DESIDOC Journal of Library & Information Technology, Vol. 43, No. 3, May 2023, pp. 193-201, DOI : 10.14429/djlit.43.3.18544
© 2023, DESIDOC

Digital Right Management and Accessibility of Libraries Electronic Resources for Blind and Visually Impaired Users: A Review

Rekha Devi* and Shailendra Kumar

Department of Library and Information Science, University of Delhi, Delhi - 110 007, India
**E-mail: rd241487@gmail.com*

ABSTRACT

In this digital era, where digital information is available in various formats, Digital Right Management has emerged as a great technology used by content owners to safeguard their intellectual property digitally. Digital rights management restricts the use of copyrighted digital works from unauthorised access. Although Digital Right Management appears to protect writers' copyrights, it limits the copyright freedom of blind and visually impaired users who depend on accessibility features. The study aims to discuss and highlight the impact of Digital Right Management on the accessibility of libraries' electronic resources for BVI users. Furthermore, it discusses how complex Digital Rights Management violates the fair-use rights of BVI users by making it impossible for them to access electronic resources. This review article outlines the key research findings on Digital Right Management hindrances encountered by blind and visually impaired users in accessing electronic resources. The results root in the literature surveyed discloses that the majority of libraries throughout the world are falling behind in delivering efficient access to electronic resources for BVI users. Libraries have a variety of obstacles to the accessibility of electronic content, including Digital Right Management challenges, license constraints, website design limitations, accessibility issues, and compatibility issues with assistive software. To overcome some of these barriers, librarians should review the implications of Digital Right Management for accessibility. Moreover, librarians must be knowledgeable about the numerous forms of visual impairments, including these users in accessibility studies, and consider the assistive technology they use. The article will review the literature on the following topics: find out how accessible electronic resources in libraries are for blind or visually impaired users; identify existing accessibility challenges arising from Digital Right Management technologies that impede access to electronic resources by blind or visually impaired users, and identify the challenges that they are facing.

Keywords: Accessibility; Assistive technologies (ATs); Blind and visually impaired user (BVI); Digital right management (DRM); Intellectual property rights; Libraries electronic resources; Copyright law; Fair use

1. INTRODUCTION

With the advent of digital technologies, anyone can access information from any place at any time. By overcoming the barrier of print media, the latest technology has made it possible to serve the information needs of the whole world. Just like print media have some short comings, this digital media also has some cons. In the digital world, we can access digital content with a click of a button. A person without any disability can access the content without much hazard, but a Person with blind and visual impairment faces many challenges. It brings up the idea of Universal Access, which allows people with disabilities to access digital information like everyone else.

Concerning DRM in libraries, this article highlights the challenges faced by users with blind or visual impairments while accessing the library's electronic resources. The copyright act protects printed resources. The publisher levies digital rights management protection for digital content to prevent its unlawful access. The term "digital rights management" refers to technology and software that attempts to limit digital data access and reproduction. DRM, on the one hand, is a lifesaver for publishers and content owners. On the other, it is a barrier to accessing digital content by blind and visually impaired users. DRM must allow for at least the same level of consumer usage, reuse, and refinement as is currently possible with accessibility features. DRM shouldn't prevent people with impairments from making appropriate, legal adaptations of copyrighted works.

Assistive technologies have been developed to facilitate seamless interaction with the digital world by blind and visually impaired individuals. Users having blindness or visual impairment can utilise assistive technology to

Received : 29 September 2022, Revised : 07 March 2023
Accepted : 12 April 2023, Online published : 06 July 2023

access electronic resources if the device is compatible with the resource. However, DRM protection causes numerous compatibility concerns when using assistive technology to access digital content.

Several publishers have begun to provide DRM-free versions to make things easy for BVI users in increasing information accessibility. A range of copyright exceptions is available in making information accessible for BVI users.

With the evolution of electronic information resources, librarians must be aware of the many types of visual impairment and the consequences for selecting participants in accessibility research, as well as taking into account the assistive technology they use. Publishers, copyright attorneys, content owners, and the government should collaborate to develop a solution that meets all the challenges that blind and visually impaired users face.

In their study on library services for impaired users, Chaputula & Mapulanga[6] emphasised the absence of libraries and information services for individuals with disabilities and acknowledged potential limitations. A lack of equipment to support impaired access to libraries and information resources was identified by the study. Similar to this, the majority of libraries do not promote services that are accessible to persons with disabilities or offer specialised training, such as induction sessions, despite an increase in the number of people with disabilities. Libraries should also take the appropriate actions to resolve the accessibility issues encountered by patrons with impairments. Adding or improving services that cater to individuals with disabilities should be a priority for libraries.

2. OBJECTIVES

This review article addresses the underlying goals:

- To study the type of vision impairment
- To study the type of libraries accessible e-resources for BVI.
- To study the DRM challenges encountered by BVI people while using assistive technologies
- To identify the copyright exceptions for BVI users in the accessibility of electronic resources
- To study the exemptions to use the work under doctrine of fair use
- To study the assistive technology utilised by BVI users for accessing electronic resources
- To study the concept of DRM-Free access to electronic resources for BVI users.

3. METHODOLOGY

In this article, previous literature is reviewed and analysed. The selected literature for review was informed by the six objectives mentioned above.

4. REVIEW OF RELATED LITERATURE

The previous literature is discussed in this section and linked to the current research.

4.1 BVI Users

As claimed by WHO[33], near or far vision impairment affects at least 2.2 billion people globally. Out of these, vision impairments may have been cured in nearly half of these cases. The International Classification of Diseases 11 (2018) divides visual impairment into two categories: farsightedness and nearsightedness.

Saxena[30], *et al.* in their study mentioned that visually impaired people in India are approximately 62 million; out of this, 54 million people have low vision, and 8 million have completely no vision.

According to the UGC[25] letter dated 20/01/2022, it is recommended that all institutions develop/adopt appropriate instructional materials, such as Braille-print books, big print books, tactile books, audiobooks, and other assistive technologies, better to fulfill the needs of students with visual impairments. Such educational resources should, to the extent practicable, be published on the university's website and made freely available.

Disabled people are one of the most crucial groups in every society who are influenced and benefit from the electronic era's new technology.[19]

In his study of staff-user interactions in academic libraries, Ndoh[24] recommended that librarians should focus their attention to conduct training sessions for their staff on how to interact with users who are disabled. The emphasis of these sessions ought to be on effective communication with clients who experience hearing, vision, or other impairments.

4.2 Digital Rights Management: A Review

The 1996 WIPO copyright treaty gave global legal support to digital rights management (WCT). Besides the fact that India has not ratified the WIPO, it adopted DRM in 2012.[28]

DRM is levied by content providers (CP) on their content to safeguard their rights by limiting access to authorised users and preventing even those users from duplicating or converting digital content into another format.[4]

Bechtold[5] conducted a study that several strategies for securing content on the internet in the DRM system. This article's objective is to provide a high-level recapitulation of the copyright-linked features of the legal structure in which the DRM system works. According to research, content providers require a five-pronged approach to protection rather than just one (technology, contracts, technological licenses, anti-circumvention measures, and copyright legislation) (copyright law). Under DRM systems, private parties gain authority over the design of informational rights, which may or may not respect the interests of third parties or mankind. In response to this "overprivatisation," the legislation must limit the numerous protection mechanisms in a DRM system.

Scaria[31] conducted a study focusing on how Indian copyright legislation implements digital rights management. This study aims to learn more about DRM's legal provisions, comprehend the general instruments, and compare and contrast current developments and legislation in the EU

and the United States. Concerning digital work and simpler digital reproduction of copyrighted information, the challenge is to strike symmetry among the interests of copyright owners and the right to freedom of speech and expression of fair use users. According to research, when comparing Indian DRM legislation to similar legislation in the United States and the European Union, it is clear that the Indian government is taking a fundamental approach to DRM restrictions.

Dimitriou[8] conducted a study to investigate DRM legal laws, discover international tools, and assess existing policies and legislation in the EU and the US. The DRMS implementation, according to research, puts several intellectual property issues to the test. Some of the consequences have been noted, including the Berne Convention's exhaustion and first sale principles, the fair use doctrine in the United States DMCA, and the status of the code as law.

4.3 Electronic Resources for BVI users

In their study, Horsfall and Opara[12] looked into the availability of information resources for users who are BVI in 20 academic libraries in Nigeria. According to the study, the majority of academic libraries do not have sufficient number of information resources for BVI students. It was also discovered that adding these resources will enhance librarians' skills and promote inclusive education. The difficulties preventing the accessibility of information resources to visually impaired pupils include a lack of maintenance funding, an unstable power supply, and users' poor abilities. Study recommended the promotion of inclusive education and providing information resources for students who are BVI.

Majinge and Mutula[21] did a study to examine the effect of copyright on visually impaired access to university libraries' digital and print information resources. According to the study, many university libraries worldwide cannot provide efficient information services to those with visual impairments. Moreover, rigorous copyright rules and licensing regimes for content acquisition or conversion from one format to another hinder accessible information services for blind or visually impaired people.

Akolade[2], *et al.* conducted study on disabled students of UG level at Kwara State University. According to 36 % (76.6 %) of respondents, physically challenged children could access journals in the library, while 6 % (12.8 %) are doubtful. In addition, 22 respondents (46.8 %) believe that government publications are available in the library to physically challenged pupils, whereas 20 (42.6 %) disagree and 3 (6.4 %) disagree. Furthermore, 14 respondents (29.8 %) dispute that videotapes are accessible in the library for physically challenged students, 14 respondents (29.8 %) are undecided, and 25 respondents (53.2 %) disagree. Physically challenged students were not given attention in the decision-making process at the library, and there were no particular information resources available at the library that addressed their impairment, according to the findings.

Khowaja & Fatima[15] surveyed to determine the knowledge and usage of e-resources by 76 visually impaired students at "Aligarh Muslim University in Aligarh". The study revealed that 85.5 % of users found e-resources difficult to use due to compatibility challenges with screen readers, while 72.4 % found inadequate support.

Konicek[18], *et al.* in their study, looked into available assistive technology for persons having blindness or low vision, as well as compatibility difficulties, and offered "accessible" electronic reserves. The results reveal that some screen reader systems have trouble understanding PDF files, even when they have been "made accessible" using "Adobe's Accessibility plug-in".

Kumar & Sharma[19] conducted a study on 125 users of five libraries in India's main National Capital Region (NCR) libraries to identify blind/visually impaired users' preferences for and usage of digital information and resources. According to the research, the most common barrier to Internet use among "ADRC (11; 44 %), RNBTBL (10; 40 %), and HKU users" is the complexity of the content available on the Internet (9; 36 %). The next significant barrier encountered in BL (12; 48 %) and DDCL is the absence of suitable ICT and Infrastructure facilities in the library (6; 24 %).

Akbar[1], *et al.* conducted a study to better understand the challenges that students with vision impairment (SVI) in Pakistan have when trying to access and utilize electronic information resources. Findings revealed that the SVI uses a range of electronic information sources. The higher education commission of Pakistan's subscribed databases is used by a very small number of people, nonetheless, likely because of the complicated interfaces and limited access. The challenges include a lack of support from universities, few training options, the absence of digital library services, and others.

In their study on the usability of ICTs among individuals with visual impairments, Fuentes[11], *et al.* brought attention to the fact that, even today, businesses and organisations do not prioritise accessibility when creating goods and services using the 'Design for All' approach.

Iqbal & Ashraf[13] recommended in their study that all higher education institutions provide accessible infrastructure, give teachers training and orientation sessions, establish resource centres where visually impaired students can access free assistive devices, and launch project-based programmes.

4.4 Digital Rights Management Challenges Encountered by BVI Users While Using Assistive Technologies

DRM safeguards digital material against unlawful copying, dissemination, and accessibility of content with rights claimed. It is a copyright holder's technology for access and usage control, usually software developed for encryption employed to restrict the unauthorised use of digital information.[31]

Content providers (CP) use DRM to safeguard their rights by prohibiting unauthorised users from accessing digital material and preventing even authorised users from translating or copying digital data into a different format.[8]

DRM ensures that content suppliers, particularly copyright owners, are fairly compensated for creating content transmitted through the DRM system. We can accomplish this by implementing various technological protection measures (TPM).[5]

The use of DRM could lead to the development of a secure online market where content producers could be paid for the use of their work.[5]

Regarding digital rights management, users with print disabilities utilise assistive technology with special challenges.[3] DRM is a widespread proprietary approach that may present obstacles for blind or visually impaired readers. Customers must first download the Adobe Digital Signature (ADS) application to their computer before reading the e-book, which is an additional obstacle for screen reader users. Screen readers and other text-to-speech assistive technologies cannot read many DRM documents since they are images of pages rather than distinct characters.[14] Due to the extra time needed to navigate with a screen reader, DRM barriers may be particularly complicated for blind users.[23]

Alternative formats have become easier to provide in the digital world thanks to the invention of the plethora of assistive technologies having inbuilt accessibility features. However, the assurance of greater accessibility has been harmed by DRM technologies, which are more widely used to "wrap around" digital content to safeguard it from unauthorised access. These technologies connect with specialised equipment that people with print disabilities use regularly and often inadvertently to access digital information.[3]

More than half of the electronic-book titles available for digital purchase were "locked," indicating they couldn't be read using a standard screen reader interface, according to research done by the American Association of the Blind. Moreover, an e-inaccessible book was not discovered until after it had been downloaded and purchased. Customers who use such devices are more likely to have trouble accessing digital content they want to buy and online resources licensed by the library in some situations. Librarians should double-check that the Electronic-books they license from publishers are entirely accessible. If they aren't, they should appeal that the technological "locks" that prevent a person having visual or print difficulties from accessing them be lifted. The circumstances were adverse by the "Digital Millennium Copyright Act (DMCA)". The DMCA bans "circumventing" a technological protection mechanism to access copyrighted work. It was illegitimate for a skilled screen reader user to find out how to open the lock and obtain access and for a software developer to produce a program that bypassed the DRM to authorise assistive technology devices to work. The United States copyright office recently permitted a limited exemption from the prohibition of "literary works distributed in e-book format where all current e-book editions of the work carry access controls that forbid the read-aloud function of the e-book, and that forbid the enabling of screen readers" at the request of the American Federation of the Blind and five library associations, along with the American Library Association.[3]

A major challenge in digital work and more detailed digital reproductions of copyrighted content is striking a balance between copyright holders and public rights under the fair use doctrine. The DRM regulations are biased to the benefit of copyright owners rather than balancing the rights of the public and copyright owners. It is unlikely that the Amendment will be challenged because the copyright owners' lobby appears united in its position and is financially more feasible than familiar Indian users of online copies.[31] Fair use, first sale, and time-limited monopoly rights may be endangered by DRM systems.[8]

18 blind academic library users in the USA participated in an open-ended telephone interview for a study that looked at an area where blind individuals had common concerns: getting and accessing full text. According to several students, a problem with depending on the disability office to modify inaccessible items is that they don't know which digital content will be advantageous until they have complete access to them. The table of contents or abstracts needed to be more often sufficient to guide them.[23]

Wentz[34], *et al.* in their study mentioned that while purchasing library's electronic resources, what vendor promise is quite different from when we get. This creates problems that not even ATs can solve for instances; Several library databases' collections cannot be obtained via AT, making the resources in those databases inaccessible to those in need of help.

4.5 Copyright Law

This article analyses the impact of India's copyright laws on the country's millions of blind and visually impaired students. India's print-impaired population was unable to access published works protected by copyright due to insufficient changes to the copyright rules. Accessible content can be made available to people who are blind or visually impaired by non-profit organisations without the owners' permission. All educational institutes that work with visually impaired children would benefit from the Indian government's historic move. There are no provisions in the Indian Copy Right Act of 1957 for converting any print or audio into a format accessible to the visually impaired.[26]

The Digital Rights Management Act provisions, which were enacted as part of the 2012 Amendment to the Copyright Act 1957, were an infringement under the right to freedom of speech and expression granted by Article 19(1) (a) of the Indian Constitution. The DRM provisions are biased in favor of copyright owners rather than balancing the interests of the public and copyright owners. Under copyright law, a person with print impairments has the right to make an alternate replica of selected works for individual, non-commercial use under the fair use doctrine.[28]

The copyright law aims to strike a balance between content owners and content users. However, the same copyright laws, which impose DRM standards, continue to impose limitations on basic freedoms of speech and expression[31].

DRM systems can be applied to safeguard digital content that isn't copyrightable and to limit behaviors that aren't protected by copyright. What level of copyright restrictions should be applied to the various types of security in a DRM system is a difficult question to answer.[5]

Copyright protection may be violated if a document is converted to a text-based format. All of the libraries polled are aware of the copyright challenges, and caution is exercised before advancing.[18]

4.6 Electronic Resources

Electronic resources are a lifesaver for academics since they allow knowledge to be extracted with a click of a button. They are more current and updated than print resources, and storing, categorising, and retrieving information has become easier with the help of e-resources.[15]

Electronic media can be significant for those with disabilities. It provides access to folks who might not be otherwise capable of the advantage of printed content.[18]

Persons with physical disabilities have the same information demands as people without disabilities. Physically challenged persons also desire access to pertinent information in their favored accessible format, just as those without disabilities wish to read newspapers, play CDs, or download digital content from the web.[2]

Lawal-Solarin[20] surveyed students with physical disabilities at four libraries of academic institutions in Ogun State, Nigeria, to highlight their accessible library and information services. The study discovered that the majority of respondents (16, or 66.7 %) regarded textbook accessibility as poor, whereas the majority of respondents (12, or 50 %) found their libraries had poor access to journals. Abstracts and Indexes were rated as having low accessibility by 16 (66.7 %) respondents. At the same time, 18 (75 %) said that theses and dissertations were challenging to find. Furthermore, 19 (79.2 %), 16 (66.7 %), and 14 (58.3 %) of the respondents assessed "CD ROM, OPAC, and online bibliographical sources as below par, respectively, whereas 12 (50 %) of the respondents ranked audio-visual materials as poor".

The most popular electronic resources in major national capital region libraries are 'audiobooks on CDs/ DVDs and DAISY books. During internet access, BVI patrons encounter many difficulties, the most significant of which is the "complexity of content available on the internet," accompanied by the "absence of appropriate ICT and infrastructure facilities" at the institution/library.[19]

Zuniga[35] conducted a study on accessibility and e-resources and highlighted that publishers and librarians are becoming more and more conscious of the value of e-resource accessibility. A lot of authors and publishers proactively offer accessible statements and information.

4.7 Assistive Technology

Assistive technology is just what it sounds like: it's the technology that helps individuals achieve their goals. Computer-based material can be accessed with the help of several assistive technology tools. People having a variety of disabilities, consisting of physical, learning, cognitive, and sensory difficulties can benefit from assistive technology. Accessibility difficulties for electronic information sources are especially significant for people with BVI.[18]

There are many ATs available to make knowledge accessible to all users, but the main challenge is how librarians may choose which are the best suitable for their specific library, according to Mates[22] in his book "Assistive Technology in the Library." He talked about three key considerations that a library should have in mind while using assistive technology in their particular library, including (1) choosing the AT that are best for their organisation; (2) setting up workshops and providing training programmes on assistive technology usage; and (3) making sure that staff members are comfortable using assistive technology.

A study on the digital libraries usability was undertaken by Kiambati[16] from the viewpoint of a user with vision impairment in terms of information retrieval. According to the study's findings, certain digital libraries failed the fundamental accessibility standard for BVI stated by the "World Wide Web Consortium", and others were inaccessible to people with BVI. According to the study's findings, students with visual impairments who had prior training in assistive technology have a better overall user experience with digital libraries. In order to increase the utilisation of digital library resources by users with BVI, the study advises institutionalising assistive technology training.

E-books offer access to knowledge that would otherwise be unavailable, which is very beneficial for people who have trouble reading print. Users with a BVI can read electronic books utilising AT like screen readers or other tools, provided their devices are created appropriately and provided with acceptable e-text formats.[14] People with print disabilities now have fewer trustworthy options, despite the abundance of various e-book formats and e-readers available.

Kisanga & Kisanga[17] in their study on the impact of assistive technology in the learning of SVI highlighted that assistive technology devices are used by most SVI, depending on the assistance of sighted students or an experienced person. Higher education institutions should give sufficient and long-term funding for assistive technology to make sure that students with visual impairments benefit from their education.

Chaurasia & Singh[7] in their study emphasise the importance of specialised tools, techniques, and services that offer disabled users in libraries and information centers a barrier-free environment, resulting in numerous technological developments and inventions for users with or without disability.

In their study, Potnis & Mallary[27], discovered that academic libraries face a variety of obstacles when attempting to provide assistive technology to impaired users, including a lack of money for AT, a lack of knowledge of handicapped users' needs, and the accessibility of some electronic resources.

4.8 DRM-Free Access to Electronic Resources for BVI Users

Roy and Bandyopadhyay[29] in their study on developing barrier-free services for BVI users underlined how creating barrier-free environments, putting up new facilities, and reorienting professional university libraries can guarantee equitable access to information for everyone.

EBSCO has made DRM-free versions of over 200,000 titles accessible for purchase. Because Adobe's DRM renders eBooks incompatible with much assistive technology like screen readers and text-to-speech tools, we strongly advocate DRM-free eBooks whenever possible for users with accessibility needs. For non-DRM-free EBSCO eBooks, EBSCO recommends downloading chapters or subsections/page ranges (which are always DRM-free) rather than the entire eBook, which EBSCO is required to secure with DRM.[9]

"Project Gutenberg" offers a plethora of DRM-free e-books for free download to your devices like PC or laptop.[14]

"DRM-free HTML" or "EPUB e-books" offer accessibility benefits. It is also possible to outsource the transformation of content into accessible format. Libraries can play an essential role in providing a reader service to assist blind people in finding relevant book portions to convert.[23]

4.9 Copyright Exceptions for BVI Users in the Accessibility of Electronic Resources

The Copyright Amendment Bill 2012 was enacted by both houses of parliament and includes provisions for the benefit of people with disabilities. The organisations can now modify the same content in a manner that is accessible to persons with BVI who previously had difficulties accessing it in its original format. It sayes that a conventional printed book, for instance, may be transformed to an alternative format, such as Braille, large font, text readable by screen reader, or audio, without requesting the copyright holder's consent. The Copyright Amendment Law, 2012 eliminates the requirement to request publisher permission before translating a book into an accessible version. To the extent that the bill allows, anyone or any organisation working in the interest of individuals who are disabled and doing so on a non-profit basis is not considered to be infringing on copyright when making accessible format copies or giving them to people with disabilities who are unable to enjoy the work in its regular formats. This clause includes some built-in protection against unlawful usage by people who are not exception beneficiaries and has a very broad and inclusive meaning. For example, the literature made available in accessible formats must only be used for private or individual purposes, such as education or research. Furthermore, the individuals or groups offering these services have a responsibility to make sure that such transformed formats do not penetrate the main business channels.[26]

DRM technique doesn't usually distinguish between copying for legal reasons (for instance, making a copy accessible under disability exclusions) and copying for illegal reasons (for instance, circumventing the technical limitation to make the work accessible on the internet). Because the technology safeguarding the digital file cannot be overcome, even if the disability exemption applies, the disabled person (or her agent or an authorised body) may not be able to generate an accessible duplicate. This effectively shows that the DRM system overrides the disability exceptions.[10]

A publisher can circumvent the exemption for any of its functions can be achieved simply by guaranteeing that an edition is readily accessible for the BVI for any of its works produced in e-book form " Librarians should be strong supporters of this outcome.

This exception allows a disabled person to alter a work to appreciate it to the same extent as someone who does not have the condition. An 'accessible copy' is what this is called. Notably, this duplicate may only be produced for the benefit of the impaired individual. On behalf of the handicapped person, it can be made by a friend or caregiver. The World Intellectual Property Organisation oversees the Accessible Books Consortium (ABC), which consists of organisations representing disabled persons, libraries, standard bodies, writers, publishers, and collective management organisations. The primary purpose of the ABC is to expand the number of accessible books and other literary works accessible for persons who are print-disabled.[10]

Stewart[32], *et al*. carried out a study to look into how these online resources are usable and accessible for those who use adaptive software to interact with computers. Results show that while the majority of databases and indexes are already in compliance with basic accessibility requirements and allow users to execute simple search operations, the user-friendliness of these systems for individuals with disabilities tends to be low.

4.10 Doctorine of Fair Use

A fundamental aspect of copyright law is the fair use doctrine. It allows to use the work protected by copyright is allowed without fear of violation. Under Copyright Act, 1957 section 52 certain acts exempted to infringement if it comes under fair dealing. Fair use permits without specific permission of the copyright owners the following acts of fair dealing:

- with a literary, dramatic, musical or artistic works (not being a computer programme) for the purpose of:
- private use including research,
- criticism or review
- news reporting and
- use of works in library and schools and in the legislatures.[38]

The aim and nature of the usage, as well as whether it is for non-profit educational purposes or is of a commercial nature, must be taken into account in order to determine if the use of a work in a certain situation constitutes fair use. At libraries, giving researchers photocopies is a regular practise. When used for research and reference purposes, it is considered a fair use and does not infringe copyright regulations. It is against the law to violate copyright if it is done for profit and causes a significant loss to a publisher. Libraries will need to exercise caution on any such violations that occur there. Professionals in library and information science (LIS) can be crucial in supporting research needs and defending the rights of copyright holders. As well as frequently being ambiguous and deceptive, copyright statements can be difficult to differentiate from terms of use. Enabling libraries and archives to make fair use of orphans contributes to the achievement of the essential goals of copyright, which include advancing knowledge diffusion and defending free speech.[36]

As time and technology change, the fair use concept necessitates regular study and reformulation of restrictions. In light of the most recent advancements in computer and digital technologies, it should be reviewed. Regardless of whether a work is digital or not, the owner's rights should always be properly preserved. Due to technological improvements, timely access to the job without any limits should be controlled. For the growth of literature and culture in society, the copyright law needs to be amended to preserve and promote all types of work[37].

5. SUGGESTIONS AND RECOMMENDATIONS

- Encourages publishers to make accessible versions available.
- Librarians should ensure that the electronic-books they license from publishers are entirely available. If they aren't, they should appeal that the technological "locks" that prevent people with visual or print disabilities from accessing them be lifted.
- Librarians should strongly support circumventing technological protection measures to allow accessibility for BVI users.
- For comments or questions, a suggestion box will be placed in the library.
- The government should try to raise awareness among students in schools and colleges and launch massive public awareness campaigns on the outcomes or effects of copyright infringement and its punishment.
- An attempt is required to be made to assess the DRM provisions' socio-economic effectiveness.
- The DRM provisions that were added in 2012 by amendment must be re-examined.
- It is necessary to loosen unnecessary restrictions on DRM systems to protect fair use and other public values.
- For effective engagement and communication, skilled library professionals should be assigned to the groups of physically challenged patrons, as well as a shift in attitude toward them.
- Physically disabled users requirements should be taken into consideration while designing orientation sessions.
- To achieve accessibility of e-resources for print-disabled users, libraries should focus on web design that is accessible.
- Making provision in the library to provide information sources and services for BVI users.
- Need to strike a balance between fair use and DRM to safeguard the rights of both content owners and content users.

6. CONCLUSIONS

The following conclusions are formed based on the prior studies:

Everyone has the right to seek an education. Inability is not the same as a disability. Everyone has an equal right to information, so DRM must allow for at least the same level of consumer usage, reuse, and refinement as is currently possible with accessibility features. People with disabilities should not be restricted from developing acceptable, legitimate adaptations of copyrighted works because of DRM. People with disabilities and others who rely on accessibility features would be harmed by digital rights management as appropriate, legal adaptations of copyrighted works.is now designed. DRM must allow at least the same user usage, reuse, and refinement level that accessibility features now allow. Because of DRM, people with disabilities should not be prevented from creating

DRM must permit the processes of captioning, audio description, subtitling, and dubbing, regardless of whether the producers are referred to as "professional" or "amateurs" by DRM licensors or anyone else.

The review shows that to make electronic resources equally accessible to visually challenged and blind users, librarians should be aware of various categories of visual impairment and inclusion of these users in accessibility studies, as well as consider the assistive technology they use. Librarians should be aware of the implication of DRM on accessibility and see what DRM restrictions are deployed by publishers on online content and negotiate with them.

Print-disabled students are not adequately cared for in higher education institutions. They go through many challenges, as seen in their responses to surveys. Even in the library's architectural designs, their interests were never considered. In education, physical access is both a source of achievement and opportunity. As a result, for people with disabilities, accessibility is a civil right. The federal and state governments must enact legislation that addresses the challenges that the print disabled confront in obtaining an education.

It was found that one of the biggest challenges faced by most libraries in offering information services to disabled clients is a lack of understanding of their needs.

REFERENCES

1. Akbar, A.; Jabbar, A.; Saleem, Q.U.A. & Ashiq, M. Access and use of digital information resources by students with vision impairment: Challenges, prospects and expected role of libraries. *International J. Disability, Develop. Educ.*, 2022, 1–19. doi: 10.1080/1034912X.2022.2095356.
2. Akolade, Y.L.; Tella, A.; Akanbi-Ademolake, H.B. & Adisa, M.Y. Physically challenged undergraduates' satisfaction with library and information services in kwara state higher institutions. *J. Balkan Libr. Union*, 2015, **3(**1), Article 1. doi: 10.16918/bluj.89103.
3. *ALA DRM & Accessibility*. (n.d.). https://www.ala.org/ala/washoff/contactwo/oitp/emailtutorials/accessibilitya/10.htm (Accessed on 15 May 2022)
4. *Architecting Secure Software Systems Asoke K. Talukder, Manish Chait*. (n.d.). https://www.taylorfrancis.com/books/mono/10.1201/9781420087857/architecting-secure-software-systems-asoke-talukder-manish-chaitanya (Accessed on 21 February 2023).
5. Bechtold, S. From copyright to information law-Implications of digital rights management. in T. Sander (ed.), *Security and privacy in digital rights management*. Springer, 2002, 213–232. doi: 10.1007/3-540-47870-1_14.
6. Chaputula, A.H. & Mapulanga, P. Provision of library services to people with disabilities in Malawi. *South African J. Libr. Infor. Sci.*, 2016, **82**(2). doi: 10.7553/82-2-1619.
7. Chaurasia, A. & Singh, A.P. Assistive support through technologies for persons with disabilities in libraries. *DESIDOC J. Libr. Infor. Technol.*, 2022, **42**(2). doi: 10.14429/djlit.42.2.17558.
8. Dimitriou, C. Towards a new digital rights management ecosystem: The importance of its systems for the copyright holders, the consumers and the innovation. The example of the HTML **5**, 2014. URI: http://hdl.handle.net/10852/43092.
9. EBSCO eBook Accessibility User Guide and FAQs. (n.d.). https://connect.ebsco.com/s/article/EBSCO-eBook-Accessibility Guide?language=en_US (Accessed on 7 June 2021).
10. Exceptions for disability- Copyright. *CopyrightUser*. https://www.copyrightuser.org/understand/exceptions/disability/ (Accessed on 18 May 2017)
11 Fuentes, F.; Moreno, A. & Díez, F. The usability of ICTs in people with visual disabilities: A challenge in Spain. *Int. J. Environ. Res. Public Health*, 2022, **19**(17). doi: 10.3390/ijerph191710782.
12. Horsfall, M.N. & Opara, V.C. Availability of information resources for visually impaired students in university libraries in Nigeria: A tool for inclusive university education, 2022. http://ijkcdt.net/_common/do.php?a=search&b=23.
13. Iqbal, K. & Ashraf, S. Perspective chapter: The barriers in inclusive set-up for students with visual impairment at higher education level- Pakistan scenario, *IntechOpen*, 2023. doi: 10.5772/intechopen.109377.
14 Junus, S.G.R. Chapter 3: E-books and E-readers for users with print disabilities. *Libr. Technol., Reports*, 2012, **48**(7). https://www.journals.ala.org/index.php/ltr/article/view/4683/5567.
15. Khowaja, S. & Fatima, N. Awareness and use of electronic resources by visually impaired students at Aligarh muslim university, Aligarh: A Study. INFLIBNET Centre, Gandhinagar, 2019. http://ir.inflibnet.ac.in:8080/ir/handle/1944/2329.
16. Kiambati, F.G. Usability of digital libraries during information retrieval by persons with visual impairment in selected public universities in Kenya [Thesis, Kenyatta University], 2021. https://irlibrary.ku.ac.ke/handle/123456789/23884.
17. Kisanga, S.E. & Kisanga, D.H. The role of assistive technology devices in fostering the participation and learning of students with visual impairment in higher education institutions in Tanzania. *Disability and Rehabilitation: Assistive Technology*, 2022, **17**(7), 791–800. doi: 10.1080/17483107.2020.1817989.
18. Konicek, K.; Hyzny, J. & Allegra, R. Electronic reserves: The promise and challenge to increase accessibility. *Library Hi Tech*, 2003, **21**(1), 102–108. doi: 10.1108/07378830310467445.
19. Kumar, S. & Sharma, D. Preference and use of electronic information and resources by blind/visually impaired in ncr libraries in India. *J. Infor. Sci. Theory Practice*, 2013, **1**. doi: 10.1633/JISTaP.2013.1.2.5.
20. Lawal-Solarin, E.O. "A survey of library and information services to physically-challenged " by Esther Opeola Lawal-Solarin, 2012. https://digitalcommons.unl.edu/libphilprac/699/
21. Majinge, R.M. & Mutula, S.M. Access to electronic and print information resources by people with visual impairments in university libraries: A review of related literature. *Libr. Management*, 2018, **39**(6–7), 462–473. doi: 10.1108/LM-04-2017-0038.
22. Mates, B.T. Assistive technologies in the library. *In ALA Editions*. ALA Editions, 2011. ERIC number: ED517404.
23. Mulliken, A. & Falloon, K. Blind academic library users' experiences with obtaining full text and accessible full text of books and articles in the USA: A qualitative study. *Library Hi Tech*, 2018, **37**(3), 456–479. doi: 10.1108/LHT-08-2017-0177.
24. Ndoh, U.N. An evaluation study of staff-user interaction in academic libraries. *J. Learning Educ. Policy(JLEP),* 2023, **3**(01). doi: 10.55529/jlep.31.49.59.
25. *Notices @ UGC*. (n.d.). https://ugc.ac.in/ugc_notices.

aspx (Accessed on 13 June. 2022)
26. Pillai, P.R. Accessible copies of copyright work for visually impaired persons in India. *Creative Education*, 2012, **3**(06), 1060–1062. doi: 10.4236/ce.2012.326159.
27. Potnis, D. & Mallary, K. Analysing service divide in academic libraries for better serving disabled patrons using assistive technologies potnis. *College Res. Libr.*, 2021. doi: 10.5860/crl.82.6.879.
28. Reshmaa, B. DRM provisions under indian copyright law - A comparative analysis with us and eu and a critical study on the issue between creator's interest and public interest. *Int. J. Legal Developments Allied Issues*, 2019, **5(**2). https://ijldai.thelawbrigade.com/publications/vol-5-issue-2-march-2019/
29. Roy, P.C. & Bandyopadhyay, R. Designing barrier free services for visually challenged persons in the academic libraries in India (S.M. Dhawan & S. MAJUMDAR, Eds.). University of Delhi, 2009. http://hdl.handle.net/10760/22606.
30. Saxena, S.; Saxena, S. & Srivastava, J. (n.d.). Provisioning of information products and services for visually impaired users: A study. *J. Homepage: Www. Ijrpr. Com ISSN*, **2582**, 7421. doi: 10.55248/gengpi.2022.3.3.5.
31. Scaria, A. Does India need digital rights management provisions or better digital management strategies? *J. Intellectual Property Rights*, 2012, **17**, 463. https://www.researchgate.net/publication/255993106_Does_India_Need_Digital_Rights_Management_Provisions_or_Better_Digital_Management_Strategies.
32. Stewart, R.; Narendra, V. & Schmetzke, A. Accessibility and usability of online library databases. *Libr. Hi Tech*, 2005, **23**(2), 265–286. doi: 10.1108/07378830510605205.
33. Vision impairment and blindness. (n.d.). https://www.who.int/news-room/fact-sheets/detail/blindness-and-visual-impairment (Accessed on 13 June 2022).
34. Wentz, B.; Gorham, U. & Jaeger, P.T. Academic libraries and their legal obligation for content accessibility. *First Monday*, (2023). doi: 10.5210/fm.v28i1.12892.
35. Zuniga, H. Accessibility and E-resources: Why it matters and what you can do. *The Serials Librarian*, 2022, **82**(1–4), 103–108. doi: 10.1080/0361526X.2022.2018207.
36. Rai, P. Transforming dimension of IPR: Challenges for new age libraries. National Law University, Delhi, 2015. https://books.google.co.in/books/about/Transforming_Dimension_of_IPR.html?id=qYvYjgEACAAJ&redir_esc=y
37. Ahmed, S. Fair dealing in Indian copyright law. *JIPR,* 2021*,* **26**(2). URI: http://nopr.niscpr.res.in/handle/123456789/58020
38. Ahmed, Copyright Office: Exceptions to infringement under copyright act, 1957. (n.d.). https://copyright.gov.in/Exceptions.aspx (Accessed on 22 February 2023).

CONTRIBUTORS

Ms Rekha Devi is a Research Scholar at the Department of Library and Information Science, University of Delhi, Delhi, India. At present, she is working as Assistant Professor in the Department of Library and Information Science, School of Open Learning, University of Delhi, Delhi, India. Her area of research includes Blind and visually impaired users, Digital right management, Assistive technology and Web accessibility. Her contributions to this paper include: Sorting and collecting relevant information in the area, conducting a literature review, writing and drafting of the paper.

Dr Shailendra Kumar is a Professor in the Department of Library and Information Science, University of Delhi, Delhi. His contribution to this study is to provide overall guidance and directions on every step involved in the process of drafting and checking of this paper.