The Academic
International Journal of Multidisciplinary Research

An Online Peer Reviewed / Refereed Journal
Volume 4 | Issue 10 | October 2026
ISSN: 2583-973X (Online), SJIF IF(2026): 5.6
Website: www.theacademic.in

Issues and Opportunities in Digital Learning Resources for Students with Vision Impairment

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DOI : https://doi.org/10.5281/zenodo.24395162

ARTICLE DETAILS

Research Paper

Received: 27-10-2026

Accepted: 02-11-2026

Published: 20-11-2026

Keywords:

Vision impairment, digital learning, availability, accessibility, learning resources, digital tools

ABSTRACT

Though Indian diversity is its virtue in itself, sometimes it leads to exclusion of various marginalised groups, specially people with various disabilities. Persons with visual impairment face difficulties in their daily life, especially in their education. This theoretical paper reflects on the challenges, students with vision impairment face during their education in accessing related study materials, issues they face in reading the materials due to the vision impairment. This study also document the technological advancement that help visually impaired students in reading the texts etc. The study concludes that though there is progress in solving their issues in accessing suitable and quality learning materials due to technological advancement. Still they face issues, but these issues can be solved easily with availability of related digital tools, awareness and training of those existing tools.

India is one of the most diverse countries with respect to religion, language, class, race, disabilities, socio-economic conditions etc. All these differences make Indian society vibrant and culturally rich. Diversity makes India unique because people from many differences live together (Hardgrave 1993). Diversity is

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valuable for us as, when people from different cultures, religions, languages and backgrounds works together, they learn things from each other. Although diversity has many advantages but it can create problems if differences are not respected by one another. If people fail to appreciate differences, then it raises misunderstandings, prejudices, discrimination, stereotypes, and social inequalities (Qureshi 2023). For a healthy society and developed country, inclusion of students with differences in mainstream domains, especially in educational process and their overall growth and development is necessary.

Objectives of education at the secondary school level is facilitating all-round development to every child, including intellectual growth, character and moral development, emotional maturity, social and civic responsibility, and cultural and aesthetic development, without any form of exclusion. However, in contemporary times, the aims of education have become narrowly focused on financial success. As a result, society is increasingly driven by material achievement. Emotional, psychomotor and moral development have received less attention than cognitive and economic development of the individuals.

But, different scholars and philosophers have stressed the importance of the holistic personality development of the learner through education. They have expressed varied perspectives on the aim of education. According to Gandhi (1958), education is "*an all-round drawing out of the best in child and man's body, mind, and spirit*". Tagore (1933) viewed the purpose of education as not merely imparting information, but bringing one's life into harmony with all existence. Herbert (1806) emphasized the development of good moral character as the central aim of education. In the context of students with visual impairment, similar concerns are evident among teachers, school administrators, and educational institutions regarding educating them. While, the primary concern remains enabling these children to lead independent lives.

Different commissions and committees in independent India has also recommend overall and holistic development of the students with the disabilities. The focus is on the individual, society and country's development. Kothari Commission (1964-66), Right of Persons with Disabilities (2016), and NEP (2020) recommended that education should promote all round development of the persons including intellectual, moral, social and physical developments. It also emphasizes the equal educational opportunities and integration of differently enabled children in mainstream education.

In the context of disabilities, despite many efforts of Indian government, different issues still exist varying from availability of suitable and necessary material, and human resources to negative attitudinal perspectives of different stakeholders towards inclusion of students with various disabilities.

Children with visual impairment:

> *"Person with low vision" means a person with impairment of visual functioning even after treatment or standard refractive correction but who uses or is potentially capable of using vision for the planning or execution of a task with appropriate assistive device." (The Persons with Disabilities Act, 1995)*

Visual impairment means any reduction in vision caused by a disease or injury that hinder any person in performing visual task after the best correction of verified and prescribes lenses and surgery etc. When vision still remain limited and a person need special services to benefit in educational, professional and day to day life, that population is considered as visually impaired population.

The lack of vision make a person different from other population. Senses are the gateway of knowledge and the most important sensory organ of a person is their eyes. Because vision is the most actively used by a person. The individual can process a lot of information in just one glimpse. So, Impairment and defect in vision of a person, brings less extent of sensory information to that person. It causes challenges or delay in different skills, a person acquires through observations of others in his/ her surroundings. This has major negative impact on language development, communication skills development, social and emotional development, development of self-image or self-esteem, logical skills, abilities for problem solving and abstract thinking, thus overall personality development. In conclusion, vision loss has a great impact not only on the individual's learning, performance but overall personality development. Because individual might lack ability for sensory information and using visual materials to understand different learning within one's environment.

However, it should also be remembered that every individual in this world is unique, possessing different abilities and facing different challenges while navigating life. Therefore, it is highly unjust to stereotype or perceive students with vision impairment about fixed types and/or levels of potentials development. Visually impaired persons face difficulties due to the absence of vision, because there are also many variables and factors playing crucial role in an individual's learning, development and issue they faced in their journey. However, some specific difficulties arise because the system is not yet prepared and has not yet provided them with adequate facilities and inclusive support. Society and its systems often fail to recognise and accept their different ways of perceiving, adapting to, and interacting with the environment. As a result, the world is not designed to function for them in the same way, it does for the rest of the population. (Carmel et al. 2026)

One way or another, persons with disabilities are forced to live differently than people without disabilities (Ochoggia 2003). According to Mandesi (2007), individuals with disabilities have to deal with many difficulties than their peers for equal opportunities in even daily life. Many challenges including environmental, legal, perceptual, and institutional are still a reality in the society. Unfavourable stereotypes and overall society's perceptions and attitude plays greater role in the social exclusion of individuals with disabilities. Persons with disabilities found it very difficult to overcome. Mandesi (2007) strongly advocates for equal treatment of persons with disabilities by removing all the physical hurdles and transformation of societal attitudes.

Libraries are still a major source for accessibility to learning resources. Libraries still do not properly meet the need of children with vision impairment in ensuring accessibility of reading and learning materials. Major challenges they face are 1. lack of accessible reading material including braille book and inaccessible computer and online content as students with vision impairment face problem in reading image content and Pdf files etc. 2. Language barriers as students with vision impairment face difficulties accessing text in certain languages such as Urdu and Sanskrit because accessible formats for these languages are even more challenging. 3. Dependency on sighted peers as librarian often ask them to come to library with a sighted peer who can help them find the book and read the book for them. Thus, independent access to reading and learning is difficult for students with vision impairment due to absence of trained staff who can guide them accessing hard and soft learning resources. 4. Attitudinal barriers as it's not just hinder their accessibility but it often affect their confidence, independence, and overall learning experience. There is strong need to make people around them aware, about disabilities and the support and environment they require to successfully navigate their lives. 5. Lack of appropriate physical infrastructure as it's make their independent mobility really difficult.

Now, persons with vision impairment has been benefitted due to development of digital equipment and ICT formats. Before digital accessibility to learning materials, only option to transcribe printed materials into braille scripts was time consuming as well as costly. But the introduction of text to speech software has made digital text available at no additional cost. (Khan and Singh, 2023)

Still the experience of the visually impaired students about their inclusion in digital learning platforms are very different. They are largely excluded from e-learning platforms. So, these students require enhanced support (Khumalo, 2025). In India, there is a strong need to make people aware about the available means and measures that can make learning material accessible to children with vision impairments. For instance, there is daisy forum of India. Daisy forum of India is the largest online audio book that produces audio

books, digital books, braille books, and books with larger fonts. These can be downloaded in preferred format anywhere in India. The most important thing about this forum is that it has been prepared utilising XHTML 1.0 as per the guidelines for government of India websites, i.e. this follow the standard prescribed by the Indian government for developing public websites. It also fulfils the level AA of WCAG 2.1. It is recommended and most widely adopted level of WCAG 2.1 that included additional criteria to significantly improved accessibility and usability for persons with disabilities (Daisy forum of India, 2016). WCAG has provided guidelines to make web content accessible for persons with disabilities. Still complete accessibility and availability of study materials remains a dream for persons with disabilities. There is some really important assistive technologies that helped persons with vision impairment to provide accessible learning content. So, accessibility of learning materials for the students with visual impairment has greatly improved through computers and assistive technologies. Key tools include screen readers and speech synthesisers that read text aloud, Braille displays that present one line of text at a time, and Braille embossers for printing. Software with optical character recognition (OCR) enables scanned documents to be read aloud, while screen magnifiers assist those with low vision.

Still, it may not be possible for every library in the nation to design systems that address the diverse needs of all individuals, as individual differences are not limited in number. Consequently, identification, installation, and maintenance of famous assistive software programs becomes a challenging task. According to Sanaman and Kumar (2014),

> *" A study highlights five software options for the libraries which can be adopted to provide the services to the blind/vision impaired users which includes 'JAWS for Windows' from Freedom Scientific, 'Window-Eyes' screen-reading program with portable applications, 'ZoomText' magnifier/reader and 'ZoomText' keyboard, 'Dragon Naturally Speaking' which is a speech-to-text engine that allows users to dictate into Windows-compatible programs, such as Microsoft Word and Outlook, and last one is 'Text Aloud' which is a text-to-speech (TTS) software. The library staff should also consider adoption of a long-term strategy for planning for patrons with disabilities. (McHale 2007)."*

They further explained about many useful software. According to them, there are some important software to support individuals with vision impairment, for example, Cake talking (it provide accessible control of the SONAR music production software), the talking word processor DocReader, the multilingual Reading Bar (it is a text to speech toolbar for web browsing, Connect Outloud (for comprehensive internet access, email and document creation), Kurzweil 1000, (versatile program that read scanned and digital text and

include tools for editing, study and Organisation). Implementing these technologies can effectively make reading and learning material accessible.

In conclusion, it can be claimed that although digital technologies and assistive tools have greatly improved access of information for visually impaired persons, significant barriers still remain. It's difficult for Persons with disabilities to complete higher education in comparison of persons without disabilities. There are lots of Barriers that play a significant role in this disparity like inadequate infrastructure, lack of trained teachers, limited availability of assistive devices etc. (Ganle and Ofori 2023).

Thus, though in the development of digital tools and resources including AI powered tools, still limited institutional support, and unequal access to e-learning platforms continue to hinder full inclusion of students with vision impairment. Libraries and educational institutions must adopt long-term strategies, provide essential assistive technologies, and ensure proper training. Through these, visually impaired students can fully benefit from available resources. True accessibility requires not only technological solutions but also informed support systems and inclusive practices. With the help of these gadgets, they can access reading materials.

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