

Assistive technology based on rahmatan lil ‘alamin principles to support visually impaired students’ academic achievement

Neni Meiyani

¹ Universitas Pendidikan Indonesia, Indonesia

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ABSTRACT

The integration of assistive technology in inclusive education has become an important approach to improving learning access for students with visual impairments. However, beyond technical functionality, its implementation also requires a value-based framework that promotes equity and compassion. Aim: This study aims to examine how assistive technology is implemented based on the principles of Rahmatan lil ‘Alamin and how it supports the academic participation of visually impaired students in inclusive classrooms. Using a qualitative descriptive approach, this study was conducted in an inclusive educational institution involving 6 visually impaired students, 3 teachers, and 2 technical support staff. Data were collected through observations, semi-structured interviews, and documentation analysis. Data were analyzed through coding, categorization, and thematic interpretation. Trustworthiness was strengthened through triangulation and peer debriefing. The findings show that assistive technologies, such as screen readers, Braille displays, and audio-based learning platforms, improved students’ access to learning materials, classroom participation, and independent study practices. Teachers reported more active engagement, while students expressed greater confidence in completing academic tasks. The integration of compassion, fairness, and collaborative support also contributed to a more inclusive learning environment, although technical barriers and the need for continued guidance remained. Value-oriented assistive technology implementation can support a more humane and responsive model of inclusive education for students with visual impairments by promoting meaningful participation and learning independence.



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Corresponding Author:

Neni Meiyani,

arjuni3232@gmail.com

Introduction

Inclusive education has emerged as a fundamental commitment in ensuring that all learners, regardless of physical or sensory limitations, have equal access to quality learning opportunities (Moyo et al., 2025; Navas-Bonilla et al., 2025). In this context, students with visual impairments often encounter structural, instructional, and technological barriers that limit their participation in academic activities (Kana & Golga, 2024; Maesala & Ronél, 2024). These challenges include difficulties in accessing printed learning materials, limited availability of adaptive instructional media, and a lack of technological support systems that accommodate diverse learning needs. As a result, visually impaired students frequently experience disparities in academic performance when compared to their sighted peers. Addressing these challenges requires not

only pedagogical adjustments but also the integration of technological innovations that can bridge accessibility gaps in the learning environment. Recent developments in artificial intelligence further expand opportunities for adaptive and personalized accessibility support in inclusive learning environments (Kooli & Chakraoui, 2025).

Assistive technology has been widely recognized as a practical solution to enhance the academic participation of students with visual impairments (Fernández Batanero et al., 2022; Papadopoulos et al., 2024). Tools such as screen readers, refreshable Braille displays, speech-to-text applications, audio-based learning platforms, and emerging haptic technologies enable learners to access information in formats that align with their sensory capabilities (Harrison et al., 2023). These technologies support independent learning, facilitate interaction with digital learning resources, and improve students' engagement in both individual and collaborative academic tasks (Alimović, 2024; Mashilo & Iyamu, 2024; Shoaib et al., 2023). Previous studies have shown that assistive technology can improve accessibility and learning independence for students with disabilities; however, many implementations continue to emphasize technical functionality and usability, while accessibility barriers within emerging digital technologies remain insufficiently addressed (Creed et al., 2024). This indicates the need to examine how assistive technology can be implemented not only effectively, but also meaningfully within diverse educational contexts.

In educational settings that are culturally and spiritually grounded, the integration of moral principles into technological implementation becomes essential. The concept of *Rahmatan lil 'Alamin*, which emphasizes compassion, justice, inclusivity, and universal benefit, provides a normative framework for ensuring that technological interventions are not merely instrumental but also socially responsive. Although this concept has been widely discussed in Islamic education and inclusive educational values, its application in the field of educational technology, particularly assistive technology for students with disabilities, remains limited. By embedding these principles into the use of assistive technology, educators can promote a learning environment that respects diversity, encourages empathy, and supports the dignity of every learner. This approach aligns technological advancement with broader educational goals that prioritize holistic student development. Emerging educational technologies, including immersive digital environments and adaptive learning systems, continue to expand opportunities for inclusive participation among learners with disabilities (Yenduri et al., 2023). Recent reviews have further highlighted the potential of extended reality technologies to improve accessibility and support individuals with visual impairments through adaptive visual assistance systems (Kasowski et al., 2023).

Recent studies suggest that technological accessibility should be accompanied by ethical and inclusive educational practices to maximize meaningful participation and learner empowerment. Inclusive technology implementation is most effective when supported by equitable policies, accessible instructional design, and human-centered educational values (Navas-Bonilla et al., 2025; Moyo, 2025).

Despite growing attention to inclusive technology, limited research has specifically examined how assistive technology is implemented through a value-oriented framework inspired by *Rahmatan lil 'Alamin* in supporting students with visual impairments. Existing studies tend to focus on accessibility outcomes, device effectiveness, or instructional adaptation, while less attention has been given to the integration of ethical values in everyday classroom technology practices. This gap is important because inclusive education requires not only access to tools, but also learning environments grounded in fairness, empathy, and social participation. Recent research further suggests that accessibility should be embedded within curriculum and instructional design rather than treated solely as an accommodation strategy (Tripathi & Thakkar, 2025).

Although previous studies have examined assistive technology adoption, accessibility, and digital inclusion among students with disabilities, relatively few investigations have explored how ethical value frameworks influence technology implementation in inclusive classrooms (Awang Zainal et al., 2026; Dessie et al., 2025; Papadopoulos et al., 2024).

Therefore, this study seeks to explore how assistive technology can be implemented within a value-oriented framework inspired by the principles of *Rahmatan lil 'Alamin* to support the academic achievement of visually impaired students. Specifically, this study addresses the following research questions: (1) How is assistive technology implemented for visually impaired students in inclusive classrooms? (2) In what ways do teachers integrate *Rahmatan lil 'Alamin* principles into technology use? (3) What academic outcomes are perceived by students and teachers? Understanding this intersection between technology and ethical values is critical in developing inclusive learning systems that are not only accessible but also equitable and sustainable in the long term.

Method

This study adopts a qualitative research approach with a descriptive and interpretative orientation to explore the implementation of assistive technology grounded in the principles of *Rahmatan lil 'Alamin* in supporting the academic achievement of students with visual impairments. The qualitative paradigm was deliberately chosen because it allows researchers to examine educational phenomena in naturalistic settings and to understand how technological interventions are experienced by learners within broader socio-cultural and ethical contexts of inclusive education (Creswell & Creswell, 2017). In contrast to experimental or purely quantitative approaches that emphasize statistical generalization, qualitative inquiry enables an in-depth exploration of meaning-making processes that occur when assistive technology is integrated into instructional practices for visually impaired students (Yin, 2017).

The research was conducted in an inclusive educational institution that provides adaptive learning services for students with visual impairments. Similar educational settings have frequently been used to investigate assistive technology implementation because they provide opportunities to observe authentic interactions between accessibility tools and classroom practices (Emore, 2024; Hata et al., 2023). The selection of the research site was based on the availability of assistive learning facilities and the institution's commitment to inclusive pedagogical practices aligned with equitable access to education for learners with disabilities (UNESCO, 2020). Participants in this study consisted of 6 visually impaired students, 3 classroom teachers, and 2 technical support staff who actively engage in the use and implementation of assistive technology in academic activities. The participants were selected using purposive sampling techniques to ensure that each individual possesses relevant experience and engagement in the implementation of assistive technology within the learning process (Yilma et al., 2024). Participant characteristics included secondary-level students aged 15–18 years with low vision or total visual impairment and a minimum of two years' experience using assistive technology in learning contexts.

Table 1. Participant Characteristics

Participant Group	Number	Characteristics
Students	6	Aged 15–18 years; low vision/blind; users of assistive technology
Teachers	3	Inclusive classroom teachers with experience teaching visually impaired students
Technical Staff	2	Responsible for maintenance and training of assistive devices

In order to obtain comprehensive and contextually rich data, this study employed multiple data collection techniques, including non-participant observation, semi-structured interviews, and documentation review. Non-participant observation was conducted during classroom learning sessions to examine how assistive technologies are integrated into instructional delivery and student learning activities. This technique enabled the researcher to observe students' interactions with screen readers, digital Braille displays, and audio-based instructional media while completing academic tasks such as reading digital materials, accessing assignments, and engaging in collaborative discussions (Poddar et al., 2024). The observation process was conducted over eight weeks with twelve classroom sessions, each lasting approximately 60–90 minutes.

Observation-based approaches are frequently employed in assistive technology research because they enable researchers to capture authentic interactions between learners, educators, and accessibility tools within natural classroom settings. Such observations provide valuable insights into how assistive technologies influence participation, engagement, and learning independence among students with disabilities (Papadopoulos et al., 2024; Mashilo & Iyamu, 2024).

Semi-structured interviews were carried out with both students and educators to explore their perspectives regarding the accessibility, usability, and pedagogical effectiveness of assistive technology. These interviews focused on identifying the extent to which assistive devices contribute to independent learning behaviors, student motivation, and academic engagement (McNicholl et al., 2023). Furthermore, interviews also examined the ethical dimension of technology implementation by investigating how the principles of compassion, fairness, inclusivity, and mutual respect are embedded within classroom practices that utilize technological support systems (Bakti et al., 2025). A total of eleven interview sessions were conducted, with each session lasting between 30 and 45 minutes.

In addition to observational and interview data, documentation analysis was conducted on institutional policies, lesson plans, digital learning resources, and accessibility support guidelines. The purpose of this analysis was to identify how inclusive learning strategies are systematically designed and how assistive technology is formally integrated into academic support structures for visually impaired students (Ketema Dabi & Negassa Golga, 2024).

Data analysis in this study followed an interactive model that consists of several interconnected stages. The initial stage involved data condensation, where raw data obtained from field observations and interview transcripts were systematically organized and coded into thematic categories such as technological accessibility, instructional adaptation, ethical integration, and academic participation (Peel, 2020). The coding process was conducted through open coding, axial coding, and selective coding. Initial codes were grouped into broader themes, including accessibility benefits, teacher facilitation, ethical classroom practice, and perceived academic outcomes. To improve analytical consistency, coded data were reviewed by an independent peer researcher and discussed until agreement was reached. The subsequent stage involved data presentation, during which categorized information was arranged in narrative and matrix formats to facilitate interpretative analysis. Finally, the process of conclusion drawing and verification was conducted through continuous reflection on recurring patterns, relationships, and emerging themes related to the role of assistive technology in enhancing students' academic experiences.

To ensure the credibility and trustworthiness of research findings, triangulation techniques were employed by comparing data obtained from different sources and collection methods. Methodological triangulation was achieved through the integration of observation, interviews, and documentation analysis, while source triangulation involved cross-verification of responses from students, teachers, and institutional staff (Creswell & Creswell, 2017). This approach allowed the researcher to validate interpretations and minimize subjective bias during the analytical process. In addition, peer debriefing and reflective memo writing were employed to reduce researcher bias and strengthen interpretative rigor.

Ethical Considerations

Prior to data collection, permission was obtained from the school administration and all research procedures followed institutional ethical standards for educational research. Informed consent was obtained from all adult participants, while parental consent and student assent were secured for participants under the age of 18. Participants were informed about the purpose of the study, voluntary participation, confidentiality, anonymity, and the right to withdraw at any stage without consequence. All participant names were replaced with codes to protect identity.

The operationalization of Rahmatan lil 'Alamin principles in this study was carried out by examining how values such as inclusivity, empathy, justice, and collaborative support are reflected in the practical implementation of assistive technology. Rather than viewing assistive devices as purely functional tools, this study interprets their usage as part of a broader ethical commitment to ensuring equitable learning opportunities for all students. By integrating these normative values into the technological implementation process, the research aims to highlight the potential of assistive technology to foster a learning environment that is both accessible and socially responsive within inclusive education systems (UNESCO, 2020). The overall research procedure was conducted through a systematic sequence of stages, as presented in Figure 1, which outlines participant selection, data collection, implementation of assistive technology, data analysis, and verification.

Through this methodological framework, the study aims to develop a comprehensive understanding of how assistive technology, when implemented within an ethically grounded inclusive education paradigm, can enhance academic accessibility, promote independent learning practices, and improve the academic performance of students with visual impairments in a sustainable manner. This approach aligns with the broader objective of inclusive education, which emphasizes equitable access to learning resources through adaptive instructional support systems (UNESCO, 2020).

Following the initial stages of participant identification and data collection, this study proceeded to the implementation phase of assistive technology within classroom instructional practices. At this stage, the researcher focused on examining how visually impaired students interact with assistive technological tools under the guidance of classroom teachers during academic learning activities. The implementation process was conducted through structured learning sessions in which teachers actively facilitated the use of screen reader software, digital Braille displays, and audio-based learning platforms to support students' comprehension of instructional materials (EGWIM, 2023).

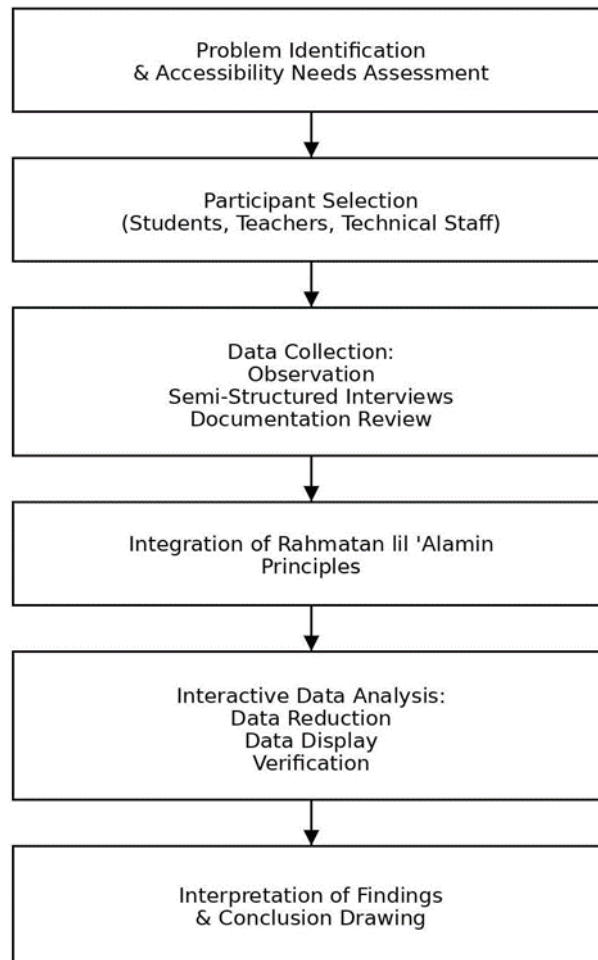


Figure 1. Research procedure framework for assistive technology implementation based on Rahmatan lil 'Alamin principles.

The implementation procedure was carried out through three sequential instructional stages, namely preparation, assisted interaction, and independent engagement. During the preparation stage, teachers introduced accessible learning materials in digital formats that are compatible with assistive devices used by visually impaired students. This stage also involved ensuring that technological tools are functioning properly and that students understand how to operate accessibility features integrated within learning applications. Such preparatory measures are essential in reducing cognitive and technical barriers that may hinder students' learning engagement.

The assisted interaction stage involved direct pedagogical support provided by teachers as students engage with assistive technological devices to access learning content. In this stage, teachers played an active role in guiding students through the process of navigating digital texts, responding to instructional prompts, and completing academic assignments using adaptive technological interfaces. The interaction between teacher guidance and student engagement reflects ethical values embedded within the Rahmatan lil 'Alamin framework, particularly in promoting compassion, inclusivity, and equitable participation within the learning process (Bakti et al., 2025).

Subsequently, the independent engagement stage allowed students to utilize assistive technology autonomously in completing academic tasks. This stage was designed to observe how technological accessibility contributes to students' self-directed learning behaviors and enhances their participation in classroom discussions and collaborative learning activities. Teachers maintained a supervisory role during this process to ensure that students encounter minimal technical difficulties while interacting with digital learning platforms. Previous research has demonstrated that the autonomous use of assistive technology

positively influences academic confidence and independent learning capabilities among students with visual impairments (Kisanga & Kisanga, 2022).

Furthermore, the study also examined how ethical values were operationalized through classroom interaction patterns. Teachers were encouraged to adopt inclusive instructional approaches that foster mutual respect, collaborative problem-solving, and adaptive feedback mechanisms. These practices are aligned with the normative principles of *Rahmatan lil 'Alamin*, which emphasize fairness, empathy, and universal benefit in educational environments. Such pedagogical adaptations are considered fundamental in the development of accessible and socially responsive learning ecosystems (Hewett et al., 2019).

To evaluate the effectiveness of this implementation process, reflective assessment sessions were conducted with both teachers and students. These sessions aimed to identify potential barriers in technology usage and to assess the extent to which assistive tools contribute to improved academic accessibility. The reflective assessment findings were subsequently integrated into the data analysis process to strengthen interpretative validity and ensure consistency across observational and interview-based data sources. Figure 2 illustrates the interaction between a teacher and a visually impaired student during the use of screen reader software and a refreshable Braille display in classroom learning.



Figure 2. Assistive technology-supported learning interaction in an inclusive classroom.

Description of Assistive Technology–Supported Learning Interaction

The above illustration represents the practical implementation of assistive technology within an inclusive classroom setting involving a visually impaired student and a classroom teacher. The image demonstrates a real-time instructional interaction in which the teacher provides direct guidance to a visually impaired learner who is accessing digital learning materials through assistive technological devices.

In the depicted scenario, the visually impaired student utilizes a laptop integrated with a screen reader system that converts textual information into audible output. The student is also supported by a refreshable Braille display device positioned adjacent to the laptop keyboard, allowing tactile reading of digital text. This combination of auditory and tactile learning interfaces enables the student to interact with academic content in a format that aligns with his sensory capabilities.

The teacher's presence beside the student reflects the assisted interaction stage of assistive technology implementation, where instructional facilitation plays a crucial role in ensuring that students can effectively navigate digital learning platforms. By pointing to the Braille display interface, the teacher actively mediates the learning process and helps the student interpret digital information through adaptive technological tools. This interaction illustrates how pedagogical support and technological accessibility function simultaneously to enhance students' academic engagement.

Additionally, the presence of an audio-based learning interface used by another student in the same classroom indicates the inclusive nature of the instructional environment. The integration of multiple assistive learning modalities reflects an equitable learning system that accommodates diverse student needs without segregating learners based on sensory limitations.

From an ethical perspective, the interaction portrayed in the illustration embodies the principles of compassion, inclusivity, and fairness that are aligned with the *Rahmatan lil 'Alamin* framework. The

teacher's supportive engagement demonstrates a commitment to creating a learning environment that promotes dignity, participation, and equal academic opportunity for students with visual impairments.

Overall, this figure visually reinforces the implementation process examined in this study by illustrating how assistive technology, when supported by inclusive pedagogical practices, facilitates meaningful participation and independent learning among visually impaired students in mainstream educational settings.

Results and Discussions

The findings indicate that the implementation of assistive technology contributed meaningfully to improving the academic engagement of visually impaired students in inclusive classroom settings. Based on classroom observations and interview data, students who utilized adaptive technological tools demonstrated increased participation in instructional activities, improved comprehension of digital learning materials, and enhanced independence in completing academic assignments. Students with prior experience using assistive devices adapted more quickly, while several new users initially required more intensive teacher guidance.

During the initial phase of implementation, students exhibited limited confidence in operating assistive devices such as screen readers and refreshable Braille displays. However, as teachers provided structured instructional guidance and adaptive feedback mechanisms, students gradually developed the ability to navigate digital learning environments independently. This finding is consistent with evidence indicating that assistive technology adoption contributes to greater autonomy, confidence, and long-term independence among individuals who are blind or have low vision (McDonnall & Trinkowsky, 2025). Similar findings have been reported in studies indicating that assistive technologies contribute to learner autonomy, self-efficacy, and confidence among visually impaired students (Alimović, 2024; McDonnall & Trinkowsky, 2025). This transition from assisted interaction to autonomous engagement reflects the effectiveness of assistive technology in fostering self-directed learning behaviors among visually impaired learners. One student stated, "At first, I was afraid of pressing the wrong button, but after several sessions I could open materials and complete tasks by myself" (Student 2).

Furthermore, the integration of assistive technology into classroom instructional practices enabled students to access academic content in formats that align with their sensory capabilities. Similar findings have been reported regarding the use of mobile and digital assistive technologies that improve navigation, information access, and independent functioning among visually impaired users (Bleau et al., 2025). Through auditory output generated by screen reader applications, students were able to interpret textual information that would otherwise remain inaccessible in conventional printed formats. The tactile interface provided by digital Braille displays also allowed students to engage in reading activities using touch-based interaction, thereby supporting multimodal learning experiences. However, two students reported that screen reader speed and unstable internet access occasionally disrupted learning concentration. Comparable challenges involving infrastructure limitations, connectivity constraints, and device usability have also been identified in inclusive education contexts across developing countries (Maesala et al., 2024; Hata et al., 2023).

The data obtained from semi-structured interviews revealed that teachers perceived assistive technology as an essential instructional mediator that bridges accessibility gaps within inclusive classrooms. Teachers reported that visually impaired students who consistently utilized assistive technological devices demonstrated improved academic performance in tasks involving reading comprehension, written responses, and collaborative problem-solving activities (Kelly & Smith, 2011). Comparable outcomes have also been observed in STEM learning contexts where teachers integrate assistive technologies to support participation and achievement among learners with visual impairments (Awini, 2026). This finding is consistent with previous evidence showing that assistive technologies improve educational accessibility, academic engagement, and classroom participation among students with disabilities (Dessie et al., 2025; Fernández Batanero et al., 2022). In addition, students expressed that the availability of accessible digital learning resources contributed to their confidence in participating in classroom discussions. Previous research similarly suggests that accessible technologies strengthen social inclusion and collaborative participation by reducing barriers to communication and information access (Gidisu et al., 2026; Papadopoulos et al., 2024). A teacher explained, "When materials are already accessible, students participate more actively and ask more questions during lessons" (Teacher 1).

The implementation process also revealed important insights regarding the role of ethical values in technology-assisted learning. Instructional practices that emphasized empathy, collaborative support, and

equitable participation were found to enhance students' motivation and willingness to engage in academic tasks. Teachers who adopted inclusive pedagogical approaches actively facilitated peer interaction and provided adaptive feedback that encouraged students to utilize assistive technology effectively. For example, teachers were observed giving additional response time, reading visual instructions aloud, and encouraging peers to collaborate during group activities.

These practices align with the normative principles of Rahmatan lil 'Alamin, particularly in promoting fairness, inclusivity, and compassion within educational environments. The ethical integration of assistive technology was observed to foster a supportive learning atmosphere in which visually impaired students felt respected and valued as active participants in academic activities. Rather than functioning merely as technical tools, assistive devices served as instruments that enable equitable access to educational opportunities. One student noted, "My classmates now involve me more because I can follow the lesson using the laptop and audio tools" (Student 5).

Additionally, reflective assessment sessions conducted with students indicated that assistive technology contributes to reducing dependency on external instructional support. Students who initially relied on teacher assistance were able to gradually transition towards independent learning practices, thereby enhancing their academic autonomy. This finding highlights the importance of combining technological accessibility with value-oriented instructional strategies to achieve sustainable educational outcomes. Nevertheless, one teacher emphasized that some learners still needed periodic assistance for advanced software features and troubleshooting (Teacher 3).

Table 2. Main Themes and Sample Quotes

Theme	Evidence	Sample Quote
Increased independence	Students completed tasks autonomously	"I could open materials and complete tasks by myself." (Student 2)
Greater participation	Students more active in class discussion	"Students participate more actively." (Teacher 1)
Inclusive interaction	Peer collaboration improved	"My classmates now involve me more." (Student 5)
Remaining barriers	Technical difficulties still occur	"Some learners still needed assistance." (Teacher 3)

The interaction between teachers and visually impaired students during assistive technology utilization is illustrated in Figure 2, which depicts a realistic classroom scenario involving adaptive learning tools and guided instructional support. The figure visually represents how assistive technological interfaces are integrated into daily learning activities to facilitate accessible and inclusive academic participation.

Discussion

Overall, the results suggest that the implementation of assistive technology grounded in ethical instructional practices not only improves students' academic accessibility but also promotes meaningful engagement and independent learning behaviors in inclusive educational settings. The integration of technological innovation with value-based pedagogical approaches provides a comprehensive framework for addressing the academic needs of visually impaired students in a sustainable manner.

These findings are consistent with recent studies showing that assistive technology improves access, engagement, and psychosocial confidence among students with disabilities when supported by inclusive instructional practices (McNicholl et al., 2023; Poddar et al., 2024; Yilma et al., 2024). However, the present study extends previous findings by showing that technological access becomes more educationally meaningful when combined with ethical values such as compassion, justice, and collaborative support.

The findings also indicate that the benefits of assistive technology are not uniform across all participants. Previous studies have similarly reported that the effectiveness of assistive technology is influenced by digital literacy, technology readiness, instructional support, and contextual accessibility factors. Therefore, successful implementation depends not only on device availability but also on educators' capacity to integrate technology meaningfully into learning activities (Awini, 2026; McDonnall & Trinkowsky, 2025; Kooli, 2025). Students with previous digital experience adapted faster, whereas new users required longer adjustment periods. This suggests that training readiness and digital familiarity influence learning outcomes.

In relation to Rahmatan lil 'Alamin principles, the observed teacher behaviors—such as providing equal learning opportunities, showing patience, offering supportive feedback, and facilitating peer cooperation—

represent practical indicators of compassion, fairness, and inclusivity. Thus, the value framework was demonstrated not only conceptually but also through classroom interaction patterns.

At the same time, the study found several constraints, including unstable connectivity, limited device mastery, and the continuing need for technical support. These findings indicate that assistive technology alone does not automatically guarantee academic improvement unless accompanied by teacher guidance, institutional support, and accessible infrastructure.

Therefore, the study supports the argument that academic achievement among visually impaired students is strengthened when assistive technology is combined with humanistic pedagogical values. A purely technical approach may improve access, but a value-oriented approach contributes more substantially to confidence, participation, and long-term learning independence.

Conclusions

This study demonstrates that the implementation of assistive technology in inclusive learning environments significantly contributes to improving the academic performance of students with visual impairments when it is carried out through a value-oriented educational approach. The integration of screen readers, refreshable Braille displays, audio-based digital learning platforms, and adaptive assessment tools enables visually impaired students to access instructional materials more independently, participate actively in classroom interactions, and complete academic tasks with greater confidence and accuracy. These technological supports not only function as accessibility instruments but also act as facilitators that reduce structural barriers traditionally faced by students with visual limitations in mainstream educational systems. More importantly, this research confirms that the effectiveness of assistive technology is closely linked to the ethical framework guiding its implementation. By grounding its application in the principles of *Rahmatan lil 'Alamin*, the learning process evolves into a more inclusive, empathetic, and justice-oriented environment. Teachers who consciously adopt these values tend to design learning interactions that respect individual differences, encourage collaborative engagement, and ensure equitable participation. As a result, visually impaired students experience not only measurable improvements in academic achievement but also enhanced self-esteem, social integration, and learning autonomy. The findings further indicate that the synergy between technological innovation and compassionate pedagogical practice creates a sustainable model of inclusive education. In this model, assistive technology serves as a bridge that connects students' functional needs with broader humanistic educational goals. Such an approach shifts the focus of inclusive education from mere accommodation toward empowerment, where students with visual impairments are recognized as capable learners who can thrive academically when provided with accessible tools and supportive instructional strategies.

Therefore, this study concludes that implementing assistive technology within a *Rahmatan lil 'Alamin*-based educational framework not only improves academic outcomes but also promotes a holistic learning atmosphere that values dignity, equality, and mutual support. Schools and educators are encouraged to combine assistive technology provision with teacher training on inclusive values, adaptive feedback strategies, and collaborative classroom practices. In addition, institutions should provide regular technical support and accessible digital learning materials to maximize the benefits of assistive technology. This study has several limitations. First, the research was conducted in a single educational institution, which may limit the transferability of findings to other contexts. Second, the number of participants was relatively small and focused on visually impaired students, teachers, and staff within one setting. Third, the qualitative design relied on participant perceptions and researcher interpretation, which may involve subjective bias despite triangulation procedures. Future studies are recommended to conduct comparative research across multiple schools, examine differences between assistive technology implementation with and without value-based teacher training, and employ longitudinal designs to measure long-term academic outcomes, independence, and social participation among students with visual impairments.

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