



## Exploring the Integration of Mixed Methods in Inclusive Education Research: A Systematic Literature Review

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### ABSTRACT

This systematic literature review examines how mixed methods have been integrated into inclusive education research and offers an updated contribution by mapping design trends, methodological quality, and research gaps. Guided by PRISMA 2020, the study reviewed 40 English-language articles indexed in Scopus and published from 2020 to 2024. The review analyzed four key concepts: mixed methods design, data integration, participant involvement, and thematic focus in inclusive education. Convergent design was the most dominant approach, with studies largely addressing teachers' attitudes, students' experiences, and professional collaboration. However, many articles showed weak integration procedures, limited student participation, and strong concentration in developed-country contexts. The findings imply the need for more transparent integration, participatory designs, and technology-oriented inclusive education research.

## INTRODUCTION

Inclusive education has become a global commitment to ensure that every individual, including those with special educational needs, has equal access and opportunities to learn. Around the world, countries are implementing education policies that emphasize the importance of eliminating learning barriers for marginalized learners. However, the implementation of inclusive education still faces major challenges, especially in terms of limited teacher training and resource gaps (Ballantyne et al., 2024; Koutsouris et al., 2024).

The mixed methods approach has become an increasingly popular research strategy in inclusive education studies because of its ability to combine the strengths of quantitative and qualitative data (Lee & Harrison, 2021). In the context of inclusive education, this approach allows researchers to answer questions that cannot be answered with just one type of data, such as the relationship between teacher perceptions and the effectiveness of implementing learning differentiation strategies ((Boadu & Bonyah, 2024). For example, research by Engelbrecht and Walton shows that a combination of survey and interview data can reveal dimensions of teacher attitudes that do not appear in statistical measurements alone (Walton & Engelbrecht, 2024).

However, a literature review shows that although the use of mixed methods is increasing, its application in the context of inclusive education is still relatively limited and not well structured. Many studies only nominally state that they use a mixed approach, but fail to meaningfully integrate qualitative and quantitative findings (Kozikoğlu & Albayrak, 2022). This results in many research results that are less comprehensive in explaining the context and complexity of inclusive education as a whole. In fact, in some cases, the separation of data and analysis that is too rigid actually eliminates the integrative essence of the mixed method itself (Lee & Harrison, 2021).

Furthermore, there are still doubts regarding the consistency of methodological rigor in mixed methods studies on inclusive education. For example, (McCracken et al., 2023) noted that most studies failed to explicitly explain how data were combined, and how the integration process affected the interpretation of results. This is problematic because without systematic and transparent reporting, it is difficult for readers and other researchers to evaluate the quality and replicability of the research. The quality of data synthesis is crucial in developing evidence-based policies that can be applied across educational contexts (Ladenstein et al., 2023).

In addition, most of the literature has not utilized theoretical frameworks optimally in designing mixed methods studies in inclusive education. In fact, a strong theoretical framework can be a support in designing data integration and ensuring that mixed methods are used not only technically, but also conceptually (Cabrera et al., 2023). For example, Bronfenbrenner's Ecological Theory or the Universal Design for Learning (UDL) Model actually have great potential to be used as a reference in compiling mixed methods designs based on multidimensional inclusive contexts. In an effort to strengthen the scientific basis and research practices, a systematic review of studies that have used a mixed methods approach in inclusive education is needed. This review is important not

only to map methodological trends but also to assess the quality and depth of integration between qualitative and quantitative data (Nguyen, 2023; Riyanto et al., 2023).

Therefore, this article aims to conduct a systematic literature review on the integration of mixed methods approaches in inclusive education research over the past five years (2019–2024). This review seeks to provide a comprehensive overview of how mixed methods have been applied in this field, while also shedding light on the methodological quality and reporting standards observed in existing studies. The findings are expected to contribute significantly to improving the design and implementation of inclusive education research by offering both theoretical insights and practical guidance.

In particular, this study is anticipated to serve as a valuable reference for novice researchers, educators, and policymakers in crafting more responsive and evidence-based educational interventions (Roberts et al., 2023). Strengthening the methodological foundations of inclusive education research will help ensure that it becomes not only more adaptive to learner diversity but also more aligned with the principles of equity and justice that underpin inclusive practice. To achieve these aims, this review is guided by the following research objectives:

- RO1: To identify the dominant trends in the application of mixed methods approaches within inclusive education research from 2019 to 2024, focusing on how these trends reflect evolving theoretical and practical orientations in the field.
- RO2: To evaluate the quality of integration between quantitative and qualitative data in inclusive education studies, and to examine the level of transparency in the reporting of mixed methods designs and procedures.
- RO3: To reveal the key methodological challenges encountered by researchers and to formulate strategic opportunities for enhancing the future development and utilization of mixed methods approaches in inclusive education research.

## LITERATURE REVIEW

### *The Role of Mixed Methods in Inclusive Education Research*

Research on inclusive education has experienced significant developments, particularly in promoting social justice and equal access to education for all learners, including those with special needs. Inclusive education requires a complex understanding, as it involves the interaction of policies, teaching practices, and the diversity of student backgrounds (Pinto-Llorente & Sánchez-Gómez, 2020). In this context, a single methodological approach either quantitative or qualitative is often insufficient to capture the full dynamics and diversity of inclusive practice (Copeland & Tate, 2023).

Mixed methods approaches have emerged as a promising solution to bridge the gap between numerical data and rich narratives, between generalizations and deep contextual understanding. This approach enables researchers to combine quantitative and qualitative data within a single study design to gain a more holistic picture of inclusive education phenomena. For instance, researchers have utilized surveys to measure teachers' perceptions of inclusive training and followed up with interviews to understand their

experiences in greater depth, allowing both measurement and interpretation of responses (Poncelet et al., 2011).

Recent studies further underscore the versatility of mixed methods, especially in enhancing validity and insight. One study applied a convergent parallel design to investigate inclusive pedagogies, integrating teacher reflections with assessment outcomes (Koutsouris et al., 2024). Another study employed an embedded design that used qualitative narratives to contextualize engagement levels identified through quantitative analysis (Kidane et al., 2020).

#### *Methodological Challenges in Implementing Mixed Methods*

Despite its strengths, mixed methods research in inclusive education faces several methodological challenges. A major issue is the lack of integration between qualitative and quantitative data in the analysis phase. Many studies present both sets of results but fail to synthesize them meaningfully, thereby weakening the impact of the mixed methods design (Eltanahy & Forawi, 2019). Presenting data in parallel without analytical integration fails to produce comprehensive or contextual conclusions.

Another challenge involves the inappropriate selection or application of mixed methods designs. Some researchers claim to use mixed methods while merely collecting two types of data without applying a clear design framework (Baidoo-Anu et al., 2023). Choosing the appropriate design such as sequential explanatory, sequential exploratory, or convergent design is essential to guide the data integration process effectively (Cabrera et al., 2023). Poor understanding of design principles can reduce the clarity and validity of research findings. Moreover, weaknesses in reporting are common, such as the lack of theoretical justification for data integration or failure to explain how integration supports the research objectives (Gath et al., 2024). Empirical research also identifies challenges related to sampling and analytic alignment. Reconciling sample sizes suitable for both data strands often results in validity trade-offs. Inadequate explanation of how qualitative findings are incorporated into statistical interpretations also reduces transparency and replicability (Darmawan et al., 2020).

#### *Theoretical and Practical Advancements in Mixed Methods Studies*

From a theoretical perspective, mixed methods studies in inclusive education often underutilize frameworks that could unify data integration. Theories such as Universal Design for Learning (UDL), Social Capital Theory, and Critical Disability Theory offer valuable guidance for bridging qualitative and quantitative evidence (Copeland & Tate, 2023). However, many studies only refer to theories superficially rather than embedding them within the analytic process. While some research has demonstrated how qualitative findings can enrich survey data on teacher training inequalities, many others fail to provide such synthesis (Copeland & Tate, 2023).

Innovative approaches have emerged in recent studies. One study applied Self-Determination Theory within a convergent design to reveal the impact of inclusive practices on students' autonomy and competence (Mania & Alam, 2021). Another employed Critical Disability Theory in an explanatory sequential framework to contextualize survey results through discourse analysis, revealing systemic patterns of exclusion (Bettencourt et al., 2023; Chen et al., 2024).

## **METHODOLOGY**

### ***Review Design and Data Sources***

This study is a systematic literature review conducted by referring to the PRISMA 2020 (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines to ensure transparency, replicability, and quality in the article selection process. The objective of this review is to explore how the mixed methods approach has been applied in studies addressing inclusive education. Data were primarily retrieved from the Scopus database, known for its comprehensive coverage of peer-reviewed scientific publications across disciplines, including education. This design was chosen because it provides a structured and objective foundation for mapping research trends and evaluating methodological rigor. Systematic reviews are also well-suited for synthesizing diverse types of evidence, which aligns with the complexity of mixed methods. Moreover, using PRISMA ensures that inclusion, exclusion, and reporting decisions are made explicitly. By relying on a single reputable database, the study ensured consistency and minimized duplication of sources.

### ***Search Strategy***

The search strategy was implemented by entering two main keyword phrases "mixed AND method" and "inclusive education" into the title, abstract, and keyword search fields. Filters were applied to limit results to journal articles written in English and published between 2020 and 2024. A total of 501 articles were initially identified. In the first filtering stage, 328 articles were automatically excluded as irrelevant. The remaining 173 articles were manually screened by evaluating the titles and abstracts. This keyword pairing was selected to ensure that both methodological and thematic dimensions were addressed. The use of Boolean operators enhanced the specificity of the search results. The timeframe was chosen to reflect current research developments in post-pandemic educational settings. Language and document-type restrictions were applied to increase the validity and readability of the studies included.

### ***Eligibility and Inclusion Criteria***

From the manual screening process, 97 articles were excluded because they either did not explicitly apply a mixed methods approach or did not relate directly to inclusive education. This left 76 articles for full-text review. However, 30 articles were excluded at this stage due to access issues or lack of full-text availability. Of the remaining 46 articles, 6 were further excluded for reasons including lack of topical relevance (2 articles), only containing abstracts (2), duplicates (1), or being written in languages other than English (1). As a result, 40 articles met all inclusion criteria and were used in the final analysis. The inclusion process adhered to criteria ensuring conceptual clarity, methodological transparency, and relevance to inclusive education contexts.

Exclusion of inaccessible or low-quality sources helped maintain the academic rigor of the review. The final set of studies represents diverse geographical settings and institutional types. Each article was independently reviewed by two researchers to reduce bias and improve consistency.

### ***Data Extraction and Analysis***

All included articles were reviewed using a structured coding sheet developed specifically for this study. The extracted information included: year of publication, authors, journal name, type of mixed methods design (e.g., convergent, sequential explanatory, sequential exploratory), data integration techniques, research context, participant characteristics, and analytical approaches for both quantitative and qualitative data. Articles were selected for inclusion only if they demonstrated methodological clarity, proper integration between methods, and relevance to inclusive education. To ensure transparency in article inclusion, the full selection process is visualized through a PRISMA flow diagram, illustrating the progression from the initial 501 articles to the final 40 analysed studies. Data extraction was guided by previously validated coding frameworks in mixed methods reviews. Each article’s coding was cross-verified to minimize interpretation errors. Special attention was paid to the presence of theoretical frameworks and how they shaped the integration process. The resulting dataset allowed for thematic comparison across designs, populations, and data strategies used in inclusive education research.

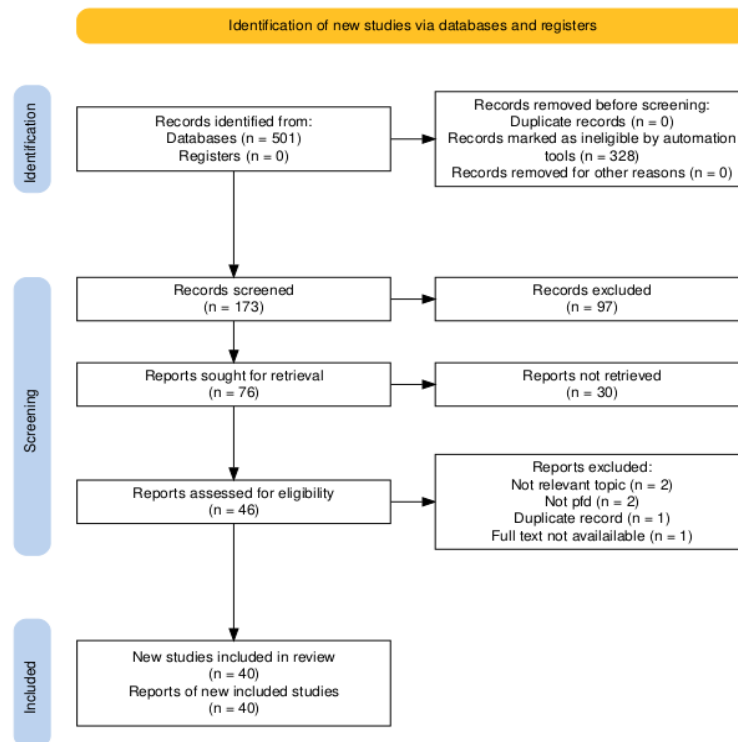


Figure 1: Searching and Screening Processes

## RESEARCH RESULT

This study systematically reviews 40 scientific articles implementing a mixed methods approach in inclusive education research. The articles were published between 2020 and 2024, with a significant increasing trend in 2023 and 2024. This phenomenon shows that the use of mixed methods in exploring inclusion issues is gaining more attention in various parts of the world. In terms of geographical distribution, the studies analyzed came from six main regions: Europe (37.5%), Asia (25%), Oceania (12.5%), Latin America (5%), Africa (2.5%), and studies with international/global coverage (17.5%). This diverse

geographical representation shows that the issue of inclusive education is a global research agenda with unique contextual challenges.

*General Characteristics of Included Studies*

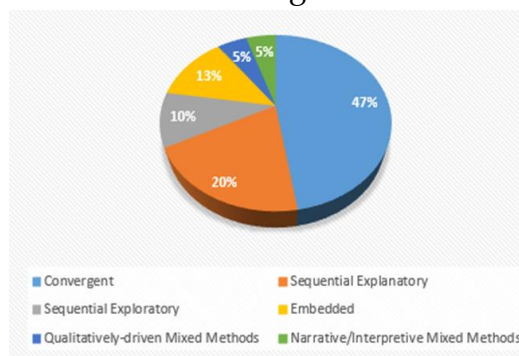
**Table 1. General Characteristics of Included Studies (N = 40)**

Characteristics	Category	Number of Studies	Percentage
Publication Year	2020–2021	11	27.5%
	2022–2023	16	40%
	2024	13	32.5%
Geographic Region	Europe	15	37.5%
	Asia	10	25%
	Oceania	5	12.5%
	Latin America	2	5%
	Africa	1	2.5%
	Global/International	7	17.5%
Education Level	Primary Education	14	35%
	Secondary Education	7	17.5%
	Higher Education	13	32.5%
	Early Childhood Education (ECE)	6	15%
Journal Category	Inclusive/Special Education	23	57.5%
	Multidisciplinary/Social	11	27.5%
	Educational Technology	3	7.5%
	Language Education	3	7.5%

In terms of education level, most studies were conducted at the elementary education level (35%), followed by higher education (32.5%), secondary education (17.5%), and PAUD (15%). This indicates that inclusive practices and evaluation of their implementation are relevant to be applied at various levels of education, both at the early, secondary, and higher levels. In terms of discipline, most articles were published in journals that focus on special education and inclusive education (57.5%), while the rest were spread across multidisciplinary or social science journals (27.5%), as well as journals that specialize in educational technology (7.5%) and language education (7.5%).

*Research Design Used in the Study*

**Figure 2. Types of Mixed Methods Designs Used in Studies (N = 40)**



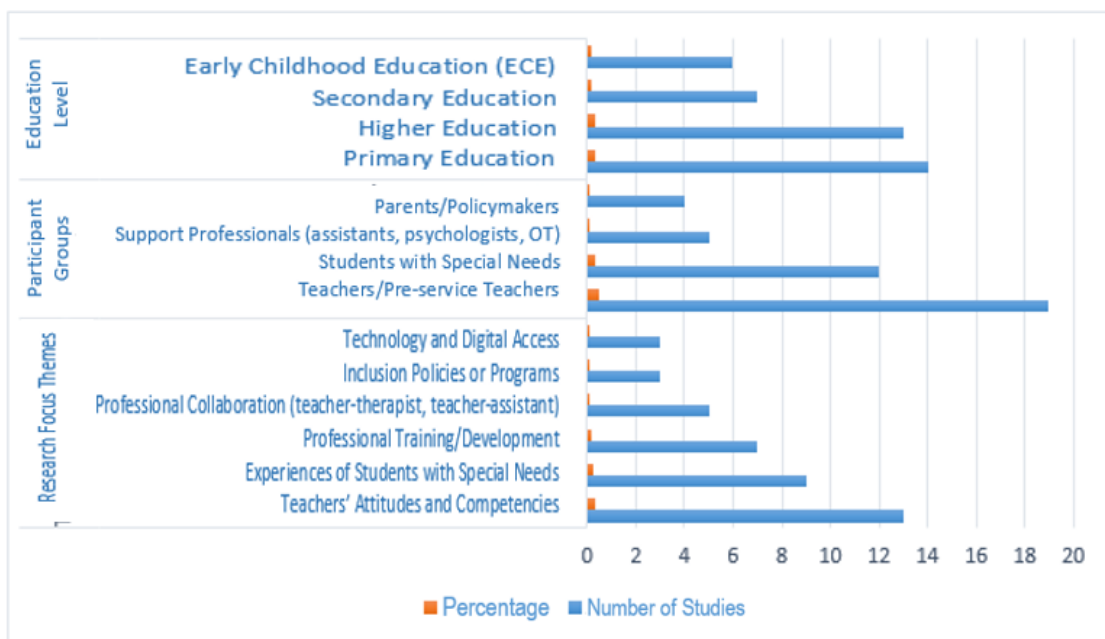
Based on the analysis of the 40 articles reviewed, it was found that the mixed methods approach was applied in various forms of research design. The

majority of studies used convergent designs (47.5%), where quantitative and qualitative data were collected in parallel, then analyzed and interpreted simultaneously. This approach allows researchers to gain a deep and comprehensive understanding of the issue of inclusive education. In addition, there was significant use of sequential explanatory (20%) and sequential exploratory (10%) designs. In sequential explanatory designs, quantitative data are collected first and followed by qualitative data to explain initial findings. Conversely, in exploratory designs, qualitative data precede quantitative data collection to explore new variables or phenomena.

Several studies also applied embedded designs (12.5%), where one type of data is complementary (usually qualitative) within the framework of the main study which is quantitative or vice versa. In addition, there were a small number of studies with qualitatively-driven mixed methods designs (5%) and narrative mixed methods (5%), mainly to explore the subjective experiences of students or educators in the context of inclusion. This diversity of designs demonstrates the flexibility of the mixed methods approach in addressing the complexity of inclusion research, from evaluating interventions to exploring attitudes, perceptions, and collaboration between education stakeholders. A summary of the types of designs used in these studies can be seen in Figure 2 (pie chart) above.

*Focus of Research Reviewed*

Figure 3. Distribution of focus themes, participant groups, and education levels.



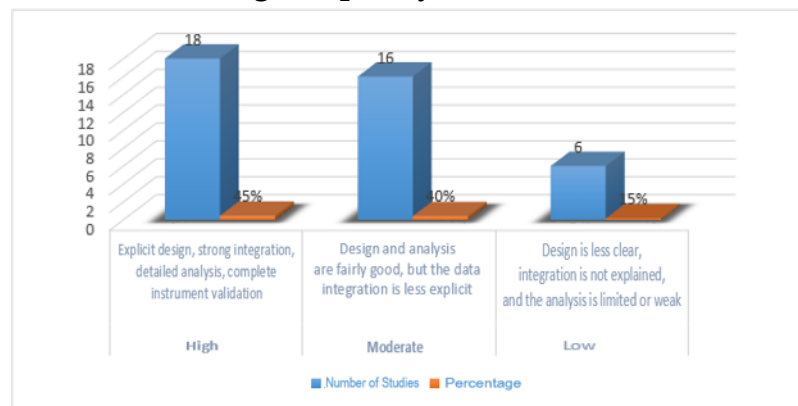
The studies analyzed in this review addressed various aspects of inclusive education related to key actors, learning contexts, and policies. Thematic analysis showed that the most dominant topic was teachers' attitudes and competencies towards inclusion (32.5%), reflecting the urgent need for teacher capacity development in managing classrooms with diverse needs. Another significant topic was the experiences of students with special needs in inclusive environments (22.5%), involving social, emotional, and academic aspects. Several

studies also focused on teacher training and professional development (17.5%), as well as collaboration between teachers and other professionals, such as occupational therapists and learning assistants (12.5%). A small number of studies focused on the influence of inclusive education policies and the use of technology to support inclusive learning.

Based on the analysis of participant groups, the majority of studies involved teachers (47.5%), both experienced and prospective teachers, followed by students with special needs (30%), and support professionals such as educational assistants, psychologists, or therapists (12.5%). Several studies also included parents and policy makers (10%). In terms of education level, the research focus is mostly on primary education (35%), then higher education (32.5%), secondary education (17.5%), and PAUD (15%). This confirms that attention to inclusion spans from the early stages to higher education.

### *Methodological Quality of the Study*

**Figure 4. Methodological quality level of all reviewed articles**

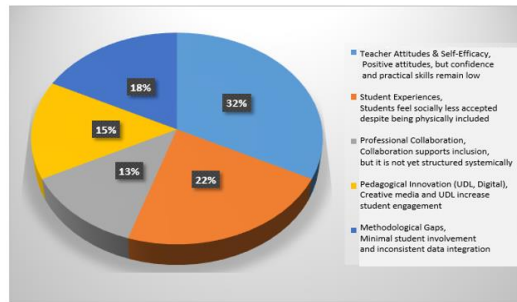


The methodological quality evaluation of 40 articles was conducted by considering the suitability of the mixed methods design, reporting of the data integration process, transparency in the analysis procedure, and participant involvement. Most studies were considered to be of moderate to high quality, indicating that the mixed method approach has been implemented with adequate scientific standards in the field of inclusive education. A total of 18 studies (45%) showed high methodological quality, characterized by explicit design formulation, clear data integration, and detailed and transparent reporting of analysis steps. These studies also often involved instrument validation processes (e.g. CFA, EFA) or strong triangulation between quantitative and qualitative findings.

A total of 16 studies (40%) were of moderate quality, generally due to limitations in explaining method integration, lack of explicit analysis strategies, or the use of mixed methods designs that were not fully consistent in reporting. However, these studies still provide relevant and valid thematic contributions in the context of inclusion. Meanwhile, there were 6 studies (15%) of low quality, where the mixed methods approach was only explicitly mentioned but not systematically explained. Some studies do not provide clarity on how the two types of data (quantitative and qualitative) complement each other or are integrated in the final interpretation. The most common weaknesses are the lack

of explicit explanation of the data integration process and the lack of justification for the choice of mixed methods design.

*Key Findings and Thematic Trends*



**Figure 4. Key thematic findings emerging from the studies analysed**

A synthetic analysis of the 40 studies revealed a number of consistent key themes, as well as some recurring conceptual and methodological gaps. The most striking findings came from studies focusing on teachers’ attitudes and preparedness towards inclusive education, where it was found that although most teachers expressed positive attitudes, many still felt a lack of confidence due to limited training, practical knowledge and institutional support. Studies involving students with special needs showed that the experience of inclusion was strongly influenced by teachers’ attitudes, curriculum flexibility and supportive learning environments. Students often reported feeling socially unaccepted, despite being physically included in regular classrooms.

In addition, several studies identified inter-professional collaboration (e.g. teachers with learning assistants or occupational therapists) as an important factor in increasing the effectiveness of inclusion strategies. However, it was found that this form of collaboration was not standardized and often relied on individual rather than system-based initiatives. Other interesting findings include the use of innovative approaches, such as the use of digital media (comics, inclusive online learning) and universal design (UDL)-based pedagogical models, which have been shown to increase student engagement and inclusive pedagogical responses. From a methodological perspective, there is inconsistency in reporting data integration, as well as a lack of longitudinal exploration that can assess the long-term impact of inclusive interventions. Studies also tend not to directly involve student voice in data interpretation, which is a significant shortcoming of participatory-based inclusion approaches.

*Research Gaps Identified*

**Table 2. Research Gaps and Implications for Further Research**

Gap Categories	Short Description	Number of Studies Impacted	Further Research Recommendations
Lack of direct student participation	Student perspectives are minimally involved in data design & interpretation	14	Use student-based participatory approaches

Absence of longitudinal studies	Lack of long-term studies monitoring the effects of inclusion interventions	10	Emphasize integration points in design and reporting
Weak integration of methods	Quantitative and qualitative data are poorly presented in an integrated manner	12	Design longitudinal studies in real school contexts
Uneven geographic representation	Dominant studies from Europe & Australia	9	Expand studies in Southeast Asia, Africa, Latin America
Lack of inclusive technology research	Little focus on AI, adaptive media, and digital UDL	5	Explore educational technology and digital inclusion

Although mixed methods studies in inclusive education have experienced significant development in the past five years, the results of this review reveal a number of important research gaps, both in terms of substance, methodology, and implementation context. First, it was found that there are still limited studies that directly involve the voices of students with special needs, both in the design, collection, and interpretation of data. In fact, meaningful inclusion should consider the lived experiences of the students themselves, not just the perspectives of teachers or education professionals. Second, only a few studies explore the long-term effectiveness of inclusive interventions. Most of the studies analyzed are cross-sectional or short-term evaluative, which are not able to capture the sustainable impact of policies or pedagogical approaches on student learning and well-being. Third, the integration of methods in mixed methods studies is still often weak. Several studies mix methods without adequate explanation of the point of integration, the reasons for choosing the design, or how quantitative and qualitative data strengthen each other. In addition, there is a gap in the geographical context, especially from developing countries in Southeast Asia, Sub-Saharan Africa, and Latin America. This creates a geographical bias against more systemically established inclusion contexts.

## DISCUSSION

The findings of this systematic review indicate that mixed methods has become an increasingly prominent approach in inclusive education research, particularly through the dominance of convergent designs and the strong thematic focus on teachers' attitudes, students' experiences, and professional collaboration. At the same time, the review reveals persistent methodological and contextual gaps, including weak data integration, limited student participation, uneven geographic representation, and the still limited exploration of

technology-related issues in inclusive education. However, this opportunity has not been systematically utilized in research. Therefore, a more progressive direction for further research is needed with several main focuses. First, research should involve active student participation, so that their voices are truly part of the design and interpretation of the data. Second, the use of longitudinal designs needs to be prioritized so that the long-term impact of inclusive pedagogical interventions or approaches can be evaluated more comprehensively. Third, it is important to provide transparency in the integration of methods, especially in mixed methods studies, so that research results can be methodologically accountable.

Finally, expanding the research context to regions that have so far been underrepresented such as Southeast Asia, Sub-Saharan Africa, and Latin America will provide a more holistic and diverse understanding of inclusive education practices globally.

The results of this systematic review show that the mixed methods approach has emerged as one of the main methodological choices in inclusive education research in the last five years. This trend indicates a growing scientific awareness that the phenomenon of inclusion cannot be fully understood through a single approach, but rather requires a combination of quantitative approaches to capture patterns, effects, and statistical trends, and qualitative approaches to explore the experiences, perceptions, and social dynamics of educational actors (Bowman et al., 2024). The majority of studies analyzed in this review adopted a convergent parallel design, where quantitative and qualitative data were collected and analyzed simultaneously. This approach is considered capable of providing a more comprehensive understanding and strengthening the accuracy of interpretation in the social and cultural context (Alhammedi, 2024).

From a thematic perspective, there is a strong tendency in these studies to explore teachers' attitudes, perceptions, and readiness towards inclusive education. Although most teachers or pre-service teachers show positive attitudes towards the principles of inclusion, many of them feel inadequate in their daily practice, mainly due to the lack of specific training or adequate institutional support (Mansur et al., 2023). This finding is in line with other studies showing that obstacles to the implementation of inclusion more often stem from institutional systems and policies rather than teachers' personal attitudes (Lindner & Schwab, 2025). However, studies show that participation in practice-based training programs and reflective learning can significantly improve teacher efficacy in inclusive classroom contexts, although challenges remain (McCracken et al., 2023). On the other hand, there is a persistent tension between ideological commitments to inclusion and structural realities in educational practice. Emphasize the importance of the co-production paradigm, namely involving students in the learning and decision-making process as a solution to this imbalance. Unfortunately, many studies still show that student voice has not been a primary focus in inclusive education research, even though active student involvement has been shown to increase the effectiveness of pedagogical strategies and a sense of belonging in the learning environment (Lebenhagen & Dynia, 2024). The absence of student voice, especially in decision-

making, intervention evaluation, or inclusive curriculum design, creates a gap between policy and real needs in the field (Hughes et al., 2024).

In the context of student experiences, several studies report low social engagement and feelings of isolation among students with special needs, even though they are formally included in regular classes (Toh et al., 2022). This suggests that inclusion should not only be understood in terms of physical access to learning spaces, but should also include social acceptance, healthy interpersonal relationships, and ongoing emotional support. True inclusion requires more than just the presence of students in the same classroom; it demands meaningful social integration.

Methodologically, one of the biggest challenges in mixed methods studies is the lack of systematic integration of quantitative and qualitative data. Some studies simply present both types of data side by side, without explaining how they reinforce each other conceptually or analytically. This lack of synthesis reduces the depth of interpretation and obscures the unique contributions of each approach. Furthermore, reports of results often do not explicitly include integrative strategies or justify design choices, ultimately affecting the validity and credibility of the findings (Kutscher & Parey, 2024).

In terms of geographical distribution, this study found that the literature on mixed methods-based inclusive education is still dominated by studies from Europe, North America, and Australia, while Southeast Asia, Sub-Saharan Africa, and Latin America are still very underrepresented (Opoku et al., 2022). This imbalance threatens the validity of the generalization of global findings, because inclusive education practices are highly influenced by non-uniform local social, cultural, and policy factors. Therefore, expanding the geographical scope is important to build a more holistic and contextually relevant understanding. In terms of time, most of the studies reviewed are cross-sectional, which only evaluate the short-term effects of inclusion interventions or strategies. In fact, meaningful inclusion often takes time to produce measurable impacts, both in academic and socio-emotional aspects. For this reason, longitudinal studies are urgently needed to assess the sustainability of social participation, academic success, and psychological well-being of students in the long term (Bruen & López, 2024; Stark et al., 2021).

Finally, despite the tremendous potential of educational technology to support inclusive practices for example, through the application of Universal Design for Learning (UDL), needs-based AI, and adaptive learning platforms this review finds that the role of technology is still under-researched in mixed methods studies. While some early research does show positive impacts of technology use on student engagement and learning differentiation, these approaches are still experimental and have not yet been incorporated into policy frameworks or long-term evaluations (Nic Aindriú et al., 2023). These findings confirm that mixed methods approaches have an important role to play in understanding the complexities of inclusive education. However, to enhance their scientific and practical contributions, future research needs to address more explicit methodological integration, broaden the geographic contexts studied,

actively engage student voices, and adopt longitudinal approaches and inclusive technology as integral elements of research design.

## **CONCLUSIONS AND RECOMMENDATIONS**

This study confirms that the mixed methods approach makes a significant contribution to deepening understanding of the dynamics of inclusive education, particularly because of its ability to combine the strengths of quantitative and qualitative data within an integrated research framework. A systematic review of 40 articles published over the last five years shows that, despite the increasing popularity of mixed methods, the quality of data integration and methodological reporting remains highly variable. Most studies employed convergent designs, which offer strong potential for data synthesis, yet their implementation was often not supported by sufficient theoretical justification or inclusive participant involvement. The review also found that most studies focused primarily on teachers' perspectives, while the direct involvement of students with special needs remained limited. In addition, the geographical distribution of studies was still dominated by Europe and Australia, which may reduce the contextual relevance of findings for more diverse global settings.

Based on these findings, future research should not only emphasize the active involvement of students as central subjects of inclusive education, the use of longitudinal designs to evaluate the long-term impact of interventions, and the exploration of adaptive educational technologies that can bridge learning barriers, but also strengthen several additional aspects. First, researchers need to report the points of integration between quantitative and qualitative data more explicitly so that mixed methods studies become more transparent, rigorous, and methodologically accountable. Second, future studies should be grounded in stronger theoretical frameworks, such as Universal Design for Learning, ecological perspectives, or other critical inclusion-oriented frameworks, in order to support not only technical integration but also conceptual coherence. Third, more attention should be given to teacher professional development and institutional support systems, since many studies indicate that inclusive practice is strongly influenced by these factors. Fourth, inter-professional collaboration among teachers, assistants, therapists, and other support personnel should be examined more systematically as a structural component of successful inclusion rather than as an individual initiative. Finally, future studies should connect adaptive technology, inclusive digital literacy, and data-driven educational policies in more explicit ways, while also expanding research to underrepresented regions such as Southeast Asia, Sub-Saharan Africa, and Latin America. With a more methodologically rigorous, theoretically grounded, participatory, and context-sensitive approach, mixed methods research has the potential to provide a stronger foundation for the development of inclusive education policies and practices that are more equitable and responsive to learner diversity.

## **ADVANCED RESEARCH**

This study has several limitations that should be acknowledged. First, the review was limited to articles indexed in the Scopus database, written in English,

and published between 2020 and 2024. As a result, relevant studies from other databases, non-English publications, and earlier research may not have been captured. Second, although the 40 selected articles provided valuable insights into the use of mixed methods in inclusive education, the evidence base remained uneven in terms of geographical representation, with most studies concentrated in Europe and Australia. This limits the broader contextual relevance of the findings, especially for underrepresented regions such as Southeast Asia, Sub-Saharan Africa, and Latin America. Third, many of the reviewed studies focused mainly on teachers' perspectives, while the direct participation of students with special needs was still limited

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