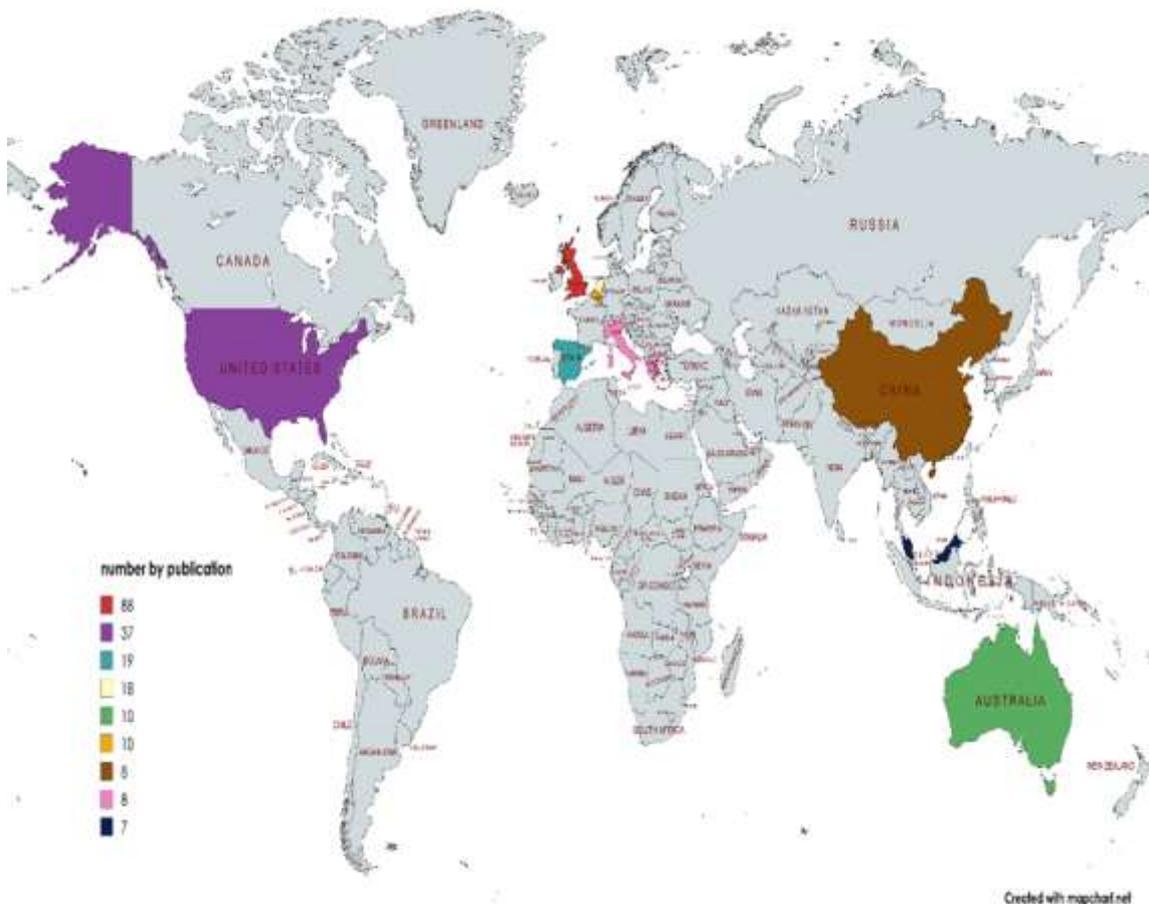


Figure 2: Country/territory Number by Publication

As indicated in Figure 2 and Table 5, the analysis of country-level published output shows that research on multisensory approaches to dyslexia is mainly undertaken in Western countries, where the United Kingdom is the major contributor with 88 publications, followed by the

United States with 37 publications. Such supremacy has been influenced by the traditional research traditions on dyslexia, special education, and inclusive pedagogy in these countries, which are reinforced by a solid funding infrastructure and well-established academic networks. The European countries that report high levels of scholarly interest include Spain (19), the Netherlands (18), Belgium (10), Greece (8), and Italy (8), which indicates that the region as a whole is interested in evidence-based teaching for dyslexic learners. The prevalence of these nations is an indication of their dominant position in the development of theoretical frameworks, research strategies, and education policies that form the basis of multisensory and inclusive learning strategies.

By comparison, non-Western contributions are relatively small, but there is strong involvement in Australia (10), China (8), and Malaysia (7). The fact that Malaysia has come up to the top ten list of contributing countries is quite remarkable, considering the emphasis on Qur'an reading, which shows that there is a progressive academic attempt to contextualize dyslexia research within the context of Islamic and religious education. However, the general distribution also shows that there is an unequal representation of researchers across the world, with an underrepresentation of the Muslim-majority and developing nations, where Qur'anic literacy is a key to education. The gap highlights the necessity to conduct further localized and culturally responsive studies to apply multisensory dyslexia interventions to the Qur'anic reading experience and thus add variety to the existing literature on the topic of education.

RQ4. What Are the Most Frequently Occurring and Thematically Significant Keywords in The Literature on Multisensory Approaches to Qur'anic Reading for Students with Dyslexia?

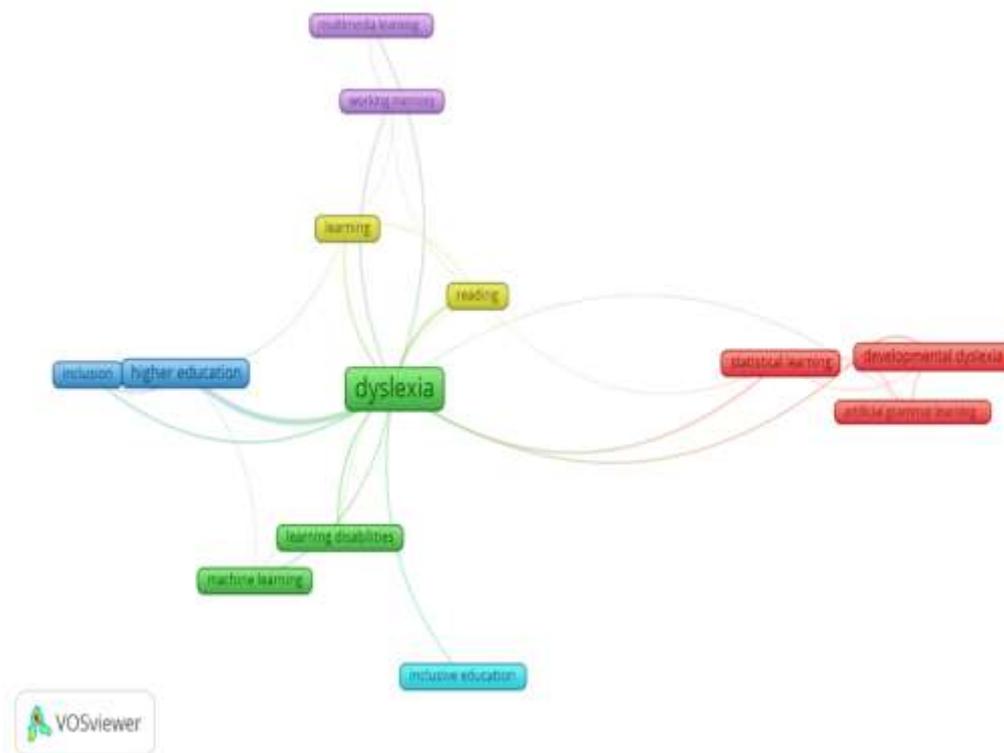


Figure 3: Keywords in the Literature on Multisensory Approaches to Qur'anic Reading for Students with Dyslexia

Figure 4 indicates that the co-occurrence of keywords in VOSviewer is a bibliometric method for identifying and representing the frequency of keywords appearing together in a set of documents. These two keywords are co-occurring repeatedly in publications, and the assumption is made that the two terms are likely to be conceptually or thematically related. Within the network visualization, every keyword is displayed as a node. The size of a node indicates how many times this keyword occurs, and the connections between nodes are used to denote the co-occurrence association. The *total link strength* shows the general strength of a keyword with respect to other keywords, hence, its centrality and significance in the area of study of the research. Such a method assists in bringing out dominant themes, research groups, and intellectual organization of an area like dyslexia and learning studies.

The map was created based on the *full counting technique*, which implies that all instances of a keyword within a document are counted in totality and not the number of times it is repeated within the same document. This approach focuses on the common and already established ideas in the literature. The *threshold of five instances* was used to determine that only those keys that had enough relevance and repetition were considered in the analysis. Among the 560 keywords extracted, only 14 of them reached this threshold, which suggests strong filtering, which puts emphasis on central concepts instead of marginal words. According to the data, the appearance of the keyword “dyslexia” is the most frequent, with the highest frequency (139) and strength of the links (85). It is succeeded by the similar notions of “higher education,” “reading,” “developmental dyslexia,” as well as other learning-related constructs, demonstrating how the research field is structured around a few central themes.

The findings can be used as a supplement to the body of knowledge and contribute to understanding the accurate mapping of the conceptualized field of dyslexia investigation and defining its overlap with learning, cognition, and education. The fact that the terms dyslexia, reading, and learning disabilities appear significantly more often than the term working memory supports the evidence of the cognitive and educational background of the subject. The emergence of such terms as implicit learning, statistical learning, and artificial grammar learning is a sign of the potential advancement in theoretical and methodological terms. Moreover, the use of terms such as “higher education,” “inclusive education,” and “multimedia learning” refers to the research interest in the broader scope of education than in elementary schooling, to the sphere of inclusive education and higher-level learning. Overall, this co-occurrence analysis provides empirical evidence of both established and emerging research directions, offering a structured overview that can guide future studies, identify research gaps, and support the development of targeted educational interventions for learners with dyslexia.

RQ5. What Are the Patterns of International Collaboration Among Countries in Research on Multisensory Approaches in Qur’anic Reading for Students with Dyslexia?

In VOSviewer, co-occurrence analysis is used to examine relationships between units of analysis based on their simultaneous appearance within the same documents, as exhibited in Figure 4. When applied at the country level, co-occurrence reflects the extent to which countries appear together in publications through international collaboration (i.e., co-authorship links). In the network visualization, each country is represented as a node, where the size of the node corresponds to the number of documents generated by that country. The links between countries indicate collaborative relationships, and the total link strength refers to the cumulative strength of these links, showing how intensively a country collaborates with

others in the dataset. This type of visualization helps to identify leading countries, collaboration hubs, and the overall global structure of research activity within the area.

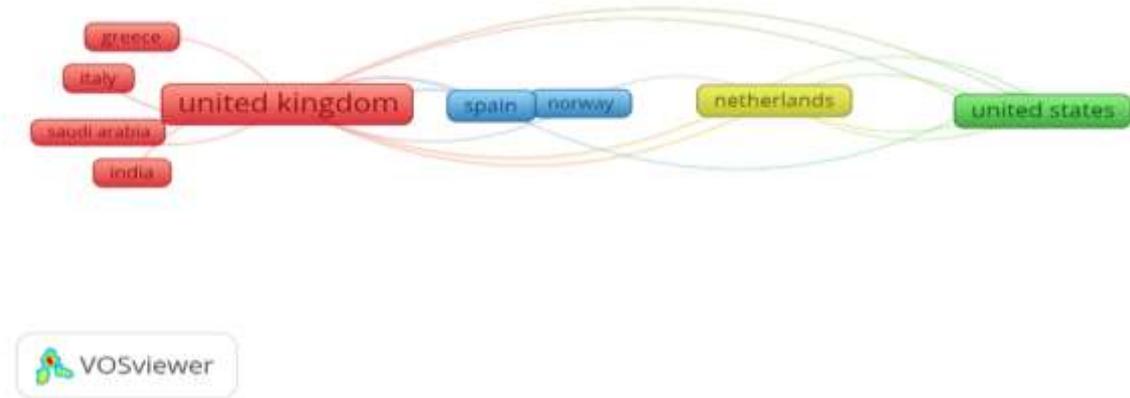


Figure 4: The Patterns of International Collaboration among Countries in Research on Multisensory Approaches in Qur’anic Reading for Students with Dyslexia

This map was created under a full counting approach, which implies that every document is wholly assigned to each of the countries in the affiliations of the authors. This method focuses on productivity and cooperation without fractional adaptation, and is therefore appropriate to reveal dynamic participants and close international relationships. There was a minimum of five documents to be considered to make sure the analysis is robust, and there are no countries with very insignificant publication output. Among the 60 countries listed in the dataset, 16 countries were found to have reached this threshold, which implies that the output of the research activity in the field significantly depends on a rather limited number of countries. Countries such as the United Kingdom, the United States, and even European and Asian countries have become the most prominent contributors to the resulting map, with the impact on citation and the intensity of collaboration being different.

The results are applicable to the current body of knowledge, as they provide a comprehensive picture of the research environment and the pattern of collaboration in this sphere on a global level. The United Kingdom turns out to be the main hub, where the overall number of documents, citations, and link strength is the largest, which implies both a high level of productivity and wide foreign cooperation. The United States, the Netherlands, Spain, and China have significant link strengths, which indicate their involvement in cross-national research networks. In the meantime, those nations that have a low or zero total link strength (e.g., Malaysia and Israel) seem to contribute to the research mainly at the domestic level as opposed to international cooperation. On the whole, this discussion deepens the insight into the ways of the geographical distribution of knowledge production, existing and emerging production sources, and the ways in which international research collaboration can be strengthened to bring the field closer and more inclusive.

Conclusion

This bibliometric review was done to give a systematic review of studies on the multisensory reading of the Qur’an by dyslexic students. It was primarily aimed at mapping the tendencies in publications, determining the most influential works, discussing the most contributing states, revealing the most prevalent research areas with the help of keywords, and realizing the tendencies of cooperation in the given sphere. With the aim of answering these questions, the

study aimed at illuminating the ways in which scholarly interest in multisensory Qur'anic reading has evolved over the years, as well as its location in the larger context of dyslexia, inclusive education, and learning sciences.

The results have shown that the publication has increased over the last twenty years, consistent with a significant increase in recent years. This tendency can be explained by the increased academic interest in inclusive and multisensory pedagogy, as well as greater awareness of dyslexia in general and its implications for religious education. Analysis of citations indicates that the most significant studies are based to a large extent on general dyslexia studies, which are centered around cognitive processes, instructional response, and inclusive practice, and not specific to Qur'anic learning. The analysis of keywords co-occurrence shows that the literature is highly focused on themes such as dyslexia, reading, learning disabilities, and cognitive learning processes, whereas explicitly Qur'anic or religiously contextualized words are found less often. The analysis at country-levels has shown how Western countries dominate in terms of both research output and collaboration with smaller contributions from Muslim-majority countries, although there is an increasing presence of more regions participating, and this suggests that the research landscape is increasingly diverse.

This research is a structured and data-driven synthesis of an emerging interdisciplinary domain that spans special education, multisensory instruction, and Qur'anic literacy in terms of its contributions. The analysis helps understand the intellectual organization of the field and the dependency on the existing dyslexia theories to guide Qur'anic reading research by visualizing thematic clusters, powerful streams of research, and patterns of collaboration worldwide. The mapping offers something new, as it reveals the conceptual foundations of high-quality education and the contextual adaptation to Qur'anic education that is often poorly prepared. In this manner, the research fills gaps in the current literature since it places the research on the multisensory Qur'anic reading in a wider global and theoretical context.

There are also practical implications of the findings. The heavy focus on the principle of cognitive and multisensory learning would imply that educators and curriculum developers in Qur'anic education can leverage the long-proven multisensory approaches in special education. The absence of Qur'an-specific research indicates the necessity of context-related instructional models, teacher training programs, and locally-based interventions that will ensure that multisensory approaches to teaching and learning of the Qur'an are consistent with linguistic, cultural, and spiritual aspects of its learning. These initiatives can contribute to a more welcoming and efficient student learning experience for dyslexics in religious schools.

There are a number of limitations that should be considered. Data analysis was performed using a single bibliographic database, and English-language publications were selected, which could potentially eliminate any other studies in languages other than English, as well as local sources. Moreover, bibliometric techniques focus on trends and correlations of publication information, but not on the quality of pedagogies and empirical efficacies of individual studies. Future studies can increase the amount of data, include qualitative or mixed-methods reviews, and be more specific to Qur'an-specific multisensory interventions, especially in underrepresented areas. There is also a need to conduct further empirical research to convert theoretical knowledge into approved instructional methods.

Conclusively, this bibliometric study has shown the importance of bibliometric techniques in identifying trends, gaps, and structural features of studies on the multisensory method of Qur'anic reading among students with dyslexia. These findings highlight the rising tide of the discipline as well as the necessity to conduct research that is more contextually situated and collaborative. With the availability of a broad summary of the existing body of knowledge, the study can serve as a reference point for further research and as a means to educate learners with dyslexia more reasonably, inclusively, and fact-based, teaching them how to read the Qur'an.

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