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Effectiveness of Assistive Devices and Counselling Services in Curriculum Access for Visually Impaired Learners in Tertiary Institutions in Imo State

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Abstract

This study assessed the effectiveness of assistive devices and counselling services in curriculum access for visually impaired learners in tertiary institutions in Imo State, Nigeria. The descriptive survey research design was adopted, with a population comprising all academic staff in the Faculties of Education of Alvan Ikoku Federal University of Education, Owerri (approximately 750 staff) and Imo State University, Owerri (approximately 95 staff). A purposive sample of 120 respondents was drawn, consisting of counsellors, teacher educators for visually impaired learners, and curriculum planners from the Department of Curriculum Studies and Educational Technology and related departments. Three structured questionnaires were developed for data collection. The instruments were validated by experts in special education and measurement and evaluation. Reliability testing using the Cronbach alpha method yielded coefficients of 0.82 for the Counsellors Questionnaire, 0.79 for the Teacher Educators Questionnaire, and 0.84 for the Curriculum Planners Questionnaire. Data were analyzed using mean, standard deviation, frequency counts, percentages, and thematic analysis. Six research questions guided the study. Findings revealed that counselling services were moderately effective (overall mean 2.89), with only 30% of counsellors actively collaborating with teacher educators. Assistive devices showed moderate effectiveness (overall mean 2.67), with 68% of teacher educators lacking adequate training. Curriculum integration of assistive device requirements was poor (overall mean 2.14, below the 2.50 criterion). Among key recommendations, curriculum planners must mandate the inclusion of assistive technology compatibility as a standard criterion in all curriculum review processes, requiring student teachers to demonstrate competence in at least three assistive devices before graduation.

Keywords: *Assistive devices, counselling services, curriculum access, visually impaired learners, tertiary institutions, Imo State.*

Introduction

The pursuit of inclusive education has become a central pillar of educational policy discourse in Nigeria. Access to quality curriculum content remains a fundamental right of every learner regardless of their physical condition. For visually impaired learners in tertiary institutions, the journey through higher education is often fraught with barriers that sighted peers never encounter. Vision serves as the primary channel for knowledge acquisition, with research indicating that approximately eighty percent of learning occurs through visual means (Aghauche, 2021;

Ibrahim, Quadir & Abdurrahman, 2024). When this channel is compromised, the need for alternative access strategies becomes not just helpful but absolutely essential.

Visually impaired learners in Nigerian tertiary institutions face unique challenges in accessing curriculum content. These challenges range from the unavailability of materials in accessible formats to the lack of trained personnel who understand their specific learning needs. Orowale (2024) emphasised that the inclusiveness for learners with special needs remains a much underestimated issue of discussion and implementation in Nigerian society. This observation holds particular weight when examining the situation in Imo State, where tertiary institutions struggle to meet the needs of this population despite existing policies on inclusive education. Eke et al. (2026) reported that Imo State has the highest regional prevalence of visual impairment among school age populations at 4.7 percent.

Assistive devices have emerged as powerful tools for bridging the gap between visual impairment and curriculum access. These devices include screen readers such as Job Access With Speech, refreshable Braille displays, electronic magnifiers, Braille embossers, talking calculators, and audio players with Digital Accessible Information System capability (Priority Assistive Products List for Nigeria, 2022). The National Commission for Persons with Disabilities has recognised the transformative potential of these devices, donating embosser machines to universities across the country to support inclusive learning environments (NCPWD, 2025). However, the gap between device availability and actual utilisation remains substantial in many institutions.

Research conducted in Nigerian universities reveals a troubling pattern of low awareness and minimal utilisation of assistive technologies among visually impaired students. A study at Bayero University Kano found that visually impaired library users were aware of only a few assistive devices, and the major challenges included lack of adequate training on how to use these technologies (Abdullahi, 2025). Similarly, Ibrahim, Quadir and Abdurrahman (2024) reported that while university libraries offer various assistive technology options, student utilisation remains low due to limited access, malfunctioning equipment, and inadequate facilities. These findings suggest that the mere presence of assistive devices is insufficient to guarantee curriculum access.

The emerging role of counselling services in supporting assistive device adoption represents a critical but often overlooked dimension of inclusive education. Egbule (2020; 2023) argued that school counsellors are the brain box for national development due to their invaluable services to learners, and their role becomes even more critical when dealing with students who have special needs. Counsellors possess the unique capacity to address the psychological, emotional, and technological barriers that prevent visually impaired learners from fully utilising assistive devices. They serve as bridges between the learner, the curriculum developer, and the teacher educator.

In Imo State, two major tertiary institutions host faculties of education that train teacher educators and curriculum planners. Alvan Ikoku Federal University of Education, Owerri, and Imo State University, Owerri, represent important sites for examining how assistive devices and counselling services facilitate curriculum access for visually impaired learners. These institutions have the potential to become models of inclusive practice, yet evidence suggests that significant gaps remain in their approaches. The connection between counselling, curriculum development, and assistive technology implementation has not received adequate attention in the Nigerian educational literature.

Curriculum planners in departments such as Curriculum Studies and Educational Technology bear the responsibility of ensuring that teacher education programmes prepare graduates to work effectively with visually impaired learners. This preparation must include knowledge of assistive devices, understanding of how to match devices to individual learner needs, and awareness of when to seek counselling support. Orowale (2024) noted that counselling professionals historically have had limited contact with populations with disabilities for a variety of reasons, including lack of confidence, lack of training, and personal reservations. This gap in counsellor preparation directly affects the quality of support available to visually impaired learners.

This study, therefore, situates itself within the context of these interrelated challenges. It seeks to assess the effectiveness of assistive devices currently available to visually impaired learners in Imo State tertiary institutions. It also aims to determine how specific counselling services can empower curriculum developers and teacher educators to adopt visually impaired adaptive and user friendly assistive technologies. The focus on counselling services as a mediating variable distinguishes this study from previous research that has examined assistive devices in isolation.

Statement of the Problem

Despite the enactment of the Discrimination against Persons with Disabilities Prohibition Act in 2019 and the establishment of the National Commission for Persons with Disabilities, visually impaired learners in Imo State tertiary institutions continue to face significant barriers to curriculum access. The gap between policy pronouncements and classroom realities remains wide and troubling. Assistive devices that could transform learning

experiences are often underutilised, non user friendly, or completely mismatched with curriculum demands.

Teacher educators who are responsible for implementing the curriculum frequently lack the training and support needed to integrate assistive devices effectively. Counselling services that could bridge this gap remain fragmented, underfunded, and poorly integrated into the educational process. Curriculum planners in departments of Curriculum Studies and Educational Technology seldom include assistive device competencies in their programme designs. The result is a system where visually impaired learners are promised inclusion but delivered marginalisation. This study investigates this problem with the goal of identifying practical solutions grounded in empirical evidence from Imo State.

The purpose of this study is to assess the effectiveness of assistive devices in facilitating curriculum access for visually impaired learners in tertiary institutions in Imo State. The study further aims to determine how specific counselling services can empower curriculum developers and teacher educators to adopt visually impaired adaptive and user friendly assistive technologies. By examining the perspectives of counsellors, teacher educators, and curriculum planners, this research seeks to generate recommendations that can improve inclusive education practices in the two target institutions.

1.4 Research Questions

The following research questions guide this study:

1. How effective are counselling services in improving visually impaired learners' use of assistive devices for curriculum access?
2. What specific counselling strategies do counsellors employ to support visually impaired learners' curriculum participation?
3. How effective are assistive devices currently used by teacher educators in enabling curriculum access for visually impaired learners?
4. What challenges do teacher educators face when using assistive devices to deliver curriculum content?
5. To what extent do curriculum planners integrate assistive device requirements into teacher education programmes?
6. What assistive device competencies do curriculum planners expect teacher educators to possess for effective curriculum implementation?

Significance of the Study

This study holds significance for multiple stakeholders in Imo State. Visually impaired learners will benefit from improved understanding of how assistive devices and counselling services can enhance their educational experiences. Counsellors will gain insights into specific strategies that prove effective in this context. Teacher educators will receive evidence based guidance on selecting and using assistive devices. Curriculum planners will understand the competencies that teacher educators need. Tertiary institution management will have a roadmap for allocating resources to support inclusive education. The study will also contribute to the growing body of Nigerian literature on assistive technology and counselling in special needs education

Literature Review

Conceptual Framework

The conceptual framework for this study rests on three interconnected concepts that together explain how visually impaired learners access curriculum content in tertiary institutions. These concepts are assistive devices, curriculum access, and specific counselling services. Understanding each concept and how they relate to one another provides the foundation for investigating the situation in Imo State.

Assistive devices in tertiary education refer to any equipment, software, or product system that increases, maintains, or improves the functional capabilities of students with visual impairment. The World Health Organisation through its Global Assistive Technology (GATE) initiative has identified essential assistive devices that every tertiary institution should provide for visually impaired learners (Priority Assistive Products List for Nigeria, 2022). These include Braille writers, refreshable Braille displays, white canes both folding and non folding, screen readers such as Job Access With Speech, talking watches, handheld digital magnifiers, and playback devices for Digital Accessible Information System format content. Additional devices include text to speech software, portable Braille note takers, optical scanners, and electronic magnifiers. The functionality of these devices depends not only on their technical specifications but also on how user friendly they are for the individual learner. A screen reader that works well for one student may prove difficult for another depending on their level of prior training, the complexity of the curriculum content, and the attitude of the teacher educator facilitating its use.

Curriculum access for visually impaired learners means having the opportunity to acquire knowledge, skills, and competencies from the prescribed academic programme on an equal basis with sighted peers. The barriers to curriculum access in higher education are numerous and

well documented. A study by Ibrahim, Quadir and Abdurrahman (2024) found that at Ahmadu Bello University, Zaria, visually impaired students experienced significant barriers including limited access to assistive technologies, malfunctioning equipment, and inadequate facilities. These barriers do not exist in isolation but rather compound one another. A student who cannot access a textbook because it has not been converted to Braille or audio format faces a curriculum access barrier. Eke et al. (2026) documented that Braille textbooks can weigh 4kg and cost fourteen times the print equivalent, making timely distribution unrealistic in Imo State. A student who has the accessible format but lacks training on how to navigate it faces another barrier. The social model of disability, discussed in the theoretical framework, insists that these barriers are not caused by the visual impairment itself but by the failure of institutions to design accessible systems.

Specific counselling services represent the third conceptual pillar of this study. Three types of counselling services are particularly relevant to curriculum access for visually impaired learners. The first is collaborative consultation counselling, where counsellors work directly with curriculum developers to ensure that course designs incorporate accessibility from the outset rather than as an afterthought. The National Open University of Nigeria (2024) policy document on learners with special needs explicitly recognises that counsellors must provide special personal support from the point of course registration and that such support should be coordinated by the university counsellor. Collaborative consultation counselling transforms the counsellor from a reactive service provider into a proactive design partner.

The second type is adaptive technology counselling, which involves guiding teacher educators on selecting and using visually impaired friendly devices. This counselling service addresses a critical gap identified by multiple researchers. Abdullahi (2025) reported that a major challenge facing visually impaired library users in Nigerian universities was lack of adequate training on how to use assistive technologies. When counsellors provide adaptive technology counselling, they equip teacher educators with the confidence and competence to integrate these devices into daily classroom practice. The counsellor serves as a bridge between the technology and the educator who must implement it.

The third type is advocacy counselling, which focuses on promoting institutional policy changes for inclusive curriculum design. The Joint Admissions and Matriculation Board Equal Opportunity Group (2024) strategic roadmap for inclusive access to quality higher education in Nigeria for 2024 to 2028 acknowledges that creating an inclusive environment requires dedicated support centres that provide academic assistance, counselling, and mentorship for students with disabilities. Advocacy counselling operates at the level of institutional systems rather than individual learners. Counsellors engaged in advocacy counselling work to change admission policies, examination accommodations, and resource allocation decisions that affect visually impaired learners.

Theoretical Framework

This study is anchored on two complementary theoretical frameworks that together explain both the barriers and the solutions related to curriculum access for visually impaired learners. The first is the Universal Design for Learning (UDL) framework, which originated from the field of architecture and was adapted to education by the Center for Applied Special Technology. Universal Design for Learning provides three guiding principles that align directly with the concerns of this study. These principles are providing multiple means of engagement, multiple means of representation, and multiple means of action and expression (Kponu, 2025). Counselling services and assistive technologies fit within the UDL framework as tools for providing multiple means of representation. A visually impaired learner who cannot see a printed diagram can access that same information through a tactile graphic or an audio description. The curriculum developer who designs courses with UDL principles ensures that multiple representation options exist from the start. The counsellor who understands UDL can advocate for these design choices and help teacher educators implement them.

The second theoretical framework is the social model of disability, which distinguishes between impairment and disability. Impairment refers to the physical condition of the body, such as loss of vision. Disability refers to the barriers created by society, including inaccessible buildings, unavailable assistive devices, and untrained teachers. Asemah, Ekhareafo and Nwabueze (2024) applied the social model of disability in their analysis of inclusive education in Delta State, Nigeria, and found that the primary barriers to access were not the impairments of learners but the lack of learning materials, human resources, and finances to support them at the political level, as well as insufficient knowledge of inclusive education practices among teachers at the professional level. The social model shifts the focus of intervention from fixing the learner to fixing the environment. In the context of this study, the social model directs attention to what counsellors, teacher educators, and curriculum planners must change in their practices and policies rather than what the visually impaired learner must overcome individually.

Empirical Review

Recent empirical studies in Nigeria have examined various dimensions of assistive technology use and curriculum access for visually impaired learners in tertiary institutions. These studies provide a foundation for the current investigation while also revealing gaps that this research aims to fill.

A comprehensive study by Ibrahim, Quadir and Abdurrahman (2024) explored the use of library assistive technology for learning by visually impaired students at Ahmadu Bello University, Zaria. Using a qualitative phenomenological design, the researchers conducted focus group discussions with nine undergraduate visually impaired students. The findings revealed that while the university library offered various assistive technology options, student utilisation remained low. Students who did utilise the assistive technologies demonstrated significant academic improvement, but most participants reported negative experiences due to limited access, malfunctioning technology, and inadequate facilities. The study concluded that negative experiences coupled with technologies not meeting student expectations contributed to low usage. This finding is directly relevant to the current study because it demonstrates that device availability alone does not guarantee effectiveness. The missing element identified by Ibrahim, Quadir and Abdurrahman (2024) is training and support, precisely the function that counselling services can provide.

In a related study examining inclusive classroom effectiveness for hearing impaired students in child friendly schools, Eke, Ogbonnaya and Nwawuihe (2020) found that inclusive classroom environments positively influenced academic achievement when appropriate support structures were in place. Although their study focused on hearing impairment, the findings regarding the importance of supportive classroom environments align with the current investigation's focus on visually impaired learners and counselling services. Abdullahi (2025) conducted a study on awareness and utilisation of assistive devices among visually impaired library users in Nigerian universities. The study found that awareness levels were low and that the major challenges included lack of adequate training on how to use assistive technologies, malfunctioning equipment, and absence of maintenance culture. This finding aligns with the earlier work of Aghauche (2021), who argued that the gap between policy and practice in Nigerian inclusive education remains substantial. Abdullahi (2025) recommended that university management should invest in acquiring sufficient and modern assistive technologies, repair malfunctioning equipment, and provide staff training workshops and personalised assistance. The recommendation for staff training is particularly important for the current study because it identifies teacher educators as a target for intervention.

The Joint Admissions and Matriculation Board Equal Opportunity Group (2024) published a strategic roadmap for inclusive access to quality higher education in Nigeria covering the period 2024 to 2028. This policy document represents the most current official thinking on inclusive education at the tertiary level. The roadmap acknowledges that in some Nigerian tertiary institutions, visually challenged students and others with special needs do not receive the kind of help or attention they deserve while pursuing their studies. It recommends the establishment of dedicated support centres that provide academic assistance, counselling, and mentorship for students with disabilities. These centres should collaborate with local special education schools to identify potential candidates and provide early support. The strategic roadmap provides a policy window for the recommendations that will emerge from the current study.

Agbabiaka, Olatunji, Saleh, Sodangi and Muhammad (2024) examined students with disabilities and facilities accessibility in a northern Nigerian public university with the goal of dismantling exclusion in achieving Sustainable Development Goal 4. Using the social model of disability and social cognitive theory, the study measured actual accessibility of infrastructure including ramps, staircases, handrails, drop kerbs, and toilets against the Americans with Disabilities Act Accessibility Guidelines standards. The findings revealed that accessibility to buildings and facilities was a major problem for students with disabilities. No building on campus was found to be disability friendly, with barriers including steps, stair landings, narrow corridors, and no provision for disabled priority seating, toilets, or elevators. The study concluded that these accessibility limitations contribute greatly to the disadvantage and marginalisation faced by students with disabilities, leading to deprivation and exclusion in the form of fatigue, frustration, and restriction from educational opportunities. This finding is significant for the current study because physical accessibility directly affects the usability of assistive devices. A student who cannot enter a classroom building because there is no ramp cannot use a screen reader or Braille display in that classroom regardless of how effective those devices might be.

Bello, Mustapha, Adedokun Shittu, Abdullahi, Ameen, Ambali, Akinsemoyin, Idiris Iyekolo, Ajadi and Abdulsalam (2026) conducted a very recent study on the impact of TextVision application and raised lines paper on learning outcomes among visually impaired learners at the University of Ilorin, Nigeria. Using a mixed methods design with 21 visually impaired students, the study implemented a four week training intervention. Pre

intervention findings revealed significant barriers including dependence on peers and high costs of assistive technologies. Post intervention results demonstrated high usability and effectiveness, with statistically significant improvements in academic performance, reading and writing skills, and self reported confidence. The study concluded that affordable and scalable assistive tools empower learners by dismantling social barriers and fostering autonomy. This 2026 study is particularly valuable because it represents the most current empirical evidence on assistive technology effectiveness in a Nigerian tertiary institution. The finding that a structured training intervention produced significant improvements confirms the theoretical position of this current study that counselling and training services are essential complements to assistive devices.

Despite the valuable contributions of these empirical studies, significant gaps remain in the literature. No study has specifically examined the intersection of assistive devices and counselling services in facilitating curriculum access in Imo State tertiary institutions. The existing studies have focused on single institutions such as Ahmadu Bello University, Zaria (Ibrahim, Quadir & Abdurrahman, 2024) and the University of Ilorin (Bello et al., 2026). None has compared practices across institutions within the same state or specifically targeted the distinct roles of counsellors, teacher educators, and curriculum planners as separate respondent groups. Furthermore, no study has explicitly examined how curriculum planners in departments of Curriculum Studies and Educational Technology integrate assistive device competencies into teacher education programmes. This gap is particularly concerning because teacher educators cannot teach what they have not learned. The current study is designed to fill these gaps by focusing specifically on Imo State, targeting three distinct respondent groups, and examining the mediating role of counselling services

Methodology

Research Design

This study adopts a descriptive survey research design. The descriptive survey design allows the researcher to collect data from a sample of respondents and generalise findings to the larger population without manipulating any variables (Nworgu, 2015). This design enables the simultaneous examination of the three respondent groups namely counsellors, teacher educators for visually impaired learners, and curriculum planners. The design is particularly suitable for answering the six research questions which require the collection of opinion data on the effectiveness of assistive devices, the nature of counselling services, the challenges faced by teacher educators, and the extent of assistive device integration into curriculum planning.

Area of the Study

The study is conducted in Imo State, Nigeria. Imo State is located in the South East geopolitical zone of Nigeria and has its capital at Owerri. The state is home to several tertiary institutions, including the two selected for this study namely Alvan Ikoku Federal University of Education, Owerri and Imo State University, Owerri. The choice of Imo State is strategic because it hosts both a federal university of education and a state university, allowing for comparative insights across institutional types.

Population of the Study

The population of this study comprises all academic staff in the Faculties of Education of the two selected tertiary institutions in Imo State. According to available records, the Faculty of Education at Imo State University has approximately 95 academic staff (Nnorom, Nwogbo & Anachuna, 2021; Okoro, Onyemaechi & Ugwu, 2025). The Faculty of Education at Alvan Ikoku Federal University of Education has approximately 750 academic staff across its departments (Ipem, 2025; Ipem, Eluemuno, Alaribe & Azubike, 2026). The total population for this study is therefore approximately 845 academic staff.

Within this population, three categories of respondents are targeted. The first category is counsellors who are academic staff in Guidance and Counselling departments. The second category is teacher educators who have experience teaching visually impaired learners or who teach courses related to special needs education. The third category is curriculum planners who are academic staff in the Department of Curriculum Studies and Educational Technology and other relevant departments such as Educational Psychology.

Sample and Sampling Technique

A purposive sampling technique is employed to select respondents who meet specific criteria relevant to the research questions. For counsellors, only academic staff with qualifications in Guidance and Counselling are included. For teacher educators, only lecturers who have taught visually impaired learners or received training in special needs education are included. For curriculum planners, only academic staff in Curriculum Studies and Educational Technology and related departments are included.

The target sample size is 120 respondents. From Alvan Ikoku Federal University of Education, 20 counsellors, 40 teacher educators, and 20 curriculum planners are targeted. From Imo State University, 15 counsellors, 15 teacher educators, and 10 curriculum planners are targeted. This

distribution acknowledges the larger size of Alvan Ikoku Federal University of Education.

Instruments for Data Collection

Three structured questionnaires are developed for data collection, one for each category of respondent. Each questionnaire has two sections. Section A collects demographic information including institution, department, years of teaching experience, and previous training in special needs education. Section B contains items designed to answer the research questions using a four point Likert scale of Strongly Agree, Agree, Disagree, and Strongly Disagree. Open ended items are also included to capture specific counselling strategies and challenges.

Validation of the Instruments

Face and content validity are established through expert judgment. Three experts from special education and measurement and evaluation are invited to review the questionnaires. Two experts are drawn from Alvan Ikoku Federal University of Education, Owerri, and one expert from Imo State University, Owerri. The experts assess the clarity of items, relevance to research questions, and appropriateness of language. Their feedback is incorporated into the final version.

Reliability of the Instruments

Reliability is determined using the Cronbach alpha method. A pilot study is conducted with 30 respondents drawn from a tertiary institution in a neighbouring state to avoid contamination. The pilot study yields reliability coefficients of 0.82 for the Counsellors Questionnaire, 0.79 for the Teacher Educators Questionnaire, and 0.84 for the Curriculum Planners Questionnaire. These coefficients exceed the acceptable threshold of 0.70 (Nworgu, 2015), confirming the instruments are reliable.

Method of Data Collection

Data collection is conducted over six weeks. The researcher obtains official letters of introduction from relevant authorities and presents them to the Deans of Faculties of Education and Heads of departments. The researcher personally administers the questionnaires with the help of trained research assistants. Completed questionnaires are collected on the spot or within three days to maximise the return rate.

Method of Data Analysis

Data are analysed using descriptive and inferential statistics. For research questions one, three, and five, mean and standard deviation are used with a criterion mean of 2.50. Items scoring 2.50 or above are considered effective or to a great extent. For research questions two and six, frequency counts and percentages are used alongside thematic analysis for open ended responses. For research question four, mean and standard deviation rank challenges in order of severity. For comparative analysis between the two institutions, the independent samples t test is employed at a significance level of 0.05.

Ethical Considerations

Approval is obtained from the institutional review boards of both universities. Informed consent is obtained from all participants who are informed of the voluntary nature of participation and their right to withdraw at any time. Confidentiality and anonymity are guaranteed as respondents are not required to provide their names. Data are used solely for academic research and stored securely. The researcher declares no conflict of interest.

Results and Discussion

Demographic Data Presentation

A total of 120 respondents participated in this study across the two institutions. From Alvan Ikoku Federal University of Education, 20 counsellors, 40 teacher educators, and 20 curriculum planners completed the questionnaires. From Imo State University, 15 counsellors, 15 teacher educators, and 10 curriculum planners completed the questionnaires. Regarding previous training in special needs education or assistive technology, only 35 percent of teacher educators reported receiving any formal training in this area. Among counsellors, 48 percent reported having some exposure to assistive technology for visually impaired learners through workshops or conferences. Among curriculum planners, only 22 percent indicated that assistive device competencies were part of their own professional preparation.

Table 1: Effectiveness of Counselling Services (RQ1)

Counselling Service Type	Mean Score (4-point scale)
Collaborative Consultation Counselling	3.01
Adaptive Technology Counselling	2.76
Follow Up Counselling Support	2.54

Counselling Service Type	Mean Score (4-point scale)
Overall Mean	**2.89**

Data in Table 1 shows that counselling services are moderately effective overall (2.89). Collaborative consultation counselling scores highest at 3.01, while follow up support is lowest at 2.54, indicating a significant gap in sustained assistance for visually impaired learners.

Table 2: Counselling Strategies Employed (RQ2)

Counselling Strategy	Percentage of Counsellors (%)
Individual counselling sessions	72%
Orientation programmes	58%
Referral coordination with disability offices	45%
Active collaboration with teacher educators	30%

Data in Table 2 shows that Individual counselling sessions are the most commonly used strategy (72%), but only 30% of counsellors actively collaborate with teacher educators. This reveals a missed opportunity for integrated support.

Table 3: Effectiveness of Assistive Devices (RQ3)

Assistive Device	Mean Score (4-point scale)
Screen readers (JAWS)	3.34
Electronic magnifiers	2.89
Refreshable Braille displays	2.56
Braille embossers	2.01
Overall Mean	**2.67**

Data in Table 3 shows screen readers are the most effective device (3.34), while Braille embossers perform poorly (2.01). The overall mean of 2.67 indicates only moderate effectiveness. Additionally, 68% of teacher educators lack adequate training.

Table 4: Challenges Faced by Teacher Educators (RQ4)

Challenge	Mean Score (4-point scale)
Inadequate funding for acquisition and maintenance	3.67
Lack of formal training on device operation	3.45
Frequent device malfunction and no on campus repair	3.28
Limited device availability relative to learner numbers	3.12

Challenge	Mean Score (4-point scale)
Lack of technical support staff	2.98

Data in Table 4 shows inadequate funding is the most severe challenge (3.67), followed closely by lack of formal training (3.45). These barriers directly undermine the effective use of assistive devices.

Table 5: Integration of Assistive Device Requirements into Curriculum (RQ5)

Integration Item	Mean Score (4-point scale)
Assistive devices mentioned in curriculum documents	2.67
Practical training on assistive devices included	2.02
Competencies explicitly stated in course syllabi	1.98
Assessment of device competence required for graduation	1.87
Overall Mean	**2.14**

Data in Table 5 shows that the overall mean of 2.14 falls below the criterion mean of 2.50, indicating poor integration. While devices are mentioned superficially (2.67), practical training and assessment are almost absent.

Table 6: Assistive Device Competencies Expected of Teacher Educators (RQ6)

Expected Competency	Percentage of Curriculum Planners (%)
Basic awareness of available assistive devices	85%
Identify appropriate device for learning task	78%
Operate screen readers and basic Braille devices	65%
Troubleshoot common device problems	42%
Train visually impaired learners on new devices	35%

Data in Table 6 show that most curriculum planners expect basic awareness (85%) and device identification (78%), but far fewer expect troubleshooting (42%) or training of learners (35%). This reveals a gap between expectations and the comprehensive competencies teacher educators actually need.

Discussion of Findings

Table 1 reveals that counselling services are moderately effective (2.89) in improving assistive device use among visually impaired learners. Collaborative consultation counselling recorded the highest mean score of 3.01, indicating that counsellors work reasonably well with learners to identify appropriate devices. However, follow up counselling support recorded the lowest mean score of 2.54, revealing a significant gap in sustained assistance.

This finding aligns with Sani, Musa and Musa (2025), who found that while teacher educators show positive attitudes toward technology based support, actual integration is limited due to lack of specialised training. Osagiobare and Ekwukoma (2025) similarly found that inadequate funding and shortage of trained personnel impede inclusive

education goals across Nigerian states. The present study extends these findings by specifically identifying follow up counselling as the weakest link in the service delivery chain. Assistive device adoption requires ongoing support rather than one time orientation, yet this sustained assistance is precisely what is missing.

Table 2 shows that individual counselling sessions are the most commonly used strategy (72%), while only 30 percent of counsellors actively collaborate with teacher educators. This reveals a critical missed opportunity for integrated support. Counsellors operate in isolation rather than as part of a collaborative team.

This result is consistent with Okonkwo, Adedeji, Nwosu, Mbelede and Anierobi (2025), who found that while student teachers demonstrated knowledge of collaboration with stakeholders, they had poor knowledge specifically regarding lesson planning with special education staff. The JAMB Equal Opportunity Group (2024) strategic roadmap explicitly recommends that tertiary institutions establish dedicated support centres with collaboration between counselling and academic departments. The low collaboration rate of 30 percent indicates that this policy recommendation has not been effectively implemented.

Table 3 demonstrates that screen readers are the most effective device (3.34), while Braille embossers perform poorly (2.01). The overall mean of 2.67 indicates only moderate effectiveness, and 68 percent of teacher educators lack adequate training to use these devices effectively.

This finding strongly aligns with Umar, Argungu, Yahaya, Aliyu, Muhammed, Dominic and Fakai (2025), who reported that inadequate funding, lack of teacher training, and device maintenance issues hinder technology adoption for special needs students in Kebbi State. The present study confirms these same barriers exist in Imo State. The poor performance of Braille embossers is particularly significant because Braille remains a primary literacy medium for many visually impaired learners.

Table 4 reveals that inadequate funding (3.67) and lack of formal training (3.45) are the two most severe challenges. Frequent device malfunction and absence of on campus repair services (3.28) further compound these difficulties.

Osagiobare and Ekwukoma (2025) identified that many schools lack funding to provide assistive technologies, creating barriers to educational success. The present study confirms that this funding gap directly affects teacher educators. The JAMB Equal Opportunity Group (2024) roadmap acknowledges that minimum standards of facilities are not spelt out in terms of types and quantity. Without dedicated repair services, malfunctioning devices remain non functional for extended periods.

Table 5 shows an overall mean of 2.14, falling below the criterion mean of 2.50. While assistive devices are mentioned superficially in curriculum documents (2.67), practical training (2.02), explicit competency statements (1.98), and assessment requirements (1.87) are almost absent.

Okonkwo and colleagues (2025) found that pre service teachers lacked fundamental knowledge of using assistive technologies and concluded that curriculum planners should integrate diverse assistive technologies into teacher education. The present study provides direct evidence that curriculum planners themselves report low integration levels, creating a self perpetuating cycle where untrained planners design programmes that exclude assistive device training.

Table 6 reveals that while 85 percent of curriculum planners expect basic awareness of assistive devices, only 35 percent expect teacher educators to train visually impaired learners on new devices. This expectation gap is significant because training learners is precisely what teacher educators must do.

Sani, Musa and Musa (2025) found that teacher educators show positive attitudes but limited integration due to resource constraints, recommending prioritisation of professional development in adaptive technology. The present study quantifies this expectation gap. Curriculum planners expect teacher educators to know about devices but not necessarily to master them sufficiently to train others. Abdullahi, Gezawa, Safiyanu and Darma (2025) similarly found that unequal access to technology affects the quality of inclusive teacher education, and that strategic investment in continuous professional development is critical. The low expectation for training competence may reflect curriculum planners' own lack of confidence in assistive technology, which thematic analysis revealed is not a compulsory component of their own degree programmes.

Implications, Recommendations and Conclusion

Implications of the Study

The findings have important implications for theory, policy, and practice. Theoretically, the study confirms the relevance of Universal Design for Learning and the social model of disability in the Nigerian context. Both frameworks emphasise that barriers to access are created by institutional failures rather than individual impairments. Practically, isolated interventions are unlikely to succeed. Providing devices without training teacher educators is ineffective. Training teacher educators without involving counsellors is incomplete. Involving counsellors without engaging curriculum planners is insufficient. For policy, the National Commission for Persons with Disabilities and the

Federal Ministry of Education must mandate specific assistive technology competencies in teacher education accreditation standards.

Recommendations

For Counsellors: Institutionalise Adaptive Technology Counselling as a formal service including initial assessment of assistive device needs, hands on training, and scheduled follow up sessions each semester. Establish regular collaborative workshops with academic departments at least once per month.

For Curriculum Planners: Mandate the inclusion of assistive technology compatibility as a standard criterion in all curriculum review processes. Every teacher education programme should include at least one compulsory course on assistive technologies for learners with visual impairment. Require student teachers to demonstrate competence in at least three assistive devices before graduation.

For Teacher Educators: Engage in continuous professional development on visually impaired adaptive devices facilitated by counselling units. Complete a minimum of 20 hours of assistive device training per academic year. Establish individual mentorship relationships with counsellors.

For Institution Management: Allocate specific budgets for updating assistive devices and funding joint counselling curriculum development initiatives. Designate a minimum of five percent of the Faculty of Education annual budget for assistive technology. Establish a standing committee on inclusive education with representatives from Counselling, Curriculum Studies, and Special Education departments.

For Government and Regulatory Bodies: The National Universities Commission should revise accreditation benchmarks to require evidence of assistive technology integration. The National Commission for Persons with Disabilities should provide targeted grants to institutions demonstrating commitment to collaborative counselling and assistive device implementation.

Conclusion

This study concludes that assistive devices hold significant potential for improving curriculum access for visually impaired learners in Imo State tertiary institutions, but their effectiveness depends heavily on targeted and collaborative counselling services. Assistive devices alone cannot solve the problem of curriculum access. Teacher educators lack training, counsellors work in isolation, and curriculum planners exclude assistive technology competencies from teacher education programmes. The most fundamental barrier is at the curriculum planning level, where the absence of assistive device competencies creates a self perpetuating cycle of exclusion. Breaking this cycle requires intentional collaboration among counsellors, teacher educators, and curriculum planners. Without such collaboration, the promise of inclusive education will remain unfulfilled for visually impaired learners in Imo State.

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