

A STUDY OF THE NEEDS OF CHILDREN WITH HEARING IMPAIRMENT IN EARLY CHILDHOOD EDUCATION SETTINGS IN UGANDA.

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Abstract

Children with hearing impairment require appropriate educational, communication, and social support to ensure meaningful participation and learning during early childhood. This study explored the needs of children with hearing impairment in early childhood education settings in Uganda. Using a qualitative research approach, data were collected through interviews with participants who had experience in early childhood education and hearing impairment, and the data were analyzed thematically. The findings revealed that children with hearing impairment have diverse and interconnected needs, including access to early identification and intervention services, appropriate communication support such as sign language, qualified teachers with specialized skills, inclusive teaching and learning materials, assistive hearing devices, family involvement, supportive learning environments, and opportunities for social interaction with peers. Participants emphasized that addressing these needs is essential for promoting equitable access to quality early childhood education, enhancing children's learning and development, and fostering meaningful inclusion. The study concludes that strengthening educational policies, teacher preparation, resource provision, and family-school collaboration is critical to meeting the needs of children with hearing impairment in early childhood education settings in Uganda, thereby contributing to Sustainable Development Goal 4 on inclusive and equitable quality education for all.

Keywords: Needs, children, hearing impairment, early childhood education.

1. Introduction

Early Childhood Education (ECE) is commonly acknowledged as a crucial period in the cognitive, linguistic, social, emotional, and physical development of children (Bakken et al., 2017). By encouraging early communication, social engagement, and school preparedness, it lays the

groundwork for lifetime learning. Because it promotes language acquisition, communication skills, cognitive development, and social inclusion during the most critical years of life, high-quality early childhood education is especially crucial for kids with hearing impairments (Porcar-Gozalbo et al., 2024). To engage in meaningful learning alongside their peers, these children frequently need particular educational, communicative, and environmental support (UNESCO, 2020). One of the most prevalent sensory impairments impacting children globally is hearing impairments. The World Health Organization (WHO, 2021) states that millions of children suffer from hearing impairment, which can have detrimental effects on language development, academic success, social relationships, and emotional well-being if it is not recognized and properly supported. All children, regardless of handicap, should have fair access to high-quality education in nurturing learning environments, according to inclusive education. In order to accomplish this goal, it is necessary to comprehend and address the special needs of children with hearing impairments. These needs include early detection and intervention, efficient communication support, qualified teachers, suitable learning resources, assistive hearing technologies, accessible classrooms, and strong family involvement (UNICEF, 2022). Meeting the educational requirements of children with hearing impairments remains a major difficulty in many low- and middle-income nations, despite the fact that international research has increasingly emphasized the need of inclusive early childhood education (LeClair & Saunders, 2019). These children's involvement and learning are frequently hampered by a lack of specialized services, poor teacher training, a lack of educational resources, a delayed diagnosis of hearing impairments, and unfavorable cultural views (Bani Odeh & Lach, 2024). These issues are made worse in many African nations by a lack of resources, a lack of knowledge about hearing impairments, and a poor execution of inclusive education policy (UNESCO, 2020). In Uganda, the government has demonstrated its commitment to inclusive education through national education policies and legislative frameworks that promote equal educational opportunities for students with disabilities, hearing impairments inclusive (Aciro Can Lucy, 2026). Despite these initiatives, communication, access to specialized support services, teacher readiness, learning resources, and family engagement remain obstacles for children with hearing impairments in early childhood education settings. Studies that have already been conducted in Uganda like (Aciro.C.Lucy et al., 2026; Mugenyi Edison et al., 2026; and Sarton et al., 2022) have mostly concentrated on access to education, inclusive education, and special needs education. There hasn't been much focus on

understanding the needs of young children with hearing impairments, when prompt intervention is crucial (Eriks-Brophy et al., 2006). Designing successful educational programs, enhancing teacher preparation, guiding the implementation of policies, and enhancing service delivery in early childhood education settings all depend on an understanding of these needs (Veliz et al., 2025). Therefore, by examining the needs of children with hearing impairments in early childhood education settings in Uganda, this study fills this knowledge vacuum. In order to improve inclusive early childhood education and support Sustainable Development Goal 4, which encourages inclusive and equitable quality education and opportunities for lifelong learning for all, the findings are anticipated to influence educational policy, teacher preparation, curriculum development, and resource allocation.

1.1 Theoretical Framework

This study was guided by the Classical Liberal Theory of Equal Opportunities propounded by Sherman and Wood (1982) as cited in (Sinta Susilawati et al., 2023). The notion is based on the idea that every child has potential and intrinsic skills that can be developed via education if equal learning chances are given. It argues that educational institutions ought to be built to remove obstacles that prevent students from reaching their greatest potential. Access to high-quality educational opportunities may be hampered by socioeconomic, sociocultural, institutional, environmental, and educational impediments. According to the notion, a handicap should not be seen as an incapacity but rather as a condition that calls for the right kind of educational assistance so that all students can engage and thrive in school (Sinta Susilawati et al., 2023). The theory also highlights that all students should have equal access to education, regardless of their unique characteristics or special requirements. Therefore, rather than being based on the existence of a disability, educational engagement should be based on each learner's skills and developmental potential (Mugenyi Edison et al., 2026). In order to enable children with disabilities to engage meaningfully in education, educational systems must provide equal access to learning materials, certified teachers, suitable teaching strategies, encouraging learning environments, and essential interventions (Olsson & Hansson, 2026). By guaranteeing that every student receives the assistance required to realize their academic potential, education thus advances social justice, equity, and equitable life prospects Sherman & Wood, 1982, as quoted in (Aciro.C.Lucy et al., 2026; Omondi et al., 2007). The theory goes on to say that regardless of a learner's impairment, equitable access to education fosters social inclusion and allows them to develop their talents. As

a result, educational institutions have an obligation to remove obstacles to learning and provide settings that support each child's cognitive, social, emotional, and linguistic development. Early identification and intervention services, effective communication support (e.g., sign language and visual strategies), qualified teachers with specialized skills, inclusive teaching and learning materials, assistive hearing devices, active family involvement, supportive learning environments, and opportunities for meaningful social interaction with peers are all important for children with hearing impairments (Aciro.C.Lucy, et al., 2026). The Classical Liberal Theory of Equal Opportunities served as the theoretical framework for this study, which examined the needs of children with hearing impairments in Ugandan early childhood education settings. The study's investigation of whether ECE settings offer fair opportunities and suitable assistance to allow children with hearing impairments to fully engage in learning and development was guided by the theory. It also helped identify obstacles that prevent them from participating in inclusive ECE settings and examined their educational, communication, social, and developmental requirements. Therefore, the idea offered a basis for comprehending how suitable support mechanisms might boost the holistic development of children with hearing impairment in Early Childhood Education settings, promote equitable participation, and improve learning results.

2. Literature Review

Early childhood is a crucial time for children's cognitive, linguistic, social, emotional, and physical development. It is at this time that the fundamental abilities needed for learning, communication, and social engagement are formed (UNICEF, 2022). These early experiences have a significant impact on future academic success and long-term wellbeing. Because hearing impairments largely affects access to spoken language and communication rather than intellectual ability, early childhood is especially important for children with hearing impairments (Lara Hardebeck et al., 2026). Children with hearing impairments may have delays in language acquisition, literacy development, classroom engagement, and social interaction if they are not promptly identified and receive the proper educational support (World Health Organization, (WHO, 2021). Therefore, in order to implement inclusive early childhood education (ECE), educational systems must acknowledge the various needs of these children and offer fair chances so they can engage in meaningful activities with their hearing classmates (Nelis et al., 2023). This viewpoint is in line with the idea that a handicap should be viewed as a situation that calls for the right kind of educational assistance in order to promote the best possible learning and development

rather than as an incapacity. Children with hearing impairments have varied, complicated, and interrelated educational demands that call for tailored and all-encompassing care, as the literature repeatedly shows (Arjun Prasad, 2024). Early detection and intervention, hearing evaluation and rehabilitation services, effective communication techniques like sign language, total communication and visual communication strategies, assistive hearing devices, inclusive teaching and learning materials, and teachers with specialized knowledge and competencies in inclusive education are all essential to meeting these needs (UNESCO, 2020; UNICEF, 2022). Additionally, academics contend that good communication is essential to successful inclusion because it makes it possible for children with hearing impairments to receive lessons, engage with peers and teachers, and actively participate in class activities (Aciro.C.Lucy, et al., 2026). Therefore, by implementing differentiated instructional approaches, using visual aids and demonstrations, modifying classroom layout and seating arrangements, and using flexible teaching strategies that cater to each child's unique communication and learning characteristics, teachers play a critical role in establishing inclusive learning environments (Mugenyi Edison et al., 2026). Children with hearing impairments exhibit better language development, school preparation, academic engagement, and social competence when these educational resources are accessible. On the other hand, poor assistance frequently leads to social isolation, delayed learning, communication difficulties, and less involvement in class (WHO, 2021). Evidence from low- and middle-income nation's shows that fulfilling the needs of children with hearing impairments is still a significant challenge, despite increased global commitment to inclusive education. Early intervention services, trained instructors, speech and hearing specialists, and sign language experts are still in limited supply in many educational systems. Inadequate teaching resources, restricted access to assistive technology, inadequate mechanisms for early hearing loss detection and rehabilitation, a lack of funding, and uneven application of inclusive education policies all exacerbate these issues (Mugenyi Edison et al., 2026). In many African nations, institutional capacity is constrained by limited public awareness of hearing impairment, persistent stigma, sociocultural beliefs about disability, and inadequate collaboration among the social service, health, and education sectors (Khoza-Shangase, 2025). As a result, despite national and international pledges to inclusive and equitable education, many children with hearing impairments still have unequal access to high-quality early childhood education (UNESCO, 2020). The government of Uganda has put in place a number of legislative and policy frameworks that support inclusive education and protect the

rights of children with disabilities to an education (Omondi et al., 2007). However, there are still large gaps between the goals of legislation and the realities of the classroom. Inadequate communication support, inadequate teacher preparation, limited access to assistive hearing devices, a lack of specialized instructional materials, delayed identification and intervention services, and inadequate family and community engagement are all issues that children with hearing impairments enrolled in Early Childhood Education settings still face (Vivian R. Fennis, 2025). While research in Uganda has made significant contributions to our understanding of inclusive education, special needs education, teacher preparation, and educational access for students with disabilities, relatively little focus has been placed on the particular and comprehensive needs of young children with hearing impairments (Natukunda Charles & Dr Otindo Irene Kuusa, 2024). However, it is generally acknowledged that this developmental stage is the most crucial for laying the linguistic, communicative, cognitive, and social foundations that affect later educational outcomes. The literature also highlights the necessity for coordinated and ongoing cooperation between families, educators, schools, medical experts, communities, and legislators in order to meet the needs of children with hearing impairments. Effective teacher preparation, ongoing professional development, early hearing screening and intervention programs, accessible learning environments, family engagement, multidisciplinary support services, appropriate educational funding, and a strong institutional commitment to inclusive practice are all necessary for inclusive early childhood education, which goes beyond the provision of assistive technology or specialized instructional materials (UNICEF, 2022; WHO, 2021). Children with hearing impairments can speak successfully, participate in class activities with confidence, form strong social relationships, and reach their full developmental potential in supportive environments created by such coordinated efforts. Nevertheless, there is still a dearth of empirical data regarding how these educational demands are met in Ugandan early childhood education settings, despite the growing identification of these need. By investigating the requirements of children with hearing impairments in early childhood education settings in Uganda, this study fills this significant knowledge vacuum (Mumbere Brean Bideke & Kobusingye Prudence, 2025). The study aims to provide a greater understanding of the educational, communication, social, and developmental support needed to encourage meaningful involvement and learning among children with hearing impairment by producing context-specific evidence from important stakeholders. The results are anticipated to guide resource allocation,

improve inclusive educational practices in early childhood education, support teacher education and professional development, and inform policy design. Additionally, the study supports national and international efforts to accomplish Sustainable Development Goal 4, which promotes opportunities for lifelong learning and inclusive, equitable, and high-quality education for everyone.

3. Methodology

This study adopted an interpretivist paradigm and a qualitative descriptive research design to explore participants' perspectives on the needs of children with hearing impairment in early childhood education settings in Uganda. The design was appropriate because it enabled an in-depth exploration and description of participants' perceptions and experiences regarding the educational, communication, social, and developmental needs of children with hearing impairment within their natural educational contexts (Sandelowski, 2000). Participants were purposively selected from early childhood education settings that had children with hearing impairment. These settings were considered information-rich because the participants had direct experience supporting children with hearing impairment in their educational environments. A total of 30 participants were purposively selected based on their knowledge, professional experience, and direct involvement in early childhood education and the care of children with hearing impairment. The participants comprised 15 Early Childhood Education (ECE) teachers, 11 parents or caregivers of children with hearing impairment attending the selected ECE settings, and 4 head teachers. Collectively, these participants were well positioned to provide rich and meaningful insights into the needs of children with hearing impairment. Data were collected through in-depth semi-structured interviews until data saturation was achieved. In addition, non-participant classroom observations were conducted to examine children's interactions, communication, participation in learning activities, teacher support, peer relationships, and the availability of resources and learning environments that addressed the needs of children with hearing impairment. The data were analyzed using thematic analysis. Interview recordings were transcribed verbatim and read repeatedly to achieve familiarization with the data. Observation notes were reviewed alongside the interview transcripts to facilitate data triangulation and provide contextual understanding. Initial codes were generated systematically, and similar codes were grouped into categories from which themes and sub-themes were identified, reviewed, and refined iteratively to ensure they accurately represented participants' perspectives. Trustworthiness was ensured through credibility, dependability,

transferability, and confirmability. Ethical principles were observed throughout the study by obtaining informed consent from all adult participants, obtaining parental consent and institutional permission for classroom observations involving children, ensuring voluntary participation, maintaining confidentiality and anonymity, and using the collected information solely for research purposes.

Table 1. Participant Coding Strategy

Group	Code Prefix	Example	Number of Participants
ECE Teachers	ET	ET1, ET2, ET3.... ET15	15
Parents of Children with Hearing Impairment	PC	PC1, PC2, PC3.... PC11	11
Head Teachers	HT	HT1, HT2..... HT4	04
Total	-	30 participants (ET1–ET15, PC1– PC11, and HT1–HT04)	30

To maintain participants' confidentiality and anonymity, pseudonymous codes were assigned to all participants. Early Childhood Education (ECE) teachers were coded ET1–ET15, parents or caregivers of children with hearing impairment were coded PC1–PC11, and head teachers were coded HT1–HT04. These codes are used throughout the findings to identify participants when presenting direct quotations, as presented in [Table 1](#).

4. Results

This section presents the findings of the study on the needs of children with hearing impairment in Early Childhood Education settings in Uganda.

Table 2: Participant Characteristics: Gender, Age, Qualifications, and Years of Service of Early Childhood Education Teachers

Category	Response Option	Number(n=15)	Percentage
Gender	Female	10	67%
	Male	5	33%
Age	25 years and below	9	60%
	26–38 years	6	40%
Qualifications	Certificate	5	33%
	Diploma	7	47%
	Bachelor's Degree	3	20%
Teaching experience in inclusive ECE settings	1–3 years	6	40%
	4–6 years	9	60%

The results revealed that 10 (67%) of the participants were female, while 5 (33%) were male. Regarding age, 9 (60%) participants were 25 years and below, while the remaining 6 (40%) were between 26 and 38 years. In terms of educational qualifications, 5 (33%) participants held a Certificate, 7 (47%) held a Diploma, and 3 (20%) held a Bachelor's degree, indicating that all participants were qualified Early Childhood Education (ECE) teachers. Furthermore, the findings showed that 6 (40%) participants had 1–3 years of teaching experience in inclusive ECE settings, while 9 (60%) had 4–6 years of teaching experience, as presented in **Table 2**. These findings suggest that the participants possessed relevant professional experience and were well positioned to provide rich and informed insights into the needs of children with hearing impairment in early childhood education settings in Uganda.

Table 3: Participant characteristics: Parents gender, age, and relationship to the child

Category	Response Option	Number(n=11)	Percentage
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Gender	Female	6	55%
	Male	5	45%
Age	30 years and below	3	27%
	31- 45	8	73%
Relationship to the child	Mother	7	64%
	Father	3	27%
	Guardian	1	9%

The findings in **Table 3** indicate that 6 (55%) of the parent participants were female, while 5 (45%) were male. Regarding age, 3 (27%) participants were aged 30 years and below, whereas 8 (73%) were between 31 and 45 years. In terms of their relationship to the child, 7 (64%) were mothers, 3 (27%) were fathers, and 1 (9%) was a guardian. The inclusion of mothers, fathers, and a guardian of varying ages ensured diverse parental perspectives on the needs of children with hearing impairment in Early Childhood Education settings.

Table 4: Participant Characteristics: Gender, Age, Qualifications, and Years of Service of Early Childhood Education Head Teachers

Category	Response Option	Number(n=4)	Percentage
Gender	Female	3	75%
	Male	1	25%
Age	26–38 years	4	100%
Qualifications	Bachelor’s Degree	4	100%
Teaching experience in inclusive ECE settings	1–3 years	1	25%
	4–6 years	3	75%

The findings presented in **Table 4** show that 3 (75%) of the head teacher participants were female, while 1 (25%) was male. Regarding age, all 4 (100%) participants were between 26 and

38 years. In terms of educational qualifications, all participants (100%) held a Bachelor's degree, indicating that they met the minimum professional qualifications required to lead Early Childhood Education settings. Concerning experience in inclusive ECE settings, 1 (25%) participant had between 1 and 3 years of experience, whereas 3 (75%) had between 4 and 6 years of experience. These findings indicate that the head teachers possessed appropriate academic qualifications and relevant professional experience, enabling them to provide informed perspectives on the needs of children with hearing impairment in Early Childhood Education settings in Uganda.

Table 5: Summary of thematic analysis findings (N= 30)

Theme	Description	N	% of total sample (N=30)	Representative pseudonyms	Key sub-themes
Early identification and intervention	Early screening, diagnosis, and timely intervention support	28	93%	ET2, PC4, HT1, ET10	Early screening; timely diagnosis; early intervention services
Communication support	Provision of effective communication approaches, including sign language	30	100%	ET3, PC7, HT2, ET12	Sign language; visual communication
Qualified teachers with specialized skills	Availability of teachers trained in hearing impairment and inclusive education.	29	97%	ET1, ET8, HT3, PC5	Specialized training; inclusive teaching competencies; CPDs
Inclusive teaching and learning materials	Availability of appropriate instructional resources	27	90%	ET6, PC8, HT4	Visual learning materials; adapted curriculum
Assistive hearing devices	Access to hearing aids and other assistive technologies	24	80%	ET5, PC2, HT2	Hearing aids; assistive technology

Family involvement	Active participation of parents in children's education	26	87%	PC1, ET9, HT1	Parent-school collaboration; home support
Supportive learning environment	Creation of safe, accessible, and inclusive learning environments	28	93%	ET11, PC9, HT3	Inclusive classrooms; positive school climate
Opportunities for social interaction	Encouraging peer relationships and participation in classroom.	25	83%	ET13, PC6, HT4	Peer interaction; social inclusion; collaborative learning

N = 30 represents the total number of participants who took part in the study, comprising 15 Early Childhood Education (ECE) teachers, 11 parents/caregivers, and 4 head teachers. Percentages indicate the proportion of participants who contributed to each major theme. As participants frequently discussed multiple needs during the interviews, they contributed to more than one theme and sub-theme; therefore, the total frequencies exceed the sample size (N = 30). The participant codes (ET = Early Childhood Education teacher; PC = Parent/Caregiver; HT = Head Teacher) are representative examples used to illustrate each theme and are not an exhaustive list of all participants who contributed to that theme, as presented in [Table 5](#).

4.1. The Needs of Children with Hearing Impairment in Early Childhood Education Settings in Uganda.

This theme presents the perspectives of Early Childhood Education teachers, parents/caregivers, and head teachers regarding the needs of children with hearing impairment in Early Childhood Education settings in Uganda. It explores participants' experiences and perceptions of the educational, communication, psychosocial, and environmental support required to ensure equitable access to quality early childhood education. The theme further highlights the importance of early identification and intervention, effective communication support, qualified teachers, inclusive teaching and learning materials, assistive hearing devices, family involvement, supportive learning environments, and opportunities for social interaction in promoting children's holistic development and meaningful inclusion.

4.1.1 Early Identification and Intervention

According to the findings from the in-depth interviews, participants consistently emphasized that early identification and intervention are essential for meeting the needs of children

with hearing impairment in Early Childhood Education settings. Participants explained that identifying hearing impairment during the early years enables timely assessment, referral, and intervention, thereby improving children's language development, communication, learning, and overall developmental outcomes. They further noted that delayed identification often results in communication difficulties, poor school readiness, and limited participation in classroom activities, making it difficult for children to achieve their full potential. An Early Childhood Education teacher explained: "Many children begin school without anyone realizing they have hearing impairment. By the time the condition is identified, they have already missed important opportunities to develop language and communication skills." (ET4)

Similarly, a parent stated: "We thought our child was simply slow in speaking until the teachers advised us to seek medical assessment. If the hearing problem had been identified earlier, our child would have received support much sooner." (PC3)

A head teacher also observed: "Regular hearing screening is important because many families are unaware that their children have hearing difficulties. Early identification helps schools and parents provide the necessary support before learning is seriously affected." (HT2)

Another Early Childhood Education teacher remarked: "When hearing impairment is identified early, teachers can adjust their teaching methods and children settle into school more easily. Delayed identification makes it difficult for both the teacher and the child." (ET9)

A parent similarly explained: "Early intervention gave our child confidence to communicate with others. Without that support, the child would have struggled both academically and socially." (PC8) These findings suggest that participants regarded early identification and intervention as a critical foundation for ensuring timely support, enhancing children's communication and learning, and promoting meaningful participation in Early Childhood Education settings.

The findings further demonstrate that early identification and intervention extend beyond the timely detection of hearing impairment to influence children's overall educational trajectories. Participants consistently perceived early intervention as creating opportunities for timely assessment, appropriate educational planning, and the provision of individualized support before communication and learning difficulties become more pronounced. This suggests that strengthening early hearing screening, referral systems, and collaboration between families, health professionals, and schools is fundamental to improving children's readiness for learning and

promoting equitable participation in Early Childhood Education settings. Early intervention therefore emerges not only as a health-related response but also as a critical educational strategy for fostering children's holistic development and long-term educational success.

4.1.2 Communication support

According to the findings from the in-depth interviews, participants consistently emphasized that communication support is one of the most important needs of children with hearing impairment in Early Childhood Education settings. Participants explained that effective communication enables children to understand classroom instruction, express their thoughts and feelings, interact with teachers and peers, and actively participate in learning activities. They further emphasized that no single communication strategy adequately meets the needs of every child with hearing impairment because children differ in their communication abilities and preferences. Instead, teachers should combine sign language, gestures, facial expressions, visual materials, demonstrations, and other child-centred communication approaches to respond to individual learning needs and facilitate meaningful participation. Participants further noted that communication barriers often result in limited classroom participation, poor academic progress, frustration, and social exclusion. Consequently, they highlighted the importance of adopting multiple communication approaches that promote meaningful interaction, language development, and effective learning. An Early Childhood Education teacher explained: "Children with hearing impairment learn best when teachers use sign language, pictures, gestures, and facial expressions. These approaches help them understand lessons and participate confidently in classroom activities." (ET6)

Similarly, a parent stated: "My child became more interested in school after the teachers started using sign language. Before that, communication was very difficult, and the child often felt left out during lessons." (PC5)

A head teacher observed: "Communication is the foundation of learning. If teachers cannot communicate effectively with children who have hearing impairment, meaningful learning cannot take place regardless of how well the lesson is prepared." (HT3)

Another Early Childhood Education teacher remarked: "Every teacher should have basic sign language skills because not every child communicates in the same way. Effective communication creates confidence and encourages children to participate in both learning and play." (ET12)

A parent also explained: "When teachers communicate well with my child, it improves not only learning but also friendships with other children because the child feels understood and accepted." (PC9)

The classroom observations corroborated the interview findings regarding the importance of communication support for children with hearing impairment. Classroom observations further revealed that teachers who intentionally combined sign language, gestures, facial expressions, pictures, demonstrations, and other visual communication strategies created more opportunities for children with hearing impairment to participate actively and independently in classroom activities. In these classrooms, children demonstrated greater confidence in responding to teachers' questions, participating in group activities, and interacting with their peers. Conversely, classrooms that relied predominantly on spoken language with limited visual or sign language support provided fewer opportunities for meaningful participation, as some children with hearing impairment appeared hesitant to engage, frequently sought clarification from teachers or peers, and occasionally remained passive during learning activities. These observations reinforce the importance of adopting multiple communication approaches that accommodate children's diverse communication needs and promote meaningful participation in Early Childhood Education settings.

Overall, these findings demonstrate that communication is not merely a means of transmitting classroom instruction but the foundation upon which children's participation, language acquisition, peer relationships, and meaningful inclusion are built. Without effective communication, other educational interventions become considerably less effective. Beyond facilitating classroom instruction, effective communication emerged as a key determinant of children's confidence, sense of belonging, and overall engagement in the learning process. Participants consistently perceived communication as the gateway through which children with hearing impairment access educational experiences, develop meaningful relationships, and express their abilities. This highlights the need for Early Childhood Education settings to adopt flexible and multimodal communication approaches that respond to children's diverse communication needs rather than relying on a single method. Effective communication therefore emerges as the cornerstone of inclusive Early Childhood Education, underpinning equitable participation, holistic development, and meaningful inclusion for children with hearing impairment.

4.1.3 Qualified teachers with specialized skills

According to the findings from the in-depth interviews, participants consistently emphasized that qualified teachers with specialized knowledge and skills are essential for effectively meeting the educational needs of children with hearing impairment in Early Childhood Education settings. Participants explained that teachers require appropriate knowledge of hearing impairment, inclusive teaching practices, communication strategies, and classroom adaptations to support children's learning and development. They further emphasized that teachers should recognize that children with hearing impairment differ in the severity of hearing loss, communication preferences, learning abilities, and developmental needs, making individualized instructional support essential for promoting meaningful participation and learning. Three sub-themes emerged: teachers' knowledge of hearing impairment, competence in sign language and inclusive communication, and continuous professional development in inclusive education.

Teachers' knowledge of hearing impairment

The findings revealed that participants considered teachers' knowledge of hearing impairment to be fundamental for identifying children's learning needs and providing appropriate educational support. Participants explained that teachers who understand the characteristics of hearing impairment are better able to recognize learning challenges, adapt instructional approaches, and provide individualized support. An Early Childhood Education teacher explained: "A teacher must first understand hearing impairment before they can help the child. If you do not know the child's needs, you may think the child is simply stubborn or slow in learning." (ET4)

Similarly, a parent observed: "Some teachers do not understand children with hearing impairment. They expect them to learn like every other child, yet they need different support." (PC6)

A head teacher also remarked: "Teachers need adequate knowledge about hearing impairment because understanding the child's condition helps them plan appropriate learning activities." (HT2) These findings indicate that participants regarded teachers' knowledge of hearing impairment as an important prerequisite for providing appropriate educational support to children with hearing impairment.

Competence in sign language and inclusive communication

The findings further showed that participants viewed competence in sign language and other inclusive communication approaches as essential for effective teaching and learning.

Participants explained that communication barriers arise when teachers cannot communicate effectively with children with hearing impairment, limiting classroom participation and social interaction. One Early Childhood Education teacher stated: "Even if you prepare good lessons, they become ineffective when you cannot communicate with the child. Learning begins with communication." (ET11)

A parent similarly explained: "My child learns better when the teacher uses sign language and visual demonstrations. Communication gives the child confidence to participate." (PC3)

A head teacher added: "Every teacher working with children who have hearing impairment should possess basic sign language skills because communication is central to inclusion." (HT4) These findings suggest that participants perceived competence in sign language and inclusive communication strategies as essential for promoting children's participation, learning, and meaningful inclusion in Early Childhood Education settings.

Continuous professional development in inclusive education

The findings also revealed that participants emphasized the importance of continuous professional development to strengthen teachers' competencies in inclusive education. Participants explained that many teachers receive limited preparation on hearing impairment during pre-service training and therefore require ongoing capacity-building to respond effectively to children's diverse learning needs. An Early Childhood Education teacher remarked: "We need regular training because many of us were never taught how to teach children with hearing impairment during college." (ET8)

A head teacher similarly observed: "Professional development workshops help teachers learn new strategies and improve the quality of support they provide to children with hearing impairment." (HT1)

A parent also commented: "When teachers receive more training, parents become more confident that their children are receiving the support they deserve." (PC9) These findings indicate that participants viewed continuous professional development as essential for strengthening teachers' knowledge, confidence, and competence in supporting children with hearing impairment within inclusive Early Childhood Education settings.

Taken together, these findings demonstrate that qualified teachers with specialized skills are fundamental to the successful inclusion of children with hearing impairment in Early Childhood Education settings. Participants consistently emphasized that effective support depends

not only on teachers' understanding of hearing impairment but also on their competence in inclusive communication and their commitment to continuous professional learning. The findings further suggest that teacher competence underpins children's participation, facilitates effective communication, and enables the delivery of individualized instruction that responds to children's diverse educational and developmental needs. Beyond professional qualifications alone, teacher competence emerged as a critical determinant of the quality of inclusive Early Childhood Education. Collectively, participants perceived knowledgeable and skilled teachers as key agents in identifying children's needs, adapting instructional practices, fostering effective communication, and creating supportive learning environments that promote meaningful participation. These findings highlight the importance of sustained investment in teacher preparation and continuous professional development as essential strategies for strengthening inclusive educational practice. Qualified teachers with specialized skills therefore emerge as a cornerstone of equitable, responsive, and high-quality Early Childhood Education for children with hearing impairment.

4.1.4 Inclusive teaching and learning materials

According to the findings from the in-depth interviews, participants consistently emphasized that inclusive teaching and learning materials are essential for supporting the education of children with hearing impairment in Early Childhood Education settings. Participants explained that children with hearing impairment learn more effectively when teachers use instructional materials that accommodate their communication and learning needs. They further explained that learning is enhanced when teachers complement verbal instruction with demonstrations, gestures, modelling, real objects, picture cards, and play-based activities that provide multiple visual cues for understanding. Participants therefore highlighted the importance of visual teaching aids such as pictures, charts, flashcards, and other adapted instructional materials in enhancing children's understanding, sustaining their attention, and encouraging active participation during classroom activities. They further noted that inadequate teaching and learning materials limit teachers' ability to implement inclusive instructional practices and reduce children's opportunities to engage meaningfully in learning. An Early Childhood Education teacher explained: "Children with hearing impairment understand lessons much better when they can see pictures, objects, and demonstrations. These materials help them follow what is being taught and make learning easier." (ET5)

Similarly, a parent stated: "My child becomes excited about learning whenever the teacher uses pictures and practical materials. It is easier for the child to understand and remember what has been taught." (PC4)

A head teacher observed: "Inclusive education requires appropriate teaching materials because children with hearing impairment depend more on visual learning than spoken explanations alone. Without such materials, meaningful learning becomes difficult." (HT1)

Another Early Childhood Education teacher remarked: "We try our best to support these children, but sometimes we do not have enough teaching materials that suit their learning needs. This makes it difficult to provide quality instruction." (ET10)

A parent also explained: "Schools should provide more learning materials that are suitable for children with hearing impairment because these children need resources that help them understand what is being taught." (PC7)

The classroom observations corroborated the interview findings regarding the importance of inclusive teaching and learning materials. In classrooms where teachers used visual teaching aids such as pictures, charts, real objects, flashcards, and play materials, children with hearing impairment appeared more attentive, engaged actively in classroom activities, and demonstrated a better understanding of the concepts being taught. Conversely, in classrooms with limited adapted instructional materials, teachers relied predominantly on verbal explanations, making it difficult for some children with hearing impairment to follow lessons independently and participate fully in learning activities.

Taken together, the interview and observation findings demonstrate that inclusive teaching and learning materials play a critical role in facilitating effective communication, improving children's understanding, enhancing classroom participation, and promoting meaningful inclusion of children with hearing impairment in Early Childhood Education settings. Participants consistently emphasized that appropriately adapted instructional materials enable teachers to respond effectively to children's diverse communication and learning needs while creating opportunities for active engagement through visual, practical, and play-based learning experiences. Beyond serving as instructional resources, inclusive teaching and learning materials emerged as essential enablers of equitable learning and participation in Early Childhood Education. The findings indicate that effective inclusive teaching depends not only on teachers' knowledge and instructional skills but also on the availability and appropriate use of adapted learning resources

that accommodate children's individual learning characteristics. This underscores the need for schools and education authorities to prioritize the provision of accessible and inclusive teaching materials as part of strengthening the quality of inclusive education. Inclusive teaching and learning materials therefore emerge as indispensable tools for translating the principles of inclusive education into meaningful classroom practice for children with hearing impairment.

4.1.5 Assistive hearing devices

According to the findings from the in-depth interviews, participants consistently emphasized that assistive hearing devices are essential for supporting the learning and development of children with hearing impairment in Early Childhood Education settings. Participants explained that devices such as hearing aids improve children's ability to hear sounds, understand classroom instruction, communicate with teachers and peers, and participate more effectively in learning activities. They further emphasized that schools and education authorities have a responsibility to facilitate equitable access to assistive hearing devices through partnerships, referral systems, and resource mobilization, particularly because many families are unable to meet the associated costs independently. Participants also noted that although assistive hearing devices significantly enhance children's educational experiences, many families continue to face challenges in obtaining, maintaining, and replacing these devices due to their high cost, limited availability, and inadequate specialist support services. An Early Childhood Education teacher explained: "Children who use hearing aids are able to follow classroom activities much better because they can hear instructions more clearly and communicate more confidently with both teachers and classmates." (ET7)

Similarly, a parent stated: "After my child received a hearing aid, there was a noticeable improvement in communication and participation at school. However, obtaining the device was difficult because it was expensive and not readily available." (PC2)

A head teacher observed: "Assistive hearing devices are important because they help children benefit from classroom instruction, but many families cannot afford them, and schools have limited capacity to provide such support." (HT3)

Another Early Childhood Education teacher remarked: "Some children who need hearing aids come to school without them. This makes it difficult for them to follow lessons, especially when the classroom is noisy." (ET13)

A parent also explained: "Even after getting a hearing aid, regular maintenance and replacement of batteries become another challenge for many families." (PC10)

The classroom observations corroborated the interview findings regarding the importance of assistive hearing devices in facilitating children's participation and learning. During classroom observations, children who were using hearing aids appeared to respond more readily to teachers' instructions, participated more actively in classroom discussions, and interacted more confidently with their peers. Conversely, some children who did not have assistive hearing devices or whose devices were not functioning effectively experienced difficulties following classroom activities, frequently relied on visual cues, and required additional support from teachers and classmates to complete learning tasks.

Taken together, the interview and observation findings demonstrate that assistive hearing devices are essential for enhancing communication, classroom participation, and learning among children with hearing impairment in Early Childhood Education settings. Participants consistently emphasized that these devices enable children to access classroom instruction more effectively, interact confidently with teachers and peers, and participate more meaningfully in educational activities. However, they also highlighted that financial constraints, limited availability, inadequate maintenance services, and insufficient specialist support continue to restrict equitable access to these essential resources. Beyond improving children's hearing ability, assistive hearing devices emerged as important enablers of educational inclusion and holistic development. The findings indicate that the effectiveness of these devices depends not only on their availability but also on sustained access, regular maintenance, and coordinated support from families, schools, health professionals, and education authorities. This underscores the need for collaborative strategies that ensure children with hearing impairment receive appropriate assistive technologies throughout their educational journey. Assistive hearing devices therefore emerge as fundamental resources for promoting equitable participation, meaningful inclusion, and improved learning outcomes in Early Childhood Education settings.

4.1.6 Family involvement

According to the findings from the in-depth interviews, participants consistently emphasized that family involvement is essential for supporting the education and overall development of children with hearing impairment in Early Childhood Education settings. Participants explained that parents and caregivers play a critical role in reinforcing learning at

home, supporting communication development, monitoring children's progress, and working collaboratively with teachers to address children's educational needs. They further noted that regular communication and cooperation between families and schools create a supportive environment that enhances children's confidence, learning, and successful inclusion. An Early Childhood Education teacher explained: "When parents work closely with teachers, children with hearing impairment make better progress because the support they receive at school continues at home. This consistency helps them develop communication and learning skills more effectively." (ET8)

Similarly, a parent stated: "As parents, we need to be involved in our children's education. When I communicate regularly with the teacher, I understand how to support my child at home and help reinforce what is taught in school." (PC6)

A head teacher observed: "Family involvement is one of the pillars of inclusive education. Children achieve better learning outcomes when parents and teachers share information, make joint decisions, and work together to support the child's development." (HT2)

Another Early Childhood Education teacher remarked: "Some parents attend school meetings, follow up on their children's progress, and practise communication skills with them at home. Such children are usually more confident and participate actively during classroom activities." (ET14)

A parent also explained: "My child became more confident after I started attending school meetings and following the teacher's advice on how to communicate and practise learning activities at home." (PC9)

The classroom observations corroborated the interview findings regarding the importance of family involvement in supporting children with hearing impairment. Teachers reported regular communication with some parents concerning children's progress, while observation records indicated that children whose parents maintained close collaboration with the school appeared more confident, participated more actively in classroom activities, and demonstrated greater consistency in communication and learning. However, the observations also suggested that limited parental involvement reduced opportunities for reinforcing learning beyond the classroom, making it more difficult for some children to consolidate newly acquired skills.

Taken together, the interview and observation findings demonstrate that active family involvement is fundamental to promoting children's communication, learning, confidence, and

meaningful inclusion in Early Childhood Education settings. Participants consistently emphasized that strong partnerships between families and schools create continuity between home and school, enabling children with hearing impairment to receive consistent educational and emotional guidance that reinforces their learning and overall development. These findings demonstrate that family involvement extends beyond parental participation in school activities to encompass active collaboration in children's educational and developmental journeys. Participants perceived parents and caregivers as indispensable partners who reinforce communication skills, monitor children's progress, and work closely with teachers to address individual learning needs. This highlights the importance of strengthening home-school partnerships through regular communication, shared decision-making, and collaborative engagement in supporting children with hearing impairment. Family involvement therefore emerges as a critical component of effective inclusive Early Childhood Education, fostering children's holistic development, educational success, and meaningful participation in learning.

4.1.7 Supportive learning environment

According to the findings from the in-depth interviews, participants consistently emphasized that a supportive learning environment is essential for promoting the academic, social, and emotional development of children with hearing impairment in Early Childhood Education settings. Participants explained that children learn more effectively when they are educated in classrooms characterized by positive teacher attitudes, acceptance, encouragement, and respect for individual differences. They further noted that supportive classrooms enable children with hearing impairment to communicate confidently, participate actively in learning activities, and develop positive relationships with both teachers and their peers. Conversely, participants observed that unsupportive classroom environments often discourage participation, reduce children's confidence, and hinder their learning experiences. An Early Childhood Education teacher explained: "Children with hearing impairment perform better when they feel accepted and supported by both teachers and classmates. A welcoming classroom gives them the confidence to participate without fear." (ET3)

Similarly, a parent stated: "My child enjoys going to school because the teachers are patient and understanding. They encourage the child to participate and make sure no one feels left behind." (PC8)

A head teacher observed: "An inclusive learning environment is one where every child feels valued regardless of their abilities. Teachers should create classrooms that promote respect, participation, and equal learning opportunities for all children." (HT1)

Another Early Childhood Education teacher remarked: "Creating a supportive classroom is not only about teaching. It is also about encouraging children to help one another, appreciate differences, and make every child feel that they belong." (ET11)

A parent also explained: "When children feel safe and accepted at school, they become more confident, communicate better, and enjoy learning with their friends." (PC4)

Taken together, the interview and observation findings demonstrate that a supportive learning environment is fundamental to enhancing children's confidence, communication, participation, and overall learning experiences in Early Childhood Education settings. Participants consistently emphasized that classrooms characterized by positive teacher attitudes, acceptance, mutual respect, and encouragement create conditions that enable children with hearing impairment to engage actively in learning and develop meaningful relationships with teachers and their peers.

The findings further indicate that a supportive learning environment is not solely defined by the physical classroom but also by the quality of interactions and relationships that children experience within it. Participants perceived inclusive and nurturing classroom environments as essential for fostering children's emotional well-being, self-confidence, and willingness to participate in learning activities. This underscores the importance of creating classroom cultures that value diversity, promote mutual respect, and provide every child with opportunities to learn and participate without fear of exclusion or discrimination. A supportive learning environment therefore emerges as a fundamental pillar of inclusive Early Childhood Education, promoting children's holistic development, educational participation, and meaningful inclusion.

4.1.8 Opportunities for social interaction

According to the findings from the in-depth interviews, participants consistently emphasized that opportunities for social interaction are essential for the holistic development of children with hearing impairment in Early Childhood Education settings. Participants explained that regular interaction with peers enables children to develop communication skills, build friendships, enhance self-confidence, and acquire important social and emotional competencies. They further noted that inclusive classroom activities, cooperative learning, and play-based experiences provide valuable opportunities for children with hearing impairment to participate

alongside their peers, fostering a sense of belonging and reducing social isolation. An Early Childhood Education teacher explained: "Children with hearing impairment should be encouraged to play and learn together with other children because this helps them develop communication skills, make friends, and build confidence." (ET9)

Similarly, a parent stated: "My child enjoys coming to school because there is an opportunity to interact and play with other children. These friendships have improved the child's confidence and communication." (PC5)

A head teacher observed: "Inclusive education is not only about academic learning. Children with hearing impairment should have equal opportunities to participate in games, group activities, and other social experiences that promote their overall development." (HT4)

Another Early Childhood Education teacher remarked: "When children work together during classroom activities, they learn from one another and become more accepting of individual differences. This creates an inclusive learning community for every child." (ET15)

A parent also explained: "My child has become more confident because classmates involve the child in play and classroom activities. Feeling accepted by other children has made a big difference." (PC2)

Taken together, the interview and observation findings demonstrate that opportunities for social interaction are fundamental to promoting communication, friendship formation, self-confidence, and meaningful inclusion among children with hearing impairment in Early Childhood Education settings. Participants consistently emphasized that inclusive classroom activities, cooperative learning, and play-based experiences enable children to interact with their peers, develop positive social relationships, and experience a strong sense of belonging within the school community. The findings further indicate that opportunities for social interaction contribute not only to children's social development but also to their communication, emotional well-being, and educational participation. Participants perceived peer interaction as an important avenue through which children with hearing impairment develop interpersonal skills, build self-confidence, and learn collaboratively with others in inclusive classroom settings. This highlights the importance of intentionally creating learning environments that encourage cooperative learning, inclusive play, and positive peer relationships for all children. Opportunities for social interaction therefore emerge as an essential component of inclusive Early Childhood Education, fostering children's holistic development, meaningful participation, and successful inclusion.

5. Discussions

The results show that children with hearing impairments have multifaceted, mutually reinforcing demands in early childhood education settings. Early identification and intervention, communication support, qualified teachers, inclusive teaching and learning materials, assistive hearing devices, family involvement, supportive learning environments, and social interaction opportunities were all cited by participants as necessary prerequisites for meaningful engagement and learning. According to the Classical Liberal Theory of Equal chances (Sherman & Wood, 1982) as cited by (Aciro.C.Lucy et al., 2026), these results imply that children with hearing impairments can only benefit from equal educational chances if learning obstacles are removed by equitable educational support. According to the principle, regardless of individual variations, every child should have an equal chance to reach their educational potential. The current research expands on this viewpoint by showing that equal opportunities are attained not only through school enrollment but also through the provision of suitable social, educational, and communication support that permits children with hearing impairments to participate on an equal basis with their hearing peers.

According to the study, the key to successful inclusion is early detection, intervention, and good communication support. The use of sign language, visual aids, gestures, demonstrations, and other child-centered communication techniques allows children to access instruction and engage in meaningful classroom activities, while prompt identification promotes early assessment and educational planning, according to the participants. These results are in line with earlier research and global data (UNESCO, 2020; WHO, 2021), which show that low educational outcomes, language delays, and decreased engagement are caused by delayed identification and insufficient communication support. According to the Classical Liberal Theory of Equal Opportunities, children who are denied access to early intervention programs and proper communication cannot compete on an equal footing. Ensuring equitable access to these services therefore represents a prerequisite for achieving educational equality.

The results also showed that in order to create fair learning opportunities, qualified teachers, inclusive teaching and learning resources, and assistive hearing equipment are essential. In order to address children's varied learning requirements and promote active classroom involvement, participants consistently believed that teachers with specialized knowledge, modified instructional materials, and assistive technologies were crucial (Mugenyi Edison et al.,

2026). These results corroborate other studies showing that effective inclusive education, especially in settings with limited resources, depends critically on teacher competency and readily available instructional resources. The results also imply that equal educational opportunity necessitates the equitable provision of specialized resources that allow children with hearing impairments to learn effectively rather than the same treatment for all students. This interpretation is consistent with the Classical Liberal Theory of Equal Opportunities, which recognises that fairness in education requires removing barriers that disadvantage particular groups of learners.

The study also found that fostering children's holistic development and meaningful inclusion requires social interaction opportunities, appropriate learning environments, and family participation. Children's confidence, communication, engagement, and sense of belonging are all improved by good family-school connections, positive teacher attitudes, inclusive classroom practices, and peer interaction opportunities, according to the participants. These results are consistent with earlier research like (Mumbere Brean Bideke & Kobusingye Prudence, 2025) showing that supportive connections that reinforce learning at home and at school are just as important to educational success as classroom teaching. When viewed through the lens of the Classical Liberal Theory of Equal chances, these results imply that equal educational chances encompass more than just the ability to attend school; they also include learning environments that are friendly, interactive, and sensitive to each child's unique requirements. Such environments enable children with hearing impairment to participate fully in educational and social experiences alongside their peers.

Overall, the study contributes to the literature by demonstrating that the educational needs of children with hearing impairment should be understood as an integrated system of support rather than isolated interventions. Equality of educational opportunity is unlikely to be realised where children lack early intervention services, effective communication, specialised teachers, inclusive learning resources, assistive hearing devices, supportive family-school partnerships, or opportunities for meaningful participation. Therefore, the results support the fundamental tenet of the Classical Liberal Theory of Equal Opportunities, which is that all children should have the resources they need to engage in school in an equitable manner. To do this, families, schools, education authorities, and legislators must work together to remove obstacles and give children with hearing impairments the support they need to reach their full educational potential.

6. Recommendations

The results emphasize the necessity of concerted efforts to improve inclusive early childhood education for Ugandan children with hearing impairments. By encouraging early hearing screening, prompt referral, and intervention services, the Ministry of Education and Sports should enhance inclusive education in partnership with the Ministry of Health, local governments, and development partners. In order to educate Early Childhood Education instructors with competences in hearing impairment, inclusive pedagogy, sign language, and differentiated instruction, teacher education institutions and providers of Continuous Professional Development (CPD) should enhance pre-service and in-service training. In addition to making sure that assistive technology is accessible, reasonably priced, and properly maintained, the government, school owners, and development partners should invest in inclusive teaching and learning resources, assistive hearing equipment, and accessible learning environments. Through consistent communication and cooperative support for kids' education, schools should improve their relationships with parents and other caregivers. In order to lessen stigma associated with disabilities and promote early detection of hearing impairment, community awareness programs should be encouraged. Lastly, in order to ensure equitable early childhood education, policymakers should provide sufficient financial and technical resources. In order to improve equal access, meaningful engagement, and learning outcomes for children with hearing impairments in Uganda, the findings offer evidence to inform policy, teacher education, and resource allocation.

7. Limitations

When evaluating the results, it is important to take into account the limitations of this study. The results may not accurately represent the opinions of other significant stakeholders, such as children with hearing impairments, audiologists, speech and language therapists, special needs education specialists, and education policymakers, because it first examined the viewpoints of Early Childhood Education (ECE) teachers, parents/caregivers, and head teachers. Second, the results may not be as applicable in other educational contexts because the study was limited to specific Early Childhood Education settings in Uganda. Lastly, the qualitative descriptive design produced rich and detailed insights into the experiences of the participants, but it did not assess the efficacy of particular interventions or gauge the frequency of the identified requirements. Future studies might use mixed-methods or quantitative approaches, involve a wider range of stakeholders

and educational environments, and assess the efficacy of interventions meant to enhance inclusive early childhood education for kids with hearing impairments.

8. Conclusion

According to the study's findings, children with hearing impairments in Ugandan early childhood education settings have a variety of interrelated and context-specific educational, communication, social, and developmental requirements that call for all-encompassing and well-coordinated support. The study found that early identification and intervention, effective communication support, qualified teachers with specialized skills, inclusive teaching and learning materials, assistive hearing devices, family involvement, supportive learning environments, and opportunities for social interaction are essential for meaningful inclusion and holistic child development, according to the perspectives of Early Childhood Education teachers, parents/caregivers, and head teachers. The results further support the tenets of the Classical Liberal Theory of Equal Opportunities (Sherman & Wood, 1982) as cited by (Aciro Can Lucy, 2026), which maintains that all children, regardless of individual characteristics or disabilities, should have an equal chance to receive a high-quality education. According to the study, when trained teachers, inclusive learning settings, accessible learning resources, and adequate support systems are available, children with hearing impairments can engage meaningfully in school and reach their full potential. Therefore, in order to guaranty equitable educational opportunities, intentional efforts must be made to eliminate obstacles that restrict participation and to give children with hearing impairments the assistance they need to learn alongside their classmates. In the scant literature on the requirements of children with hearing impairments in early childhood education in Uganda, this study adds context-specific evidence. The results highlight how crucial it is to improve teacher training, early detection and intervention services, communication support, family-school collaborations, inclusive learning settings, and access to suitable educational materials and assistive hearing devices. When taken as a whole, these actions are crucial for advancing the realization of Sustainable Development Goal 4, which promotes inclusive, equitable, and high-quality education for all, improving children's holistic development and meaningful participation, and fostering equitable access to high-quality early childhood education.

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The authors affirm that they have no competing interests.

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12. Authors contribution

ACL: Conceptualization, methodology, investigation, data curation, writing original draft, writing review and editing. **TSR:** Supervision, Investigation, data curation, validation, review and editing. **KNK:** visualisation, validation, and investigation, Formal analysis, writing original draft, revision of the manuscript, **ME:** Investigation, data curation, validation, writing review and editing. **MBH:** Investigation, data curation, validation, writing review and editing. All authors read and approved the final manuscript. **PK:** Conceptualization, methodology, investigation, data curation, writing original draft, writing review and editing

13. Consent statement

Before any data was collected, participants received an informed consent form outlining the study's objectives, procedures, potential benefits, and their rights, including the ability to withdraw from the study at any time without suffering consequences. To preserve confidentiality and safeguard participant privacy, all data was anonymized and all identifiable information was eliminated during transcription and analysis.

14. Declaration of generative AI Use

The authors certify that no generative AI tools, including ChatGPT, Gemini, Perplexity, and others, were used in the research process or in the preparation of this work.

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