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Research Article

Using the Multisensory Teaching Approach in Early Childhood Education: Educators' Perspectives

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Abstract:

Background of Study: Multisensory teaching has gained recognition as an effective strategy in early childhood education by engaging visual, auditory, kinesthetic, and tactile modalities. These approaches improve engagement, cognitive development, and retention of knowledge. However, implementation is often limited by challenges such as insufficient resources, large class sizes, and inadequate teacher training.

Aims and Scope of Paper: This paper explores educators' perspectives on the application, benefits, and barriers of multisensory teaching methods in early learning environments, with particular attention to their role in fostering inclusive education.

Methods: The study employed a qualitative design, collecting data through interviews, focus group discussions, and classroom observations with early childhood educators.

Result: Findings show that multisensory teaching, including storytelling, music, movement, sensory play, and hands-on activities, enhances children's participation, cognitive growth, and knowledge retention. Educators emphasized its value for learners with diverse needs. Nonetheless, they identified challenges such as limited training opportunities, overcrowded classrooms, and resource shortages that hinder consistent implementation.

Conclusion: The study concludes that multisensory teaching offers significant potential for improving early childhood education. Greater institutional support, professional development, curriculum integration, and policy-level investment are needed to optimize its benefits and promote inclusive, effective learning experiences.

Keywords: Cognitive Development, Early Childhood Education, Hands-on Learning, Inclusive Teaching, Multisensory Learning

1. INTRODUCTION

Multisensory teaching approaches have gained increasing recognition in early childhood education as a means of enhancing learning experiences by engaging multiple senses in the process. Incorporating multisensory methods in preschool programs, especially for children with disabilities, has shown significant improvements in learning outcomes. These approaches include activities that engage visual, auditory, kinesthetic and tactile learning modalities, fostering a more inclusive and interactive environment that supports cognitive development and retention. Highlights the positive impact of multisensory teaching in addressing the needs of students with specific learning difficulties (Moono et al., 2024).

As much, educators who incorporate hands-on activities, music, storytelling and movement report better engagement and improved knowledge retention among young learners (Shi et al., 2025). This approach is particularly beneficial in inclusive classrooms, where children with diverse learning needs can thrive through customized sensory-rich experiences. Emphasize that multisensory methods not only enhance early literacy skills but also support the holistic development of children by stimulating different areas of the brain. The integration of these approaches in early education helps ensure that children are actively involved in their learning, which is crucial during the formative years (Rompas & Recard, 2021). Despite the proven benefits, challenges persist in implementing multisensory teaching methods effectively. Points out that a lack of specialist training for educators, insufficient resources and large class sizes are major obstacles to the widespread adoption of these methods. Therefore, professional development, targeted policy support and investment in classroom resources are essential to maximize the benefits of multisensory teaching in early childhood education (Boardman, 2020).

The rationale for this study lies in the increasing recognition of multisensory teaching approaches as a powerful tool to enhance learning outcomes in early childhood education (Gazioğlu & Karakuş, 2023). With the growing diversity in classrooms, including children with varied learning needs, multisensory methods that engage multiple senses offer a more inclusive and effective way to support cognitive development, engagement and knowledge retention (Manja et al., 2024). Despite these benefits, educators face significant challenges such as limited resources, inadequate training, and large class sizes, which hinder the full potential of multisensory teaching. By investigating educators' perspectives, this study aims to identify the barriers to effective implementation and propose strategies for improving teacher capacity, policy support and resource allocation, ultimately contributing to a more inclusive and effective educational environment for young learners (Manja et al., 2022).

Despite the recognized benefits of multisensory teaching approaches in enhancing cognitive development, engagement, and retention among early childhood learners, their effective implementation remains a challenge (Langille & Green, 2021). Educators often face constraints such as inadequate training, limited resources, and large class sizes, which hinder their ability to fully integrate multisensory methods into their teaching practices (Mathebula, 2022).

Even though multisensory learning has been shown to support children with diverse learning needs, particularly those with disabilities, the lack of institutional support and curriculum integration further limits its widespread adoption (Simwinga et al., 2024). Understanding educators' perspectives on these challenges and the potential solutions is crucial in developing strategies that promote the effective use of multisensory approaches in early childhood education (Kucirkova & Rodriguez-Leon, 2023).

Multisensory teaching approaches have been shown to significantly improve cognitive development, engagement, and retention of knowledge in early childhood learners (Solichah & Fardana, 2024). Multisensory methods activate multiple sensory pathways, thereby enhancing the brain's ability to retain information. This corroborates advocacy against a 'one-size-fits-all. Engaging children in learning through various modalities visual, auditory, kinesthetic and tactile supports their holistic development and leads to better retention of concepts (Solichah & Fardana, 2024).

Literature advocates for children with disabilities, in particular, to benefit from multisensory methods, as they can process information through different senses, increasing engagement and facilitating deeper learning (AL Khateeb et al., 2023). That multisensory environments in mathematics education, for example, lead to higher engagement levels and improved problem-solving abilities (Cuturi et al., 2022).

Integrating hands-on activities, music, movement, storytelling and sensory play in early childhood education promotes inclusivity and creates a more effective learning environment (Ngambi et al., 2020). Reports that such activities not only engage children with diverse learning needs but also provide opportunities for individualized learning. Music and movement, in particular, have been identified as critical for fostering social and emotional development, helping children with special educational needs interact with their peers (Khasawneh, 2024). That multisensory environments, which incorporate these elements, allow educators to cater to varied learning styles, promoting greater inclusivity and enhancing the learning experience. The use of such multisensory techniques supports children with learning difficulties by creating a rich, stimulating environment that adapts to their individual needs, encouraging participation and boosting self-esteem (Colla & Kurtz, 2024).

Despite the proven benefits of multisensory teaching methods, several challenges hinder their effective implementation. Points out that many educators lack sufficient training in multisensory techniques, limiting their ability to integrate them effectively in the classroom. Furthermore, large class sizes and insufficient resources further complicate the use of multisensory approaches (Diaudin et al., 2024). Also contends that though multisensory environments can significantly enhance learning, they require substantial resources and specialized training for teachers, which are often unavailable in many early childhood settings. Discuss how large class sizes hinder the personalized and interactive nature of multisensory teaching, which requires close teacher-student interaction to be effective. Therefore, addressing these barriers is essential to optimize the impact of multisensory methods in early childhood education (Fan et al., 2024).

2. METHODS

This study employed a qualitative research design, in particular, the narrative inquiry. The narrative inquiry focuses on establishing the 'why' and 'how' of human experiences through analysis of interviews amongst others (Lima, 2023).

A total of 27 participants took part in the study, comprising educators of children at early childhood level of education, school administrators and education standards officers (ESO) and senior education standards officer (SESO) who were sampled conveniently and purposively. Figure 1 below, adapted from (Ahmed, 2024) shows the steps and process the researcher followed in the sampling process.

Figure 1: Steps in the sampling process

Data collection was conducted through three primary methods: interviews, focus group discussions and classroom observations, each of which provided valuable insights into the educators' experiences, perceptions and challenges related to multisensory teaching.

Semi-structured interviews were conducted with early childhood educators (2 ESOs, 1 SESO, 2 school administrators, 1 guidance teacher, 12 ECE teachers) who had experience incorporating multisensory teaching approaches in their classrooms. The education standards officers at district (ESO) and at the provincial education office (SESO) were targeted because they routinely conduct school inspections and undertake periodic analysis of teaching-learning practices in schools. The interview questions were open-ended, designed to allow educators to share detailed details into their understanding and use of multisensory techniques. Posit regarding the use questions in a research study of this nature. These interviews aimed to gather in-depth individual perspectives on the benefits, challenges and impact of multisensory teaching on children's learning outcomes. Interviews were conducted in a quiet, private setting to ensure confidentiality and allow participants to speak freely. Each interview lasted approximately 30 to 45 minutes and all interviews were audio-recorded with the participants' consent for transcription and analysis purposes.

Two Focused Group Discussions (FGDs) consisting of nine participants were organized with small groups of educators to facilitate dynamic interactions and encourage the sharing of collective experiences. Each group consisted of 4-5 participants, ensuring that every individual had an opportunity to contribute. The discussions were guided by a set of structured questions, but participants were also encouraged to discuss and expand on ideas that emerged naturally in the group setting. Focus groups provided a platform for educators to reflect on the shared challenges and benefits they experienced with multisensory methods, particularly when interacting with their peers. These discussions lasted approximately 60 to 90 minutes and were audio-recorded for subsequent transcription and analysis.

Four classroom observations were conducted to gain direct insight into how multisensory teaching methods were implemented in practice. Observers spent time in participating classrooms, watching how educators engaged children in multisensory learning activities such as hands-on tasks, music, movement, storytelling and sensory play. The goal of the observations was to understand the practical application of these methods, the level of student engagement and the overall effectiveness of the teaching environment. Observers used a structured observation checklist to ensure consistency in what was recorded, but also took field notes to capture unanticipated interactions and dynamics. Each classroom observation lasted between 25 and 30 minutes, depending on the length of the class period.

Triangulation of data from interviews, focus group discussions and classroom observations allowed for a critical understanding of educators' perspectives on multisensory teaching approaches. This combination of individual interviews and group discussions provided both personal and collective detail, despite the classroom observations giving practical evidence of how multisensory methods were being implemented in real-world teaching scenarios (Mpolomoka, 2024).

Data from all three sources were transcribed, coded and analyzed thematically to identify key patterns and themes that emerged from the educators' experiences. This process started with the identification of keywords, codes and eventually culminated in the researcher creating ideas about the conceptual model for the study. Use of thematic analysis in a qualitative study is in tandem with trends in many studies (Naeem et al., 2023).

Ethical approval was obtained from the Unicaf University Ethics Committee (UU-ZM REC). Participant privacy, respect, voluntarism, confidentiality and anonymity were guaranteed. Literature emphasizes

the importance of ethical considerations in research (Mpolomoka, 2024).

3. RESULTS AND DISCUSSION

3.1 Results

This section provides results and further discusses them. Thematic strands arising from the set objectives of the study primarily guide the section. Herein, participants are coded as followings: the two focus group discussions, FGD_1, FGD_2; teacher interviews (#6) are coded as female teacher, $FTR_{1\text{-}6}$ and male teacher, $MTR_{1\text{-}6}$); lesson observations (#2), $LO_{1\text{-}2}$; education standards officers (#2) ($ESO_{1\text{-}2}$); senior education standards officer, $SESO_1$.

The findings from the interviews, focus group discussions and classroom observations revealed that multisensory teaching approaches significantly enhance children's cognitive development, engagement and retention of knowledge. All educators who participated in this study consistently highlighted the positive effects of engaging multiple senses in the learning process for early childhood learners.

In the interviews, participants such as FTR_1 and MTR_1 explained how engaging children through visual, auditory, kinesthetic and tactile modalities allowed learners to process information in various ways. According to MTR_5

> *When children engage with materials they can see, touch and hear, it not only makes the lesson more interesting but also helps them understand concepts better. I see their engagement increase, and they seem to retain the material longer.*

This observation was supported by ESO_2, who mentioned,

> *Using music and movement in lessons makes a huge difference. Children are not just passively listening they're actively participating, and that makes them remember the information more effectively.*

The second Focus group discussion (FGD_2) further emphasized the importance of multisensory engagement. During an interview with the ESO_1, this was also hinted that many of their periodic school visits confirm what teachers say, who recount as follows:

> *I find that incorporating sensory play into lessons such as using textured materials and allowing children to act out stories helps them connect with the material on a deeper level. They seem more focused and their understanding is more robust.*

Similarly, the educators interviewed ($FTR_{1\text{-}2}$, MTR_3) agreed that these approaches foster a deeper cognitive connection with the content, which in turn enhances retention and overall academic performance.

Classroom observations corroborated these findings, with numerous instances of children displaying higher levels of engagement when multisensory methods were used. During a literacy lesson, children in $FTR_{6's}$ class were observed using a variety of sensory tools such as textured alphabet cards and sound-based activities to reinforce their understanding of letters and sounds. These children were observed actively participating and demonstrating improved recall of the material compared to when more traditional, lecture-based methods were employed. One child, Palanto, was seen engaging with an activity where he used tactile letters to form words even when listening to corresponding sounds, showing high levels of engagement and enthusiasm.

$ESO_{1\text{-}2}$, $FGDs_{1\text{-}2}$, $LOs_{1\text{-}4}$ and all teachers interviewed reported enhanced retention of knowledge when multisensory strategies were integrated in classroom activities and practices. During lesson observation, LO_3 used a storytelling approach that incorporated visual aids, hand movements, and sound effects to help children remember key elements of a story. This approach not only kept the children engaged throughout the lesson but also helped them recall specific details of the story when asked to recount it later. The children's ability to remember and retell the story was noted to be significantly improved compared to lessons without such multisensory engagement.

The findings of this study align with existing literature that highlights the significant impact of multisensory teaching approaches on children's cognitive development, engagement and retention of knowledge. According to Neumann et al. (2012), multisensory methods are particularly beneficial in early childhood education as they engage multiple senses simultaneously, leading to deeper cognitive processing and better retention of information. This is supported by the findings from the current study, where educators ($SESO_1$; $ESO_{1\text{-}2}$; $FGDs_{1\text{-}2}$; $FTR_{3\text{-}6}$; $MTR_{2\text{-}4}$) observed increased engagement and improved retention among children who participated in multisensory learning activities such as using visual aids, auditory cues and kinesthetic activities. For instance, ESO_2 and FG_1s observations on the impact of combining visual, auditory and tactile modalities in lessons reflect what established regarding the ability of multisensory approaches to improve memory retention through creating stronger neural connections through repeated exposure to content via various sensory channels.

That multi sensory methods, particularly in preschool programs, promote active participation, which is vital for long-term retention. $LOs_{1\text{-}2}$ showed that children who engaged with tactile letters while listening to corresponding sounds, exhibited higher levels of

engagement and retention, that sensory engagement facilitates deeper learning experiences.

The findings from interviews, focus group discussions, and classroom observations revealed that multisensory teaching significantly enhances children's cognitive development, engagement, and knowledge retention. Educators consistently highlighted the benefits of engaging multiple senses visual, auditory, kinesthetic, and tactile in the learning process.

Teachers noted that activities involving music, movement, sensory play, and hands-on materials made lessons more interesting, increased participation, and improved understanding. Observations confirmed that children using sensory tools such as textured alphabet cards and sound-based activities demonstrated higher engagement and stronger recall compared to traditional methods. Overall, evidence from educators, group discussions, and classroom observations consistently showed that integrating multisensory strategies leads to more active learning and better retention among young learners.

3.2 Discussion

In the study some challenges were identified such as the limitations of resources and teacher training, that specialized training in multisensory methods can enhance the effectiveness of teaching strategies and did not bring out any resource constraints as an issue to contend with in schools. That although multisensory teaching has proven benefits, its application is often hindered by inadequate teacher preparation and the lack of proper teaching resources. This contrast emphasizes the need for professional development and resource allocation, as emphasized in the current study, to maximize the benefits of multisensory learning in early childhood education. There is need to continuously invest in teacher training and continuous professional development programs to build capacity in educators to handle diverse learners (Mpolomoka et al., 2025).

The findings from the interviews, focus group discussions and classroom observations show the integration of hands-on activities, music, movement, storytelling and sensory play in fostering an inclusive and effective learning environment. Educators consistently noted that these methods not only support active learning but also provide equitable access to education for children with diverse learning needs. In the interviews, FTR_4 and MTR_5 both emphasized the importance of sensory play in making learning more accessible. According to FTR_6,

> *Using materials that children can touch, see, and manipulate helps them understand concepts in a way that is not just visual. It brings the lesson to life for all children, especially those with learning difficulties.*

Similarly, FTR_3 echoed this point, stating that integrating movement and music into lessons allows children, including those with attention difficulties or developmental delays, to remain engaged and participate actively. Form the participants, educators indicated that these methods, particularly in combination, cater to a range of learning styles and developmental stages, which is crucial in an inclusive classroom setting.

One Focus group discussion (FGD_1) revealed that educators valued storytelling as a powerful tool to engage children from diverse backgrounds, particularly in promoting language skills and social-emotional learning. This corroborates with revelations of the lesson observations (LOs_{1-4}), which echoed teachers' use of storytelling and learners' likeness of it. Even the interviews agreed with this. FTR_2, MTR_3 shared their experiences with using storytelling combined with role-playing, saying,

> *When children act out a story, it provides them with a chance to step into another person's shoes. It helps them connect emotionally with the characters, making it especially effective for children with social or emotional learning needs.*

The integration of music and movement was particularly cited ($FGDs_{1-2}$; $FTR_{3,5}$; MTR_{1-4}) as beneficial for children with autism spectrum disorder (ASD), where repetitive movement patterns paired with music were used to calm and engage students in learning activities. Literature supports this finding.

Classroom observations further confirmed these findings. For instance, during an observed lesson (LO_1) on community helpers, MTR_2 had the children move around the classroom in different roles, acting out the tasks of various community workers but singing related songs. Children with varied learning needs, including those with language delays and sensory processing issues, were seen interacting more enthusiastically and participating actively in the lesson. The hands-on nature of the activities allowed all children, including those with visual and hearing impairments, to experience the lesson in a way that was both engaging and accessible.

Findings of this study are consistent with the existing literature, which emphasizes the importance of multisensory and hands-on learning approaches for creating inclusive and engaging learning environments. Multisensory teaching strategies, including movement, music and sensory play, enhance children's emotional and cognitive development by catering to their individual learning preferences. This was reflected in the current study, where all educators interviewed noted that sensory play and music not only engaged students but also allowed them to connect emotionally with the content, which was particularly important for those (children) with social or emotional learning challenges.

In all the observed lessons, as evident in $FGDs_{1-2}$ and FTR_3's community helper activity, combining storytelling with hands-on activities and music allowed for better engagement among children with diverse learning needs, especially those with hearing or visual impairments. This supports the notion that a multisensory, multimodal approach creates a more inclusive and effective learning environment, who

highlighted that the inclusion of music, movement, and hands-on learning techniques can significantly enhance the educational experience for children with diverse learning styles. Whereas these methods are beneficial, That the successful implementation of such strategies requires adequate teacher training and resources.

Findings further indicate that educators ($MTR_{3,5,6}$; $FTR_{3,4,6}$) emphasized the importance of integrating multiple sensory modalities to reach all learners effectively, yet they also acknowledged challenges related to the availability of resources and teacher preparation.

The findings from the interviews, focus group discussions and classroom observations revealed several key challenges hindering the effective implementation of multisensory teaching methods in early childhood education settings. A recurring theme was that of limited resources, particularly the lack of materials needed to fully integrate multisensory approaches. In the interviews, MTR_3 noted,

> *In as much as we understand the benefits of multisensory methods, we often lack the necessary materials like sensory toys, visual aids and even music instruments to properly implement them.*

This sentiment was echoed by FTR_3. Comparatively, MTR_4, expressed frustration over the scarcity of resources and how it limits the effectiveness of teaching strategies that rely on multisensory engagement.

In addition to the lack of resources, large class sizes were frequently cited as another significant barrier. During focus group discussions, FTR_4 shared her concern about the difficulty in managing large groups of children whilst attempting to incorporate hands-on activities and other multisensory methods.

> *With more than 30 children in a class, it's challenging to give each child the attention they need during these activities,* she stated.

Classroom observations also revealed that in large classes, students were often unable to fully participate in activities, especially those that required individual attention or careful supervision, such as sensory play and movement exercises.

Another major challenge highlighted by educators was the inadequate training in multisensory teaching methods. Although some educators had received training, it was often described as insufficient or outdated. $MTR_{5,6}$ remarked,

> *We've had some basic training, but there is no follow-up or advanced courses to help us effectively implement these techniques. We lack the confidence to fully integrate them into our teaching.*

Comparatively, FTR_4 added that without proper professional development, many educators find it difficult to innovate and feel supported in using multisensory strategies to their fullest potential. Thus, MTR_{1-6}, reported that many educators resort to traditional teaching methods due to the uncertainty surrounding the implementation of multisensory techniques. Ultimately, these challenges were not only expressed by the educators but also observed in the classroom settings. In one observed lesson (LO_2), attempted to incorporate a multisensory approach to a math lesson; however, due to limited resources, the children were unable to engage with the activity as planned. The lack of sensory materials like tactile numbers and interactive tools for movement led to a less engaging lesson, where the children's attention quickly waned.

Basing on the presented results, the findings align with the broader literature, which consistently emphasizes the significant barriers to effective implementation of multisensory teaching strategies. That limited resources such as tactile materials, visual aids and technology are common challenges in early childhood classrooms that seek to integrate multisensory learning. As seen in the current study, participants in $FGDs_{1-2}$ and all interviewees voiced concerns about the scarcity of essential teaching tools, which limits their ability to fully utilize multisensory methods. Who argue that effective multisensory teaching is often hindered by a lack of accessible resources, especially in underfunded educational settings (Shefer & Hearn, 2022).

Large class sizes were a significant challenge identified in the current study, are similarly recognized in the literature as a barrier to the successful implementation of multisensory teaching strategies. Managing large groups though ensuring individual engagement with multisensory activities is difficult, especially when attention must be divided among a large number of students. During lesson observations (LOs_{1-4}) there were apparent challenges in managing a class of more than 30 children plainly indicating this challenge. Ideally, larger groups reduce the amount of one-on-one interaction and supervision needed for effective multisensory learning.

Inadequate teacher training also plays a central role in hindering the effective use of multisensory methods. Without proper and ongoing professional development, educators are often left ill-equipped to implement multisensory strategies successfully. This aligns with Mr. Mwamba's comments about the need for advanced and follow-up training in multisensory techniques. That even when educators are initially trained in multisensory methods, the lack of ongoing support and professional development results in a reluctance to fully adopt these approaches. The findings in the current study thus reinforce the argument that regular, specialized training and resources are essential for the successful implementation of multisensory teaching methods.

The findings of this study confirm that multisensory approaches significantly enhance children's cognitive development, engagement, and knowledge retention. By engaging multiple modalities visual, auditory, kinesthetic, and tactile children are able to process information through different pathways, which strengthens both understanding and memory. These results are consistent with existing literature that highlights how multisensory stimulation fosters deeper cognitive processing and supports stronger memory connections.

Beyond academic benefits, multisensory approaches also play a crucial role in supporting inclusive education. Teachers reported that activities such as sensory play, storytelling, music, movement, and role-play helped accommodate diverse learning needs, including those of children with learning difficulties, developmental delays, and autism spectrum disorder. Classroom observations further confirmed that children with language delays or sensory challenges were more actively engaged when multisensory strategies were applied. This demonstrates that multisensory approaches not only enhance cognitive development but also function as inclusive practices that provide equitable access to learning for all children.

Nevertheless, several barriers were identified that limit consistent implementation of these methods. The most prominent challenges include insufficient resources, overcrowded classrooms, and inadequate teacher training. While some educators had received basic training, the lack of ongoing professional development limited their confidence and ability to fully integrate multisensory strategies into practice. As a result, many teachers tended to revert to traditional approaches. These findings align with previous studies emphasizing that the success of multisensory teaching depends heavily on institutional support, the provision of adequate resources, and continuous professional development opportunities for educators.

In summary, this discussion underscores that while multisensory teaching holds strong potential to improve early childhood education, its effectiveness relies on addressing structural barriers related to training, resources, and policy support.

3.2.1 Implications

The findings of this study carry several important implications for early childhood education. First, they highlight the strong potential of multisensory approaches to improve not only children's cognitive outcomes but also their social and emotional development. By engaging multiple senses simultaneously, educators can create richer and more memorable learning experiences that support knowledge retention and active participation.

Second, the results underscore the importance of inclusive practices. Multisensory methods provide equitable learning opportunities for children with diverse needs, including those with learning difficulties or developmental delays. This demonstrates that multisensory teaching can serve as a bridge toward more inclusive classrooms, where every child is able to participate meaningfully.

Third, the study emphasizes the systemic changes required for successful implementation. Without adequate teacher training, resource provision, and curriculum integration, the benefits of multisensory teaching cannot be fully realized. Continuous professional development and institutional support are therefore essential to empower educators and ensure that these strategies are applied effectively and sustainably.

3.2.2 Research Contribution

This study contributes to the growing body of knowledge on multisensory teaching in early childhood education by providing qualitative evidence from educators'lived experiences, classroom observations, and focus group discussions. It demonstrates how multisensory approaches enhance children's cognitive development, engagement, and retention of knowledge, while also promoting inclusivity for learners with diverse needs.

In addition, the study extends existing literature by identifying the practical barriers that educators face, including large class sizes, inadequate resources, and limited professional training. By doing so, it not only confirms the effectiveness of multisensory methods but also highlights the systemic factors that influence their successful implementation.

Ultimately, the research contributes by offering both theoretical insights and practical recommendations for educators, policymakers, and institutions. It emphasizes the need for continuous professional development, curriculum integration, and resource allocation as critical conditions for optimizing the benefits of multisensory teaching in early learning environments.

3.2.3 Limitations

This study has several limitations that should be acknowledged. First, the sample size was relatively small and limited to a specific group of early childhood educators, administrators, and education officers. As a result, the findings may not fully represent the broader population of educators in different contexts. Second, the reliance on qualitative methods, such as interviews, focus groups, and classroom observations, provides rich insights but may restrict the generalizability of the results. The findings primarily reflect the subjective perspectives and experiences of participants, which may vary across different educational environments.

Third, the number of classroom observations was limited, and they were conducted in selected schools only. This means that the data might not capture the full diversity of practices and challenges in other early childhood education settings. Finally, the study focused primarily on teachers' and administrators' perspectives, without incorporating the voices of parents or children directly, which could have provided a more holistic understanding of multisensory teaching.

3.2.4 Suggestions

To optimize the benefits of multisensory teaching in early childhood education, continuous professional development for teachers is essential, alongside the provision of adequate learning resources and manageable class sizes. Multisensory strategies should be systematically integrated into the curriculum and supported by clear institutional and policy frameworks. Greater investment in training and infrastructure is needed to overcome barriers such as limited resources and insufficient teacher preparation. Future research should also explore the long-term impact of multisensory approaches across diverse educational contexts.

4. CONCLUSION

This study brings to the fore varying dynamics of multisensory teaching approaches in early childhood education. It has shown the critical role they play, particularly in enhancing children's cognitive development, engagement and retention of knowledge. Educators have reported that integrating hands-on activities, music, movement, storytelling and sensory play creates an inclusive and effective learning environment, especially for children with diverse learning needs. However, challenges such as limited resources, large class sizes and inadequate teacher training continue to hinder the effective implementation of these approaches. To optimize the benefits of multisensory learning, it is vital to address these barriers and create a more supportive and resource-rich environment for educators.

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6. AUTHOR CONTRIBUTION STATEMENT

All authors contributed substantially to the development of this research article. The conception and design of the study were jointly developed, while data collection was carried out through interviews, focus group discussions, and classroom observations by the research team. Data analysis and interpretation were conducted collaboratively, ensuring the credibility and accuracy of findings. The drafting of the manuscript, including the preparation of results, discussion, and conclusion, was a shared effort, with each author providing critical input and revisions to improve clarity and coherence. All authors reviewed and approved the final version of the manuscript and agreed to be accountable for all aspects of the work.

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