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Limitations of Access to Assistive Technologies Among Visually Impaired Distance Learners: Evidence from The Open University of Tanzania

Bahati Johnson Kibona & Philipo Lonati Sanga

Institute of Adult Education

Email: *kibonabahati@gmail.com & philipolonati@gmail.com*

Abstract

This paper examines the limitations faced by visually impaired learners in accessing assistive technologies (ATs) at the Open University of Tanzania (OUT). Despite inclusive policies, visually impaired learners face substantial barriers to accessing ATs. Using the Students, Environment, Task, and Tool (SETT) framework by Zabala 1990 this study adopted a qualitative approach with a single-case study design. The study included 18 participants who were purposively selected. Data were obtained through interviews, documentary reviews, and observations, and analysed using inductive thematic analysis. The findings revealed various limitations, including difficulties in comprehending robotic acoustic output, insufficient assistive technology devices (ATDs), the absence of dedicated assistive technology units and facilitators at regional centres, and financial constraints. These limitations impede visually impaired learners' engagement with educational content and navigation of distance learning environments. The study recommends that the Open University of Tanzania enhance AT availability by addressing financial barriers to foster inclusive distance learning environments and improve visually impaired learners' participation.

Keywords: *assistive technologies, visually impaired distance learners, open university of Tanzania*

Introduction

Visual impairment, affecting over 2.2 billion individuals globally, encompasses a spectrum from partial to complete vision loss, classified by visual acuity and field of vision (Sahli & Idil, 2019; WHO, 2020, 2022). This increasing prevalence has driven the development of assistive technologies (ATs) to enhance the quality of

life of affected individuals (Senjam, 2019). Recognising the critical need for equitable educational access, the United Nations urged member states to ensure that assistive technologies are available across all educational formats, including DL systems (Senjam, 2021). Distance learning (DL) has emerged as a preferred educational approach for visually impaired individuals because of its flexibility and accessibility (Alamri & Tayler-Wood, 2017), enabling remote access to resources and narrowing the gap between students and instructors (Gu, 2022; Saykili, 2018). This model empowers visually impaired learners to study independently at their own pace with the support of ATs (Alabi & Mutula, 2020; Hagman, 2021; Tuttle & Carter, 2023). ATs play a crucial role in facilitating active participation of visually impaired learners in DL environments (Majid, 2020), bridging disability-related gaps, enhancing accessibility, and providing unprecedented access to educational materials and resources (WHO, 2020; Huff, 2022).

As established by Zabala in 1990, the Students, Environment, Tasks and Tools (SETT) framework serves as a guide for selecting and implementing ATs for individuals with disabilities to enhance AT accessibility (Zabala, 2020). This framework addresses the needs of students, the learning environments, the tasks required, and the tools available to ensure that ATs are both accessible and advantageous for visually impaired learners. WHO (2022) indicates that academic success and progress of visually impaired learners are profoundly reliant on the availability and accessibility of suitable assistive technologies. It is essential to emphasise that the effectiveness of assistive technologies depends on the provision of relevant tools and necessary services specifically tailored to the characteristics, needs, and diverse situations of visually impaired learners. Williams et al. (2024) underscore the fact that thoughtful matching of assistive technologies to learners is crucial for maximising their potential. Conversely, if educational institutions provide assistive technologies without closely adhering to the principles outlined in the SETT framework, there can be deleterious consequences, such as the emergence of inaccessible technologies.

The implementation of assistive technologies for visually impaired learners presents substantial challenges, despite their potential advantages. These challenges arise from a complex interplay of causative factors, including inequitable resource distribution, pervasive poverty, and ineffective policy implementation (WHO, 2022; Addis et al., 2020). Moreover, these challenges are further exacerbated by a shortage of service providers and insufficient training, leading many institutions to depend on outdated technologies that inadequately address user needs in the digital age (Assie, 2021; Nasiforo & Ntawiha, 2021;

Pitsaone & Matjila, 2021; Ndlovu, 2021; Dabi & Golga, 2024). Although various policies and legislations supporting individuals with special needs are in place, their implementation is impeded by persistent obstacles, including insufficient funding, inadequate ICT skills, and a lack of properly trained personnel, as is the case in Tanzania (Kisanga & Kisanga, 2020; CIPESA, 2021; Ngonyani & Mnyanyi, 2021; Mnyanyi, 2022). These interconnected issues create a challenging environment for the effective adoption and utilisation of ATs in educational contexts, underscoring the need for comprehensive strategies to address these multifaceted barriers.

In Tanzania, the 2022 census revealed a substantial proportion of individuals with visual impairments who require ATs to maintain autonomy in daily activities (United Republic of Tanzania (URT). This demographic group constitutes a larger cohort than those with other forms of disability (URT, 2024). Tanzania has implemented a range of policies, legislations, and standards to support individuals with special needs, including those with visual impairment. Significant legal measures encompass the 2010 Act against discrimination of people with special needs, the 1994 Vocational Education and Training Act, the 1982 Disabled Persons Empowerment Act, the 1982 Disabled Care and Maintenance Act, the 2004 National Policy on Disability, the 2004 Zanzibar Education Policy, the 2006 Zanzibar Persons with Disabilities (Rights and Privileges) Act No. 9, the National Disability Advisory Council, and the National Disability Mainstreaming Strategy 2010-2015 (URT, 2024). Notwithstanding these initiatives, several obstacles persist, including inadequate funding, insufficient Information and Communication Technology (ICT) skills, a paucity of properly trained personnel to support students with special needs, and a lack of assistive technology experts. These barriers impede the advancement towards equitable educational opportunities for learners with visual impairment (Kisanga & Kisanga, 2020; Ngonyani & Mnyanyi, 2021).

The Open University of Tanzania (OUT) is an inclusive higher education institution that functions in 27 regional centres in the country. These centres are dedicated to offering education through DL (OUT, 2018b; Ali, 2020). Its commitment to inclusivity is particularly evident in OUT's proactive measures to support visually impaired learners, as demonstrated by a specialised unit at the university headquarters. This Assistive Special Technology Unit (ASTU) provides essential resources, including assistive technology services (ATSs), Information and Communication Technology (ICT) training, and customised support mechanisms (Mnyanyi, 2022). By effectively integrating these services into its educational framework, OUT not only enhances the learning experiences of visually impaired learners but also establishes a standard for accessible and inclusive higher

education. It offers a diverse range of instructional methods and services that address the unique needs of all learners (OUT, 2018b; OUT, 2024a).

The increasing significance of ATs for visually impaired learners in distance learning underscores the critical need to comprehend the specific limitations of access to ATs encountered by such learners in Tanzania, particularly at OUT. Although previous studies have documented the challenges faced by visually impaired learners in conventional educational settings (Kisanga & Kisanga, 2020; Ngonyani & Mnyanyi, 2021), knowledge regarding the unique access limitations encountered by visually impaired learners in distance learning environments is limited, even though their learning process depends on accessible technologies. Consequently, this study sought to address this knowledge gap by examining limitations of access to ATs encountered by visually impaired distance learners at OUT, thereby contributing to a more comprehensive understanding of ATs in distance learning and potentially informing strategies to enhance accessibility for these learners.

Methodology

The interpretivist philosophical paradigm guided this qualitative single-case study, enabling a thorough examination of the experiences of 15 visually impaired learners, the Head of the Assistive Special Technology Unit (ASTU), and two AT facilitators within the context of DL systems at the OUT. A criterion-purposive sampling technique was used to select these 18 participants from the OUT's regional centres and headquarters, where visually impaired learners were registered from 2022/2023 to 2024/2025. Data for this study were collected from the OUT regional centres, including Mbeya, Kinondoni, Iringa, Dodoma, Songwe, Kigoma, and the OUT headquarters. The visually impaired learners were identified as information-rich cases because their effective learning in DL depended on accessible ATs. Two AT facilitators and the head of ASTU were selected for their experience in supporting visually impaired learners with ATs. Additionally, OUT was chosen as the study site because it is the only standalone DL institution in Tanzania, representing a noteworthy area of enquiry due to its promotion of inclusive, accessible, and lifelong higher education. The study employed semi-structured interviews, document analyses, and non-participant observations to gather data, enabling a comprehensive exploration of the limitations to accessing assistive technology. Inductive thematic analysis, as described by Braun and Clarke (2022), was used to identify recurring themes within the dataset. The analysis followed six phases: (1) familiarising with the data through transcript reading, (2)

initial coding via open coding, (3) theme identification by grouping similar codes, (4) reviewing themes for coherence, (5) defining and naming, and (6) producing the final report. The process included peer debriefing and iterative discussions to enhance coding reliability. While recognising the subjectivity inherent in qualitative interpretation, these procedures ensured analytical rigour. This approach provided insights into limitations faced by visually impaired learners in accessing ATs, thereby informing potential interventions in DL environments.

Results and Discussion

Challenges in comprehending robotic acoustics

Interviews with visually impaired learners and the Head of ASTU revealed that synthetic speech in screen reader software significantly limited students' interaction with digital content. The findings showed that individuals with visual impairment faced difficulties in comprehending artificial voice output on accessible computers and mobile devices. This impediment was so critical that some learners experienced challenges using screen reader software. The inability to comprehend auditory output hindered their educational advancement and restricted their engagement with technology, which is crucial for academic progress. One of the visually impaired learners revealed:

> I remember one of the significant challenges I faced when I was trying to use computers was the robotic acoustics produced by screen readers. The synthetic quality of the voice made it difficult for me to comprehend the information conveyed. In fact, it took me quite a bit of time and effort to fully understand and become accustomed to the sound. I recall that during the initial stages, it was particularly frustrating as I struggled to grasp what was being said.

The findings indicate that the robotic acoustic screen reader is a hindrance to visually impaired learners as it obstructs their understanding of the educational materials. Some learners have reverted to analogue-based assistive technology devices (ATDs), like Perkins Braille typewriters, underscoring the need for effective acoustic information comprehension in academics. The World Health Organisation (WHO) (2022) stresses that education institutions should ensure that learners with special needs can access appropriate ATs. World Health Organisation (WHO) intentions align with Zabala's 1990 framework, which emphasises assessing individual capacities before implementing ATDs (Zabala, 2020). These insights highlight the need for institutions to provide accessible, practical, and tailored technological solutions that accommodate each visually impaired learner's

unique capabilities, fostering a more personalised and effective educational experience.

Financial constraints

The study findings revealed that financial constraints significantly impede the Open University of Tanzania (OUT) from smoothly implementing inclusive education, thus affecting the visually impaired learners. Economic limitations have hindered their ability to access assistive technology devices (ATDs) effectively. These difficulties prevented OUT from acquiring advanced assistive technology devices, such as Braille Sense, Seika Version 3 (V3Pro), and BrailleNote Touch, which restricted educational opportunities and exacerbated study challenges. One of the AT facilitators opined:

> OUT is unable to provide high-technology assistive devices such as Perkins braille writers, embossers, braille sense equipment, and Seika due to their substantial cost for visually impaired learners. The university is awaiting governmental support. In view of this, we encourage learners to acquire personal computers, which enable visually impaired individuals to access essential educational resources and tools that can significantly enhance their academic pursuits.

This quote highlights that financial limitation hinders access to assistive technologies at the Open University of Tanzania, transferring the burden to learners and potentially causing disparities among economically disadvantaged individuals. Based on these findings, OUT should explore alternative strategies to support visually impaired learners, such as enhancing advocacy for additional government funding for inclusive education and ATs. Kisanga and Kisanga (2020) found that financial limitations significantly impede institutions and learners from acquiring ATDs. This lack of funding hinders the establishment of support systems and learners' procurement of assistive devices. Financial constraints were also noted by Mnyanyi (2022) as a prominent barrier to the adoption of ICT-based ATs for the visually impaired, highlighting the need to address financial challenges.

Inadequacy of appropriate assistive technology devices

Interviews conducted with visually impaired learners, assistive technology facilitators, and the Head of the Assistive Special Technology Unit (ASTU), along with documentation analysis, highlighted a significant deficiency in the availability of appropriate assistive technology devices (ATDs). The study found that visually impaired learners at OUT are deprived of advanced ATDs, such as Braille Sense, Braille Touch, and OrCam MyEye, which considerably hinders their educational

experience. The primary challenges identified included limited access to educational materials, reduced engagement in online learning environments, and increased reliance on others, all of which collectively contribute to suboptimal academic performance and diminished autonomy. One of the visually impaired learners disclosed:

> Honestly, using a computer with a screen reader hasn't made things easier for me. The screen reader reads what is on the screen, but the keyboard lacks Braille features. I must memorise each letter, number, and symbol in each key. This is similar to walking through a maze in the dark.

The excerpt highlights one of the challenges faced by visually impaired learners when using screen-reader software. A major access issue involved the lack of braille functionality on keyboards, which hindered navigation. These findings show an implementation gap between OUT objectives and the experiences of visually impaired learners. While computer proficiency was being emphasised, many faced difficulties with standard keyboards, which potentially hindered their engagement with technology meant to support their education, which affected their learning experiences. Another visually impaired learner added:

> I wish the OUT could include Braille Sense assistive tools. These tools are specifically designed for individuals with visual impairment and function similarly to computers to enhance learning. Using the Perkins Braille layout, we can easily compose and convert Braille text into a standard print, making it possible for one to have documents in either format.

The excerpt indicates OUT's lack of advanced ATs, such as Braille Sense, which is beneficial for visually impaired learners. The findings underscore Braille Sense's suitability for effective academic use. Providing devices such as Braille Sense to visually impaired learners can address this disparity, thus fostering a more equitable learning environment and augmenting learner autonomy. Moreover, the head of the Unit supported this assertion and said:

> The university currently has a limited supply of braille-based assistive devices, including brailleNote, braille displays, and embossers. As a result, we primarily encourage visually impaired learners to utilise computers and smartphones equipped with screen reader software, such as NVDA or TalkBack. However, due to the geographical dispersion of our learners, only a small number of learners were able to attend training sessions provided on the use of screen readers.

The quotation underscores a notable deficiency in the provision of assistive technologies (ATs) at the Open University of Tanzania (OUT), where essential braille-based devices such as BrailleNote and braille displays are inadequate.

Consequently, visually impaired learners are encouraged to rely on screen reader software, including NVDA or TalkBack. This situation highlights a critical gap in resources, indicating that the current AT strategies at the Open University of Tanzania (OUT) do not sufficiently address the diverse needs of visually impaired learners. This finding contradicts the Open University of Tanzania's 2018 ICT policy page 5, which outlines OUT's objective of enhancing the learning environment for individuals with special needs through ICT facilities (OUT, 2018a). OUT aims to facilitate learning experiences for visually impaired learners. The ICT-Master plan from 2019/2020 to 2023/2024 included a strategic initiative to procure appropriate technologies for individuals with special needs (OUT, 2019). Moreover, findings from observations revealed significant inadequacies in technological resources at the OUT headquarters, particularly for visually impaired learners. Specifically, only eight computers were available at the ASTU office for use by visually impaired learners and students with other disabilities. The inadequacy of accessible technology raises concerns regarding institutions' ability to provide adequate support and equitable learning opportunities for students with diverse needs, including those with visual impairment.

Nasiforo and Ntawiha's (2021) study on ATDS among visually impaired learners at the University of Rwanda College revealed a significant shortage of and non-functional equipment, thereby questioning the adequacy of the support provided to visually impaired learners. Senjam et al. (2019) investigated the awareness and utilisation of ATs among blind learners in Delhi, highlighting a reliance on unsuitable tactile-based technologies due to difficulties in accessing high-tech devices. The SETT Framework highlights institutional shortcomings in addressing special needs where inadequate AT provision results from a lack of attention, poor assessment, and flawed implementation strategies (Zabala, 2020). To enhance the adequacy, availability, affordability, and accessibility of ATDs for visually impaired distance learners in e-learning, the US government implemented supportive measures, including providing funds to visually impaired learners to procure ATDs (Alabi & Mutula, 2020). In Canada, the Tetra Society of North America, comprising engineers, students, health professionals, and volunteers, designed and constructed assistive technology devices tailored to specific needs (Tuttle & Carter, 2023).

Absence of assistive technology facilitators at the regional centres

Interviews with visually impaired learners, the assistive special technology unit (ASTU) Head, and assistive technology facilitators revealed that assistive

technology specialists were located only at the OUT headquarters, and no regional centres had any of them to serve these learners. This shortage impedes access to essential ATSs that are crucial for learning. The findings indicated that visually impaired learners were limited to communicating only with facilitators at the OUT main office, thus creating a support barrier. The situation was worsened by the requirement for learners to travel to OUT headquarters for technical guidance. This poses logistical challenges, hence hindering timely assistance. One of the visually impaired learners complained:

> Frankly speaking, our regional centre completely lacks an assistive technology facilitator, as these facilitators are only available at the OUT headquarters. This situation is particularly problematic because when we encounter challenges related to assistive technology, we are compelled to seek help from specialists, but these are located at the OUT headquarters in Dar es Salaam. This arrangement significantly hinders our learning process and poses a substantial obstacle to our academic pursuits (Visually Impaired Learner 5)

An AT facilitator corroborated:

> We are the only two AT facilitators employed at our institution, both stationed at headquarters to support visually impaired learners. While we offer online assistance for straightforward issues, such as NVDA screen-reader updates, the lack of AT facilitators at regional centres limits consistent access to support.

The findings indicate a lack of assistive technology facilitators at OUT regional centres, depriving visually impaired learners of timely support. This is a significant obstacle in the OUT-DL framework, as learners at the regional centres rely on an assistive technology facilitator at OUT headquarters, and sometimes travel there for help. Document review of the 2014 Student Affairs Policy intentions contradicts these findings. The policy emphasises OUT's need to establish training programmes for individuals with special needs, including visual impairments, and to provide appropriate equipment and facilities across centres (OUT, 2014). The findings also did not align with the SETT framework's emphasis on planning and implementing assistive technology, including comprehensive ATSs for learners with special needs. Zabala (2020) asserts that effective ATSs ensure successful integration, enabling academic and personal success. Therefore, assistive facilitators located at the headquarters could not significantly enhance support to these learners. Ngonyani and Mnyanyi (2021) noted the inadequate AT facilitators in Tanzanian higher learning institutions, emphasising that the lack of qualified personnel hinders disabled learners from optimising educational resources. Similarly, Dabi and Dolga (2024) observed challenges at Haramaya University, where visually impaired learners were struggling to utilise campus ATDs due to insufficient expert

training. This scarcity of specialised personnel affects the availability and usability of ATs and impedes learners' ability to leverage academic support resources, thereby compromising their access experience.

Lack of dedicated assistive special technology activities at the regional centres

Interviews with visually impaired learners and assistive technology specialists revealed an absence of dedicated assistive technology activities at regional centres, which was identified as a primary concern for learners and instructors. The sole assistive special technology unit activities associated with the OUT are at its headquarters office, creating accessibility challenges for regional centres. A visually impaired learner reported:

> In our regional centres, there is no dedicated assistive technology unit where we can receive training and support. This becomes challenging when we encounter issues with assistive technologies. Typically, we are referred to a specialist at the headquarters.

The study revealed that the OUT regional centre lacked a dedicated assistive technology unit, which impedes learners' access to assistive technology services. Centralisation of assistive technology units at the OUT main office creates accessibility barriers for learners at regional centres, causing educational disparities. This situation has led to reduced learning opportunities for visually impaired distance learners. This calls for the need for OUT to establish assistive technology units in regional centres. As the SETT framework underscores, educational institutions should prioritise learners' learning environments to ensure equitable access to education for all learners (Zabala, 2020).

Moreover, the review of the Open University of Tanzania 2023/2024 prospectus on page 165 indicated that the university's ASTU unit was exclusively located at OUT Headquarters (OUT, 2024a). This has not realised what the 2018 rolling strategic plan indicated, which indicated that OUT was committed to implementing support systems for individuals with special needs in all regional centres (OUT, 2018a). Such discrepancies raise concerns regarding the efficacy and accessibility of OUT's promised support, particularly for learners with visual impairments.

The findings underscore the importance of providing adequate assistive technology at OUT regional centres to align with the study by Kisanga and Kisanga (2020). This support provision is essential for a suitable learning environment for the visually impaired learners. Pitsaone and Matjila (2021) revealed that the absence of a dedicated support unit significantly impedes educational progress, leading to higher attrition rates and extended study duration. The interplay between

inadequate assistive technology and a lack of specialised support creates a compounded challenge, thus highlighting the urgent need for comprehensive interventions. These findings emphasise the need for OUT to implement strategies that combine technological resources and dedicated support to create a more inclusive and effective learning environment.

Limited awareness of the available assistive technologies

Interviews with visually impaired learners and an examination of pertinent documents revealed that a significant proportion of visually impaired learners were unaware of the range of assistive technologies available to them at the OUT. The investigation demonstrated that this lack of awareness regarding accessible technologies stemmed from insufficient information dissemination during the orientation. Inadequate communication about these supportive tools during these crucial introductory periods impedes learners from timely and sufficient utilisation of the resources designed to enhance their academic experience. One of the visually impaired learners claimed:

> It is noteworthy that during our September orientation session at the centre, none of the instructors provided any information regarding the ATs available at the OUT.

The quotation demonstrates that visually impaired learners at OUT lack a comprehensive understanding of accessible ATs, partly due to inadequate orientation programmes. This insufficient information causes difficulties in accessing and utilising available ATs, which consequently lowers their ability to employ resources to support their academic pursuits. To that, Nganyani and Mnyanyi (2021) observed that visually impaired learners' lack of AT awareness hindered effective utilisation and restricted access to essential resources, thereby impacting their learning experience. Conversely, in Ethiopia, Dabi and Golga (2024) reported high AT awareness among visually impaired learners, instructors, and programme managers, enhancing the effectiveness of these tools in supporting such learners. The SETT framework posits that educational institutions prioritising inclusivity and emphasising ATs observe greater awareness among learners (Zabala, 2020). Inclusive learning environments can encourage recognition of assistive technologies' accessibility and their benefits for diverse learners.

An analysis of the 2023/2024 Prospectus has identified a significant lack of information concerning special needs, particularly in relation to the availability of assistive technologies (ATs) at the Open University of Tanzania (OUT) (OUT, 2024a). These findings are consistent with the findings of the Students Affairs

Policy, which also indicated inadequate documentation of enrolled learners with special needs, as noted in the Open University of Tanzania Fact and Figure (OUT, 2014). These informational deficiencies underscore a potential area for enhancement in addressing the needs of students with disabilities, including visually impaired learners, at OUT. This impedes the stakeholders' ability to access data and support these learners. A review of orientation speeches by Deans from 2020/2021 to 2023/2024 indicated the absence of information on support for visually impaired learners and available ATs. This absence suggests insufficiency in support giving to enhance learners' experiences, which consequently hinders their academic engagement. Without adequate knowledge about assistive technology, visually impaired learners face greater challenges in achieving academic objectives.

Inadequate training on the utilisation of diverse assistive technology devices

The study revealed that the OUT does not provide adequate ATDs training and accessibility support for visually impaired learners. Most visually impaired learners reported insufficient ATDs usage training due to a lack of assistive technology specialists at their centres, which adversely affects the learning process and their academic performance. The following response was obtained:

> When I joined the OUT, I was informed that screen readers like NVDA would greatly assist me in my studies. However, the absence of an AT facilitator here meant that I had to learn on my own through trial and error while also seeking help from others. Often, I find myself stuck, unsure which keys to press or how to properly access my materials.

Similarly, the Head of ASTU added:

> We recognise that visually impaired learners at regional centres encounter challenges with assistive technologies, such as screen readers. Unfortunately, due to staffing limitations, we were unable to assign dedicated assistive facilitators to regional centres. This shortfall has evidently impacted the level of hands-on training that our learners receive, and we are actively working to resolve this issue.

These quotations reveal that the OUT inadequately trains learners with visual impairment, especially those located outside Dar es Salaam, where the headquarters is located, leading to deficiencies in essential computer skills. This finding highlights the need for autonomous learning, which can be challenging without guidance. Specialised programmes for visually impaired learners are crucial, especially in rapidly evolving fields, such as ATs. The SETT framework stresses the importance of accessible ATs to those with special needs to improve their

quality of life (Zabala, 2020). The lack of training indicates inadequate access to assistive technologies at OUT. Implementing the necessary training will help reduce this skill deficit and promote inclusion in distance learning. Similarly, Nganyani and Mnyanyi (2021) highlighted that insufficient training on using ATs among visually impaired learners limits their educational efficacy. Huff (2022) also found a significant need for training to enhance accessibility to educational computing applications. These findings underscore the need for effective training to ensure the efficient use of ATs, which can significantly enhance the learning experiences of visually impaired learners.

Conclusion and Recommendations

It can be concluded that the accessibility of ATs to visually impaired learners at the OUT faces significant limitations owing to a combination of interrelated factors. The absence of adequately trained assistive technology facilitators, who can effectively implement and support these technologies, hinders the widespread adoption and optimal use. Financial constraints further worsen the situation, thus limiting the acquisition and maintenance of up-to-date ATs, which could greatly benefit visually impaired learners. Additionally, the centralisation of these technologies and the facilitators at OUT headquarters creates access barriers for learners in remote or underserved areas. These combined inadequacies result in a systemic issue that restricts the potential of ATs to enhance educational experiences and outcomes for visually impaired learners, ultimately affecting their ability to fully engage and benefit from educational opportunities.

One recommendation requires OUT to establish an assistive technology unit at regional centres responsible for providing support to the visually impaired learners. Additionally, we suggest that OUT increase the number of qualified assistive technology facilitators and improve awareness programmes of available ATs. Furthermore, we recommend that the OUT develop a training strategy to equip learners with the skills needed to use ATs effectively and address financial limitations by securing increased funding or forming partnerships.

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