MAPPING THE RESEARCH LANDSCAPE: A BIBLIOMETRIC ANALYSIS OF PSYCHOLOGICAL INTERVENTIONS TO ENHANCE ACADEMIC PERFORMANCE IN SPECIAL EDUCATION

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Abstract
This study examines trends in psychological interventions to increase academic performance in special education, focusing on their impact on students' success. Using bibliometric analysis, VOSviewer, co-driving, and analysis of co-word, it examines literature from 2001 to 2024. The findings emphasize the efficacy of cognitive-behavioral therapy, socio-emotional learning, and promoting behavior. Common contributions to the US, Great Britain, and Australia, while other nations also provide key knowledge. Contemporary research combines interventions with academic performance, teacher training, and students' involvement. Future studies should explore technology, personalized learning, and digital tools. Restrictions include SCOPUS, which indicates expansion to PubMed or ERIC. This first factual analysis offers valuable knowledge about trends and future directions and emphasizes emerging technologies for long-term student development.
Keywords: Psychological interventions, academic performance, special education, Bibliometric analysis, VOSviewer.

INTRODUCTION

The integration of psychological interventions into special education is essential for increasing academic performance, while research emphasizes their significant impact on students' results (Verdonschot et al., 2009). Target strategies, such as cognitive-behavioral therapy and modifications of behavior, improve emotional regulation, class and involvement, especially for students with individualized educational plans (Saltan & Arslan, 2016; Archer et al.,

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2014). Structured interventions support the development of skills, social adaptation and motivation through positive strengthening techniques (Gilson et al., 2017; Bal & Trainor, 2016). Research into neuroplasticity underlines the importance of adaptive approaches to learning and emphasizes interventions adapted to various needs (Nelson & Powell, 2018). Institutional framework further increases the results by inserting psychological support into politicians.

Despite progress, challenges in standardizing methodologies and resolution differences in the field of resources (Hämäinen et al., 2013; Nilholm & Göranson, 2017). Cooperation between teachers, psychologists and politicians is essential for improvement of strategies and overcoming obstacles such as teachers' training and limited sources (Bruhn et al., 2015; Dietrichson et al., 2017). The intervention of the behavior and involvement of parents also play a critical role in promoting academic success (Falkmer et al., 2015; Barton et al., 2017). Longitudinal data confirms the positive impact of these interventions, and research is needed to explore the link between cognitive development, intervention strategies and academic performance (Rowe et al., 2021). The solution of these gaps through cooperation and professional development will ensure that psychological support is in line with the various needs of students in special education.

1.1 Research Objective

The primary objective of this study is to provide a comprehensive analysis of emerging trends in psychological interventions to increase academic performance in special education and at the same time identify current development, potential research areas and future directions. Emphasis is placed on the evaluation of annual growth in publications, distribution of the country, patterns of publications, intellectual structure and cluster analysis of scientific production in the field of psychological interventions and academic performance in special education.

1.2 Research Originality

To confirm the originality of the study, to the best of our knowledge, this is the first study to combine bibliometric and cluster analyses in examining psychological interventions in special education. The study offers a unique comparison with phenomena, processes, and events in the contemporary educational and psychological landscape, focusing on intervention strategies and policies aligned with academic success for students with special needs.

1.3 Research Questions

This study addresses the following research questions:

RQ1. What is the current publication trend in psychological interventions for academic performance in special education?

RQ2. How are publications related to psychological interventions in special education distributed across different regions, and which regions lead in terms of citations?

RQ3. Which journals are most relevant in this area of research?

RQ4. Who are the most influential authors in the field of psychological interventions for academic performance in special education?

RQ5. Which are the most influential articles in this domain?

RQ6. What is the intellectual structure of current research on psychological interventions for academic performance in special education?

RQ7. Which themes involving psychological interventions are the most popular among scholars in the context of special education?

RQ8. What areas involving psychological interventions require further investigation?

METHODOLOGY

An overview of existing literature emphasizes two related studies. Cristóvão et al. (2017) performed bibliometric analysis on social and emotional learning (SEL) and its link to academic success in Portuguese schools focusing on SEL and citation trends, but not psychological interventions in special education. On the other hand, our study examines psychological interventions aimed at increasing academic performance in special education by bibliometric and cluster analysis (Aria & Cuccurullo, 2022) to identify trends and future directions. Similarly, Liu et

al. (2024) assessed psychological interventions to prevent relapse of schizophrenia, contributed to clinical research, but omitted special education. Our study extends the scope of analysis of publications, influential topics and intellectual structures from 2001 to 2024. We offer targeted surveys through bibliometric and cluster analysis and develop literature on psychological interventions in special education and their impact on academic success.

1.4 Research methods

This study used evaluation techniques, mining and analysis of performance to identify formulas, correlations and assessment of the impact of authors, citations and scientific production in psychological interventions to strengthen academic performance in special education. Bibliometric mapping of visualized structural features of scientific output after COBO et al. (2011) and ECK and Waltman (2011). Research hotspots were identified by analysis of indexed occurrences of keywords, productive researchers and magazines from 2001 to 2024, which was confused with bibliometric reviews of Qudah et al. (2023) and Alqudah et al. (2023). Bibliometric analysis plays a key role in educational psychology by evaluating global trends and knowledge structures, as shown in studies on special education interventions (Momani et al., 2023; Alqudah et al., 2024). Based on the previous research, we used a cluster analysis using VosViewer to explore the trends of psychological interventions. It co -participates and bibliographic links analyzed relations between authors, magazines and documents. The KO-Word analysis evaluated conceptual structures after Abu Orabi et al. (2024). Our findings emphasize the emerging trends in cognitive-behavioral techniques, digital learning and personalized AI-controlled education that are in accordance with intervention strategies to improve academic success (Samara et al., 2024).

1.5 Research Search

We have created a search strategy including several parameters and restrictions to explore the emerging trends in psychological interventions for academic performance in special education. The Core Collection of Web of Science has been selected as a primary data source due to its complex nature and expanded use in scientific research evaluation. The question about the data was set up using keywords such as "psychological interventions" and "special education" focusing on studies from the last 23 years (2001 to the present). The first filter was applied only to select articles in English and provided 454 articles. The second filter focused on relevant areas such as educational psychology, special education, cognitive science, learning disabilities and behavioral sciences, thus narrowing the results to 221 articles. Inclusion criteria for the study were as follows: Reviewed empirical studies published in English with a focus on psychological interventions in a special education environment, children or students and academic performance or cognitive/behavioral results. Studies published in the last 23 years have been considered, which ensures current findings. Exclusion criteria included articles without reviewed paper, articles focused on non-psychological interventions (e.g., medical or pharmacological treatment), studies that do not specifically focus on setting special education, or those that lack sufficient data on intervention results. In addition, studies published in languages other than English were excluded. After the application of these criteria, 221 articles were selected to ensure that only relevant and high -quality studies were included in the review that followed the instructions of prism for systematic reviews.

To assess the impact of psychological interventions on academic performance in special education, we analyzed the growth of publications, trends of citations, authorship and intellectual structure. The study focused on articles in educational psychology, special education, cognitive science, learning and behavioral sciences. After using the search and cleaning strategy, we selected 221 articles published between 2001 and 2024, which include 755 authors from 110 sources. The average quotation per article is 22.84, reflecting the growing impact of research. International co -authorship accounted for 14.03%, and each article had an average of 3.63 co -authors. This shows an ascending trend in cooperation and quotation in this area.

DATA ANALYSIS AND RESULTS

1.6 Publication Growth

To deal with RQ1, we analyze the annual growth of publications on psychological interventions to increase academic performance in special education from the Core Collection Web of Science. The first article was published

in 2001. From 2001 to 2016, the publication gradually increased, with 2 articles in 2001 and 12 in 2016. After 2016, growth increased significantly from 5 articles in 2018 to 7 in 2019 and 11 in 2020.

1.7 Geographic Distribution of Publications by Country

Table 1 address RQ2. The US contributed most publications (79), followed by the United Kingdom (24), Spain (15), Australia (10) and Brazil (7). Countries with the smallest publications include China, India, Ireland, the Netherlands and Turkey, each with 5 publications. The first ten countries in terms of the total number of publications, while the ten most important countries in terms of influential publications based on quotations. These findings reflect the global interest in psychological interventions to increase academic performance in special education, while the US leads in contributions.

As far as quotations are concerned, the US ranks first with 1,981 overall quotations, followed by Australia with 1,317 citations and the Netherlands in third place with 491 citations (as seen in Table 1). Although the US has created the highest number of publications, it has a relatively low MCP ratio of 0.038, indicating more focused research production compared to other countries such as Australia and Netherlands, which have higher ratios of 0.2, indicating significant international cooperation. The fact that countries like Finland and Denmark have no publications with multiple countries, which emphasizes a more localized impact of research.

Table 1. Highly Cited Publications by Country

Country	Citations	Average Article Citations	Single Country Publications (SCP)	Multiple Country Publications (MCP)	MCP Ratio
USA	1981	25.1	76	3	0.038
Australia	1317	131.7	8	2	0.2
Netherlands	491	98.2	4	1	0.2
United Kingdom	232	9.7	22	2	0.083
Finland	191	191	-	-	-
Denmark	140	140	-	-	-
Turkey	138	27.6	4	1	0.2
Sweden	117	58.5	2	0	0
Canada	104	34.7	3	0	0
Spain	72	4.8	14	1	0.067

*Source: Authors' own creations

Best institutions contributing to research of psychological interventions in special education. The University of Texas Austin (USA) leads with 11 publications, followed by a system of State University in Florida (9) and the University of Illinois Chicago (6). While US institutions dominate the volume of publication, their influence measured by the number of quotes differs. For example, the high production of the University of Texas Austin does not correlate with a high impact of the quotation, unlike King's College London (UK) or CNRS (France), whose research seems to be more influential. This discrepancy underlines the importance of productivity and quality of research in the formation of the intellectual landscape in the field.

1.8 Journal analysis

To address RQ3, analyze the relevant journals around psychological interventions to increase academic performance in special education, bibliometric analysis was performed on 221 articles. Key journals in the field, with research by Journal of intellectual disabilities leading in terms of overall publications, H-Index (8) and citations (520). This suggests that it significantly contributes to researching psychological interventions. The second key observation is that magazines such as corrective and special education (H-Index: 11, citations: 409) also have a significant number of citations and contribute with valuable research. However, some magazines may have a lower volume of publications but still offer impressive research in this area.

Thirdly, magazines based in the US, such as Journal of intellectual research of disability (8 publications) and corrective and special education (12 publications), are significant in terms of the amount of publication. However, the

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H-Index and H-Index and Quote Citation do not fit these US-based journals, suggesting that, despite creating a significant number of publications, they do not have much effect on increasing academic performance in special education. In short, the most influential research in this area comes from magazines such as remedial and special education, with high H-index and citations. The research environment reflects concentrated focus on psychological interventions, while the US leads in terms of influential contributions.

1.9 Author analysis

To deal with RQ4, "who are the most influential authors in the field of psychological interventions to increase academic performance in special education?", We analyzed the most cited authors and their H-index. Table 2 presents the front authors in this area based on the number of citations. The most important authors based on quotations are Maggin DM with 309 citations, followed by Briesch AM with 172 citations and Barton EE with 137 citations. The most influential author based on the H-index is Maggin DM, with H-Index 5, followed by Briesch AM with 2 and Barton EE with 4.

Table 2. Top Authors Based on Citation Count

Authors	h_index	g_index	m_index	TC	TP	PY_start
Maggin DM	5	6	0.385	309	6	2013
Briesch AM	2	2	0.154	172	2	2013
Barton EE	4	4	0.444	137	4	2017
Pustejovsky JE	3	3	0.333	92	3	2017
Lane KL	3	3	0.333	83	3	2017
Collins LW	3	3	0.3	77	3	2016
Bouck EC	2	3	0.154	47	3	2013
Berkeley S	2	2	0.222	42	2	2017
Burke MD	2	2	0.222	39	2	2017
Ayres KM	2	2	0.182	28	2	2015

*Source: Authors' own creations

The analysis of bibliographic links, shown in Figure 1, identifies key relationships between authors in the field of psychological interventions to increase academic performance in special education. Red Cluster emphasizes the most influential author Carter EW, who shares a strong connection with other leading characters like Nelson G and Harrison Jr. This cooperation emphasizes the central role of Carter EW in the development of the field. Significant publications such as "the impact of behavioral interventions on academic performance" from Briesch AM and "improvement of learning outcomes for students with disabilities" since Pustejovsky. These influential works have shaped understanding of interventions in special education and continue to manage research and rocedures aimed at improving academic performance for students with disabilities.
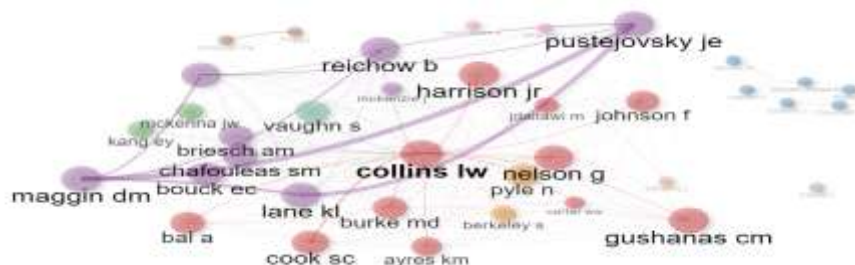

Figure 1. Collaboration Network of Prominent Authors
*Source: Calculated by the author using Biblioshiny in R
1.10 Key Publications

To solve RQ5, "to explore the most influential studies in the field of psychological interventions to increase academic performance in special education," we begin to analyze the most suitable articles on this topic. The best cited article is O'Flaherty & Phillips (2015), which examines the use of inverted classrooms in higher education with 1,142 citations. This study significantly influenced this area by emphasizing the innovative approach to teaching

students with special educational needs. The second most cited study is Verdonschot et al. (2009), exploring the participation of community of people with intellectual disabilities with 280 citations. This article is essential for understanding social integration strategies in special education. The third most quoted paper is Hämäläinen et al. (2013), which examines the deficits of auditory processing in dyslexia with 191 citations. This study provides valuable knowledge about academic challenges facing students with dyslexia. Other influential works such as Maggin et al. (2013) and Dietrichson et al. (2017), they also contribute significantly to understanding interventions for students with disabilities. These studies underline the role of effective interventions in increasing academic results for special education students with a focus on integration, behavior management and academic performance.

1.11   Keyword analysis

The keyword analysis was carried out by vosViewer to explore the intellectual structure of psychological interventions to increase academic performance in special education. The process included the identification of key phrases, a selection of significant terms using VosViewer algorithms, the design of maps and clusters and visualization of these findings (ECK & Waltman, 2011). The frequency of keywords in the literature reveals that many studies focus on managing behavior, inclusion strategy and academic performance. Various research techniques were used to assess the effectiveness of interventions in special education. The analysis emphasizes important topics, methodology and authorial cooperation and offers valuable knowledge about how psychological interventions evolve to improve academic performance in a special education environment.

1.12   View Timeline on Keywords

To solve RQ6, Figure 2 represents a keyword of psychological intervention research to increase academic performance in special education. The analysis reveals trends in academic strategies and intervention strategies at different time periods. From 2016 to 2018, there was great emphasis on "intellectual disabilities" and "integration", which were central topics in special education. In recent years (2022-2024), research has been increasingly focused on "higher education", "inclusive education" and "academic performance", reflecting the growing importance of inclusive practices in higher education. In addition, there is a noticeable increase in studies on "mental health", indicating its emergence in special education. Future research could explore the relationship between mental health, inclusive education and academic results in special education.
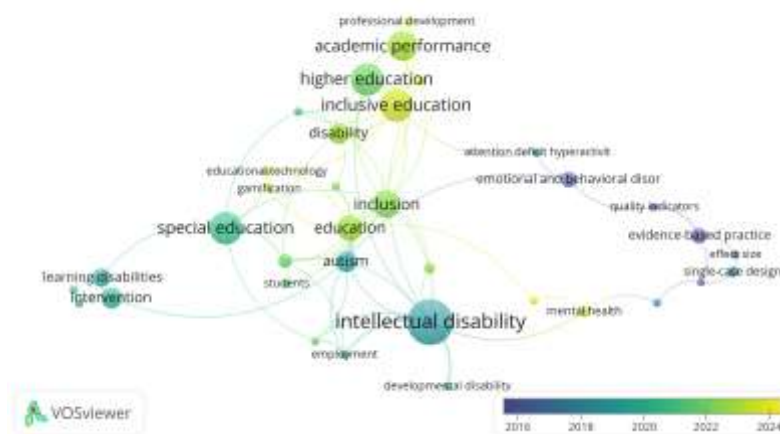

Figure 2. Trends in Keyword Usage Over Time
Source: Calculated by the author using VOSviwer

2. Current Trends And Future Insights: A Cluster Analysis

To address RQ7, cluster analysis is performed to identify key themes relatent to psychological interventions in special education as Divers Disability Groups. VosViewer has created a total of seven clusters that emphasize the most important topics in this area. These clusters represent various aspects of psychological interventions aimed at improving academic performance such as mental disabilities, autism, emotional and behavioral disorders, learning

disabilities and inclusive education in higher education. The analysis emphasizes the relationship between special education, assistance technology and evidence -based procedures. By examining these clusters, we can better understand developing trends in psychological interventions and propose potential future directions of future research aimed at optimizing these strategies for students with disabilities in the educational environment.
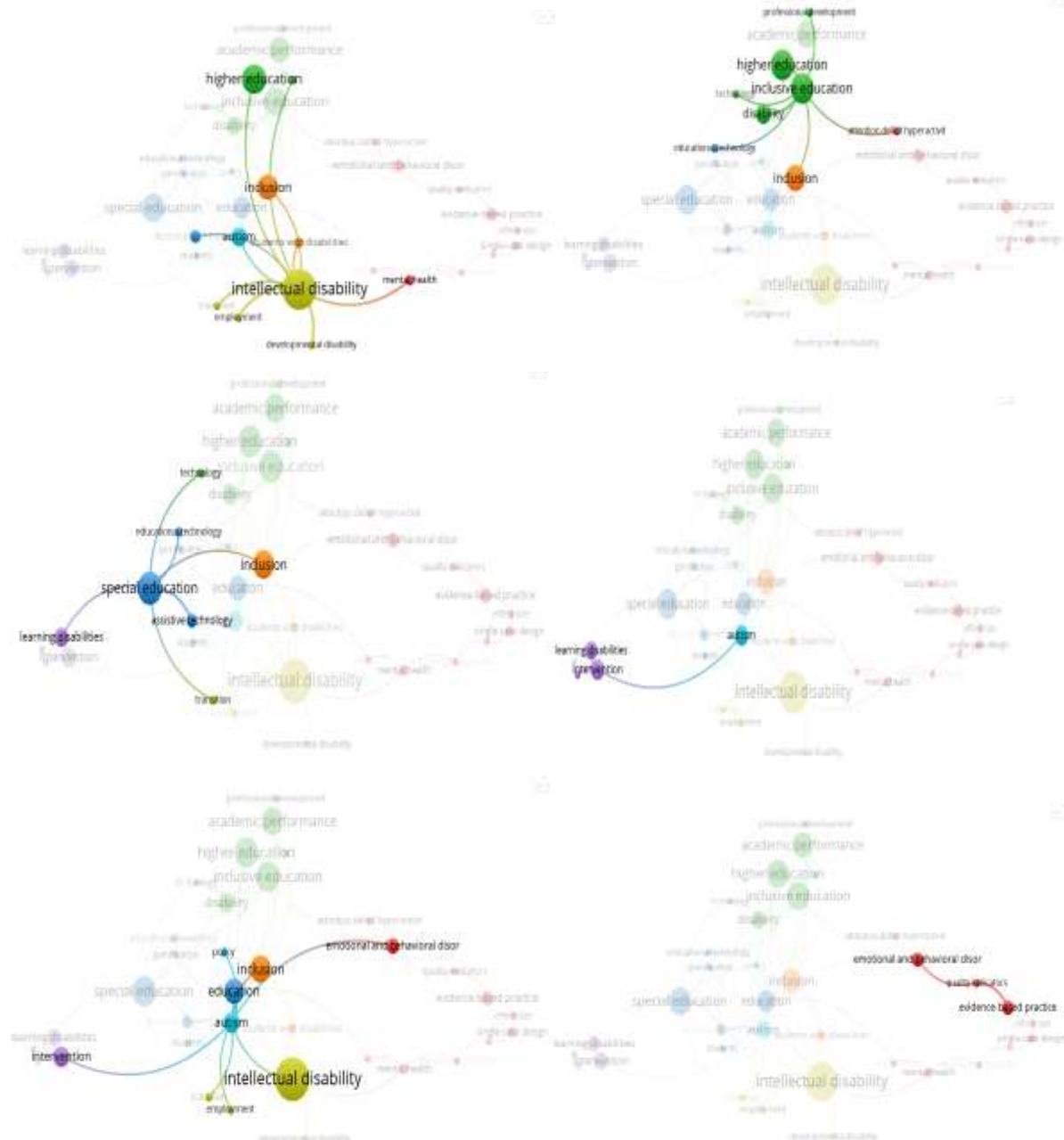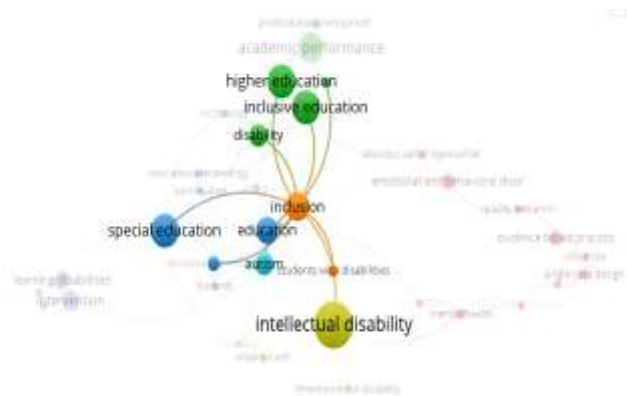
Figure 3. Seven Clusters
Source: Calculated by the author using VOSviwer

Analysis of VosViewer clusters reveals key topics in psychological interventions to increase academic performance in special education. The cluster 1, emphasized by yellow, focuses on "intellectual disability" and emphasizes his relationship with developmental disabilities, mental health and transition to opportunities after school like employment (Verdonschot et al., 2009; Gilson et al., 2017). The cluster underlines the importance of integration, assistance technology and adapted interventions to promote academic success and social participation for individuals with mental disabilities (Reichow et al., 2018).

Cluster 2, displayed in Green, focuses on "inclusive education in higher education". This cluster emphasizes increasing emphasis on providing available education for students with disabilities, focusing on academic performance, professional development for teachers and the role of assistance technology (O'Flaherty & Phillips, 2015; Maggin et al., 2013). Training programs equip teachers to create inclusive environments, while technology increases educational experience and ensures fair access to education (Nilholm & Göranson, 2017).

Clump 3, displayed in blue, examines "special education" and the role of psychological interventions in solving unique challenges for learning such as autism and dyslexia. These interventions support the involvement, motivation and integration of supported technologies that improve academic results (Hämäläinen et al., 2013; Dietrichson et al., 2017). However, the inconsistent implementation of policy is challenges, which requires refined strategies for long-term success (Pelleboer-Gunnink et al., 2017).

The cluster 4, illustrated in Orange, focuses on "psychological inclusions" for students with emotional and behavioral disorders (EBD), including ADHD. These interventions deal with social and emotional needs, support integration and academic success (O'Flaherty & Phillips, 2015). Proof -based procedures such as one case proposals evaluate the effectiveness of intervention, emphasize the importance of supporting integration at the level of education (Reichow et al., 2018).

The cluster 5, displayed in purple, concerns "learning intervention". Psychological theories and assistance technologies such as software for text speech, support students with learning disabilities, strengthening access to teaching materials and promoting inclusive environments (Bruhn et al., 2015). These interventions support resistance and academic achievements and ensure that students receive the necessary support to achieve their potential (Gilson et al., 2017).

Cluster 6, displayed light blue, underlines the role of "autism" in the transformation of educational practices. Custom support, including individualized teaching strategies and auxiliary technologies, is necessary to increase academic performance and support independence between students with autism (Dietrichson et al., 2017). Social integration in general education classes is of attention, although challenges such as limited resources persist (Snyder et al., 2015). Future research should explore the interplay between inclusion and technology strategies to solve these gaps.

Finally, Cluster 7, emphasized by the red, examines "emotional and behavioral disorders and evidence -based practice". Students with EBD Face Challenges Such as anxiety, Depression, and Social Interaction Issues, Affecting Academic and Social Development (O'Flaherty & Phillips, 2015). The alignment of evidence-based interventions (EBP) is critical and uses the quality and approaches of data based on data, such as a design with one case, to evaluate success (Rowe et al., 2021). Optimizing EBP implementation across different contexts remains a priority for future research.

These clusters together illustrate the multilateral role of psychological interventions in special education. From intellectual disabilities and autism to emotional and behavioral disorders, strategies and tailor-made technologies are essential to promote integration, academic success and emotional well-being. Although significant progress has been made, challenges such as inconsistent policies and resources persisted. The solution to these gaps through cooperation, professional development and innovative procedures will ensure fair and effective educational results for all students with disabilities. Future research should continue to examine the integration of technologies, personalized learning and evidence -based procedures to improve interventions and support the long -term development of students. By solving these priorities, the fields can proceed towards more inclusive and more supportive educational systems that allow students with disabilities to succeed academically and socially.

2.1 Future Research Directions

The future agenda for progress in psychological interventions in special education must deal with critical areas to increase academic results and support students with disabilities. To improve the availability and inclusivity, it is necessary to expand the research of assistance technologies, especially for autism and learning disabilities. Studies should also examine the support of resistance and emotional well -being, especially for students with emotional and behavioral disorders (EBD), optimizing evidence -based procedures (EBP) through data -based approaches such as one case (Reichow et al., 2018; Rowe et al., 2021). Professional development programs are required to prepare teachers for inclusive university education and focus on long -term impacts on academic performance and social integration for students with mental disabilities and autism. The penetration of special education and mental health requires attention because psychological support services can improve academic achievements and social integration (Verdonschot et al., 2009; Hämäläinen et al., 2013). Finally, policies regulating special education must be evaluated and improved to ensure fair implementation of intervention across settings (Pelleboer-Gunnink et al., 2017). Cooperation between teachers, politicians and scientists will be essential for achieving these goals and improving the results for students with disabilities.

3. CONCLUSION

Psychological interventions are increasingly important for increasing academic performance and emotional well -being in special education, supporting and developing students. These interventions significantly affect students with disabilities by supporting academic growth and integration into the educational environment. Empirical evidence emphasizes a strong correlation between psychological strategies adapted to adaptation and improved results and emphasizes their role in cognitive, emotional and behavioral support. Analysis of the time of keywords reveals a growing research interest in this area, while the United States, Great Britain and Australia lead in publications. However, their influence, measured by the impact of H-Index and citations, underlines the global commitment to develop special education through inclusive policies, such as the Education Act with disabilities (Idea).

The cluster analysis shows scientists investigating links between psychological interventions and factors such as teachers training, students' involvement, assistance technology and class management. As special education develops, evidence-based practices are preferred, supported by political reforms that emphasize inclusive education and emotional well-being. Future research should explore the role of technologies, digital tools and personalized teaching platforms in shaping interventions. Integration of psychological theories into these innovations will be essential for improving the results for students with disabilities.

4. Limit

Restrictions include relying on specific databases and search terms, which suggest opportunities to expand to PubMed, Eric or include synonyms and multilingual terms. Despite these restrictions, psychological interventions are crucial in promoting integration and academic success. As the field adopts innovative procedures, the integration of psychological support into wider educational frames will improve the long -term development of students. Future research will provide information on the transformation of interventions and will contribute to a more inclusive and efficient educational system for students with disabilities.

Data Availability Statement

The data used in this study are derived from publicly available sources, specifically the Scopus database. The datasets analyzed during the current study are available from the corresponding author upon reasonable request.

Conflict of Interest

The authors declare no competing interests.

Informed Consent

Not applicable. This study is a bibliometric review and does not involve human participants or experimental research requiring informed consent.

Ethical Approval Statement

This study does not involve human participants, animals, or any experimental procedures. Therefore, ethical approval was not required.

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