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THE AVAILABILITY OF ACCESS FOR USER WITH DISABILITY ON DIGITAL LIBRARY

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Abstract *There is necessity of attention to the availability of access for user with disability not only because it is right for them, but also their number in Indonesia showed a tendency to increase every year. Many things can cause the increase in number of people with disability in Indonesia, like congenital defects, genetic factors, and infectious diseases as well as accidents. The users with disability that is having difficulty in doing some activities, such as reading or writing in the form of a normal post, difficulty in hearing or speaking, and having obstacles in using electronic media used by normal people, desperately need support tools in order to access the collection or information in digital form. This study aims to identify the availability of access for user with disability in the digital library. The method of this research is descriptive, which tries to analyse digital library display on websites of public libraries in five major cities of Indonesia. Based on the research, we can see that almost none digital library that accommodates information needs of people with disability, even some websites, is easy to access by normal users. In future, digital library should give a better service not only to normal users but also to users with disability.*

Keywords: *Accessibility, User with Disability, Digital Library*

INTRODUCTION

The appearance of the information era is characterised by the rapid development of information technology sector that is able to package their knowledge and information with the use of high technology (modern). Utilisation of modern technologies facilitates individuals to seek information and actual knowledge quickly, easily, and precisely targeted, in order to obtain the suitable information with the needs and the times.

The coming of technology (ICT - Information and Communication Technology) helps people to liberate from the limitations of time and space. Utilisation of ICT continuously and on a larger scale (heavy users) becomes one of the characteristics of the information society (Martin, 1995). In other words, the presence of technology in the information society is difficult to ignore, that also causes an easy access to information. Knowledge-based information society is a society that is aware of the usefulness and benefits of information. The society has the knowledge and ability to access and utilise information and make the information as additional value in improving their quality of life.

The technology has become a part of daily life, can help the social balance, and increase the participation of all individuals in society. For example, the technology is used to facilitate the work, communicate, and to find, use and share information. Along with the emergence of the information society era, there has been a fundamental change in the library. This happens because of the presence of ICT as a medium of information technology, also influences the type and amount of information that could be accessed by individuals.

A lot of available information through modern technology would not only be the right of special groups, but also the right of each individual, including the people with disability. With its limitations, the people with disability should also receive optimal care in accessing information. Feature technology that is used by everyone (including people with disability) is a system that was created in a flexible environment and can be directly used without modification or adding other support tools, by as many people who have the ability and different environment, and includes scope very wide. We must realise that the development of information technology, has spurred the creation of a special technology for the people with disability to be able to access information easily.

In Indonesia, a portrait of the people with disability community is still not a major issue for researcher, community and government. They are often considered as a second-class community, marginalised and underestimated, considered a burden to the family as it has limitations, differences or disability. On the other hand, the availability

of adequate accessibility is the right of every individual, including the people with disability. All this time, the provision of accessibility for the people with disability was still limited in the library building. For example, the exit and entrance of the building, the use of lift, special toilets, ramps for wheelchair users, and others which are physical. The existence of user with disability should receive serious attention not only because of the access of information is their right, but also the number of the people with disability in Indonesia tends to increase each year. If they do not get attention from this moment, there would be more people who would be neglected for their information needs.

Based on the results of the National Census (2003), the number of persons with disability in Indonesia was estimated to be 2,454,359 inhabitants, whereas in 2006, the data obtained by the Indonesian health and disability-based on ICF (International Classification of Functioning, Disability and Health-WHO), report that 1.38% of the population or approximately 3.063 million inhabitants suffered disability (Irwanto *et al.*, 2010). The number grows when viewed by the results of the census in 2010, where Indonesian population is increasing as well in the amount of 237 641 326 inhabitants. There are 2.71% of Indonesia's population aged 10 years and older, who have difficulty functional with little difficulty and severe levels(Rahayu, 2012). The increasing number of disability happens because of some reason like accidental (victims of war, riots, accidents, labour/industrial, traffic accidents), disability since birth or when in the womb, and as a result of a hereditary disease or other diseases (polio, venereal diseases, tuberculosis, leprosy, diabetes and so on).

In fact, even though there have been efforts to fight for equality in the various aspects of the life of the people with disability, the implementation is still not maximised. Many implementations of government policies have not been in favour of the interest of the people with disability so that they are vulnerable to discrimination and exclusion from social activities, whereas the UN resolution 48/96 1993, stated that each country recognises the importance of access in the process of the equalisation of opportunities in all activities in the community (Tarsidi, 1998). State government in this case, is not enough and must provide a physical environment that is accessible to the people with disability, but also must provide access to non-physical, like an access to information (knowledge) in a broader scope.

In effort to build an information society equipped with information (knowledge), it can take advantage from digital library as one of information centres. Digital library should be accessible and easy to use by the entire community in order to maximise human resources quality. This is an important effort in order to help everyone to develop ability, improve the quality of life, and be able to increase the influence of his existence in the society.

ACCESS AND HUMAN RIGHTS

Throughout human history, information and knowledge are known as important things that have always been used; only inthe past, the information had not become a major commodity. Now, the existence of information occupies a more fundamental function, even strategic in all areas of life. In the information society era, the power is in the hands of person or community groups who control the information. The information controlled by a person or specific group of people can lead to conflict because of imbalance between the information held by individuals. By realising this, if people with disability are not assisted in accessing information in order to realise their independence, then they will always be a group of people suppressed or controlled by others.

Access is a human right that was declared universally by the United Nations (UN Resolution # 48/96 of 1993) and ratified by Indonesian legislation. Access is useful for creating a barrier-free environment, safe and independent. It negates the barriers that hinder access, and the freedom to communicate and move. In other words, an environment (roads, public places, transportation, buildings, and information technology) is said to freeway when all these parts can be accessed by the people including them with disability.

Access ghasa in information and communication technology (ICT) makes it easy for any individual to obtain information and to communicate more broadly. Everyone can have many benefits from accessing information through a variety of media and information centres. System for accessing information is designed to facilitate individuals to send and receive information, regardless of the degree of disability, age, or other limitations. Access ofpeople with disability in a variety media and information centres should be easier with time and cost should be at par with normal individuals. Ideally, when a manufacturer makes a masterpiece of technology, it must also take into account the use of its products by the people with disability so that their market share can expand.

In Act 4/1997, Article 1, paragraph 4, it is also stated that access is an amenity provided for persons with people with disability in order to achieve equality of opportunity in all aspects of life. This means that access should be provided to create an environment that enables people with disability to live in a decent society. More specifically Article 6, paragraph 4 of the Law clearly states that access is the right of everyone with special needs in order to live independently (Law No. 4/1997). The people with disability do not seek sympathy from normal society or the manufacturer of modern technology. However, the availability of equal access to every member of the community is a smart solution for the era of the information society that has been present

in the community so that no group or individuals are left behind or being a burden to others.

Availability access is an important thing because it will benefit the whole society, not just those who have barriers (disability) (Baumel, 2006). For example, a location that is easyto access can prevent accidents, similarly a technology designed to simultaneously unify both the normal people and people with disability, would save the cost of production and in the end, easy access to all community members will support the realisation of sustainable development. Thus, access should be available for all levels of society and provide opportunity to create conditions for the people who are able to play an active role on a larger scale (global).

PHYSICAL ACCESS IN LIBRARY FOR PEOPLE WITH DISABILITY

A study about physical library building access for people with disability has been quite widely discussed by several authors. Generally, the discussion starts with looking at the condition of the university library on providing building that is accessible forpeople with disability. For example, the Central Library University of Gadjah Mada (UGM) Yogyakarta became one of the buildings that provide access for the people with disability. The driveway in the form of ramp and elevator with a low key for wheelchairs, have been provided. In addition, the space plan about UGM library near the elevator can be used by all users including user with disability as it is equipped with Braille. The concern of UGM library to create access for people with disability is part of supporting activities for the provision of opportunity for people with disability to receive same education with other students (inclusions system) in the university. Of course, the people with disability who are already accepted at several faculties should meet certain requirements. Despite about 6-7 thousand new annual students atUGM, only one or two students with disability are accepted every year, but it givesa big impact on the realisation of the independence of the people with disability(Bulak Sumur Post, 2012). Some of the physical facilities that help students with disabilityto move easily in the campus area has also been provided, for example ramp (which has a field path with a certain slope), a special toilet, and lettered books in Braille.

Another example is the library of University of Airlangga (campus B) Surabaya, although there is only a relatively narrow ramp and left-right side is not equipped with handle. The library ware constructed around1980;at that time it was not designed taking into account the needs of users with disability. It can be seen from the lift is available only in use for lifting some goods (books). The library building consists of three floors, and it is certainly difficult for users with disability to access collection and service on floor 2 and 3. In 1998, University of Airlangga built library on the campus

C, which facilitates physical access for users with disability like providing a ramp that is wide enough, the elevator, and toilet for the people with disability (Puspitasari, 2012).

Islamic University of Sunan Kalijaga (UIN) Yogyakarta and University of Brawijaya Malang, also established the Centre for Studies and Disability Services (PSLD) (Bulak Sumur Post, 2012). This centre becomes one of the academic support facilities that are much in demand by people with disability because it provides integrated services to UIN Yogyakarta central library collections. The corner provides facilities on ICT to access information in the library. There are also books in Braille letters and other facilities that help users with disability in accessing information. For example Al Qur'an in Braille, digital talking book from Mitra Netra, computers equipped with JAWS (Job Access With Speech) that help in navigating menus and contents on computer screen, scanner and printer compatible for Braillesoftware, Optic Character Re-cognation(OCR) software which help people with vision disability to read a letter. If they want to change the format from printed into soft file, first it needs to scan the file to be a document in the soft file, and the software would read soft file documents of the book using computer talk (Utami, 2013).

This research discussed the availability of access to information for people with disability in the digital library of public library websites. Some libraries sampled in this study have the public library websites Surabaya, DKI Jakarta, Medan, Yogyakarta, and East Kalimantan. The researcher has two reasons to conduct a study about digital library on the websites of public library, which is so far more common in the university library. In the past few years, there are enough studies that discuss the theme of the digital library in the university library websites, therefore this research would like to give a different picture of the condition of the digital library in the public library websites, especially in services for the people with disability. The second reason is that since people with disability have the opportunity to access public libraries more than university libraries, especially public libraries should havebeen designed for all members of society, including the people with disability. In other words, for people with disability who do not get an opportunity to study at university, they can access information through the public library.

According to Atkinson and Dhiensa (2007), the ideal public library is the main information centre for the people with disability in finding information. This is motivated by the history that shows public libraries in Liverpool (UK) has been providing services for the people with disability since 1857. Since that time, the library provides books printed in Braille for the blind. Since then, services for the people with disability had developed not only to help those who are blind, but also people who are deaf, physical impaired and so on. Research of digital library on special libraries

such as in Foundation for Blind Children (YPAB) library, Foundation for the Physical People with disability Children (YPAC) library or Extraordinary School (SLB) which specifically provide services to people with disability, is still difficult, because there are only few facilities (almost none) to accessing information digitally.

DIGITAL LIBRARY AND DISABILITY

The presence of technology values opportunity for all people to improve their quality of life. For people with disability, technology helps to provide opportunities to access the virtual world including access to other things in the real world.They previously could not access such as reading a collection of books in a library. Thus, the technology has the capacity to provide power for the people with disability, and not createa wide gap for the people with disability in accessing information. The most important thing in a technology is the fact that its presence couldbe enjoyed not only by those who are normal, but also by the people with disability.

A change from conventional library to digital library is triggered by the presence of technology and the Internet that causes many collections available in digital form. A digital library in an organization provides resources, including the preparation of staff specialised in selecting, structuring, accessing, interpreting, disseminating, storing the results in the form of a digital work and presenting it economically for community purposes(Don Waters, 2011). According to Hasibuan (2012), digital library or a digital library system is the concept of using the Internet and information technology in library management.

The term disability is an acronym derived from the English phrase *Different Ability*, which after absorption into Bahasa Indonesia became disabled or people with disability (Bulak Sumur Post, 2012). The word was introduced in 1999 by some activists of disability movement in Indonesia; this term appears based on the reality that every human is created differently so they have different abilities. The word was change into "people with disability" to reduce negative impression and discrimination, and besides that, it is confirmed that it shows no defects but only a difference.

Changing the label of people with disability into people with different ability not only changes the terms, but also alters the meaning of the recognition of the capabilities of an individual who has a physical condition (body) different from the others. This change was made in order to gradually change the public opinion, that the disability is deemed not to have benefits for life and just a burden to the normal(Asyhabuddin. 2008). The use of the term connotes a positive difference in the ability assessed, in contrast to the term defect that is identified as a deficiency or something negative.

When a library wants to provide services for people with disability, then the library should know clearly about the characteristics of the people with disability. According to the World Health Organization (WHO) on the international classification of functioning, disability and health, disability is a term that includes disturbance, activity limitations, and participation restrictions (Hernon & Calvert, 2006). Disorders are associated with problems in body function or structure, whereas the activity limitation is the difficulty faced by individuals in performing a task or do some action. The participation restriction is a problem experienced by an individual to engage in public life. Disability is a complex phenomenon, which reflects the interaction between the characteristics of a person's body and the characteristics of the society in where he lives (social model).

Based on the above definition, the interaction of individuals with people with disability with the surrounding environment gave rise to barriers because it is not accessible to the people with disability. More specifically, the concern in this study are individuals who have visual limitations (people with visual disability or blind), hearing (deaf) and physical obstacles. People with visual disability usually become someone who has the greatest obstacles in accessing information from Internet or computer media (Paciello, 2000). They require assistive technology more than other types of people with disability.

TECHNOLOGY AND INFORMATION ACCESS FOR PEOPLE WITH DISABILITY

Information technology offers new opportunities for people with disability to access information and performs communication between individuals, like shopping/trading from home, and other forms of participation such as searching for information, and even distance learning. A major obstacle for the people with disability in the use of information technology is in the form of design equipment such as keyboards, mouse, monitors and printers which are not in accordance with their needs. For the screen, they need software screen magnifier, screen or monitor with touch technology that can be driven with a voice recognition program, a large-sized keyboard and mouse (trackball, joysticks), a printer which can read Braille text and so on.

The producers of technology, in fact do not create a new pure technology. Then how does it work when people with disabilitytry to access information? It would be the same as when an electronic media presents a collection accessible to normal individuals, starting from the beginning to the end. By utilising a documents processing tool, the textsare converted and then collections generated in digital form. This is the same as when processing a collection of books

into Braille writing, or into a "voice book".

The presence of technology has enabled a collection (information) widely accessible and in large number by the public. Seeing the opportunity, libraries should provide collection in a variety of formats. Librarians should also be responsive to the needs of people with disability when they want to search information, for example by providing special equipment for the people who have barriers to the printed letter (print disability) as well as those who are blind, to overcome the barriers they face. As mentioned in the introduction on this paper, every year the number of people with disability continues to increase. In fact, WHO estimates that in 2020 the number of people with visual disability will reach76 million (Atkinson & Dhiensa, 2007). As a result, there are number of users not able to read ordinary printed collections, they require the collection printed with Braille or converted collections in digital form or books in voice.

Various types of collection provided by public libraries ranging from printed books, e-books, online journals and so on, serve an alternative for the people with disability to access the information. Along with the presence of digital era, the collection that are used to access manually or printed in large scale, can be changed into electronics. Currently, some public libraries offer a portal that can be accessed online, so that users can enjoy services such as online news, online journals, e-books and so on. Surely, that collection should also be accessible to people with disability for example by storing valid and good printed information, then read using a screen reader, or print them in the form of braille.

It is important to identify the main problems that become obstacles for the people with disability in accessing information, so that librarian can prepare a better service. The rights for the people with disability to access information digitally have an impact to the needs for preparing tools (Assistive Technologies) for them. Thus, the information that was initially difficult to be accessed in prints, becomes easy with the presence of assistive technology. Assistive technology is a product, tool, equipment, modified or customised to enhance the ability of people with disability or used to assist individuals who are not able to use products designed for individuals in general (normal). The advantages of using this technology is that no other additional tools need to be installed prior to use by the people with disability, but the price is relatively high. Besides that, another difficulty from this technology is specific information can't be translated (read) like information in the form of images, advertisements, illustrations, and formula (mathematics, physics, chemistry) as assistive technology canonly read the text in the form of a sentence(Tilley, Bruce &Hallam, 2007).

The ease or difficulty to use assistive technology and whether it is able to meet the unique needs of each individual can be seen when the technology is in the hands of those who use it. According to McMenemy and Burton(2005), there are some assistive technologies:

1. Pointing devices

Many people with disability have difficulty when settings (navigation) on the desktop with the mouse are used by normal individuals. Therefore, they can use tracker ball, large ball-shaped which allows all parts of the hands to reposition the cursor on the screen. By using this mouse type, people with disability can easily run the computer desktop.

2. Alternative keyboards

The same difficulties are experienced by people with disability when using a regular keyboard. One alternative is that to enlarge the letters on the keyboard or by adding color to some of the letters that have been enlarged.

3. Solution using software

People with visual disability will have difficulty reading the text that appears on the screen, so it better to use JAWS software to read on computer screen. This software enables to read the sentence writing on the screen, informing when there is a picture or a link in the current page. In addition, there is also the voice recognition software (speech recognition) that helps people with disability giving commands to the computer and allowing commands translated into text on the computer screen.

4. Costs

The decision to provide the assistive technology or not, depends on the policy makers in the library because it is quite expensive. Considering the cost, at least public library should provide tracking balls and keyboards with large letters for the people with disability.

5. Availability the functions of Windows XP

In Windows XP, available systems such as enlarging the screen, voice command settings, touch the on-screen keyboard should be utilised. The system can be accessed by the user through the *Start feature, Accessories, Accessibility* from the main menu.

ANALYSIS OF DIGITAL LIBRARY WEBSITES IN INDONESIA

This section describes the digital library on the public library websites in five major cities in Indonesia. Some aspects were analysed like ease of access to the OPAC(Online Public Access Catalog), how adaptable a website providing digital services is, the speed of the network to access, easy access to public users, and availability of services for the people with disability.

Fig 1: The "best seller"Page

Digital Library of Surabaya (http://digital-library.surabaya.go.id/)

This website was built as a guide introducing the public library to the community of Surabaya city. A large part of the library's website contains information about services and collection in the library and includes organisational structure, the latest information of the library, activities that are being carried, products, services, articles, and digital libraries. Although having digital library features, this website is not categorised as digital library. This is due to the absence of an online catalog that can be accessed by the users and unavailability of digital books that can be read by the public. The website only lists book synopsis, so that people do not know about the whole book. This means the website is not working properly as a digital library is expected.

In this library's website there is digital library features, but the features do not function properly. Even for normal person who understands computer technology system, it is difficult to access thiswebsite, and it is more difficult for people with disability to find good information in the form of books and so forth. Fig.1 shows the digital library website of Surabaya.

As shown in Fig. 1, the digital library menu does not display the entire content of the books that a user wants to download; it only displays brief content of the collection. In addition, some pages and menus that are served on the website are difficult to access. It is due to the unavailability of content to show. This website displays only information and library profile. A lot of menu and facilities are still not functioning, so it hard to call it a digital library. Access to the digital library Surabaya website is relatively slow and often damaged when using a low-speed Internet connection.

Digital Library of Jakarta (http://www.bpadjakarta.net/)

Jakarta digital library's website has some links and an attractive appearance. There are many features and all the links can be accessed easily. However, there is no explanation of how to access the OPAC or how to register. Fig.2 shows e-library page of Jakarta digital library.

Fig 2:"E-Library" page

As seen in Fig.2, to access e-library, users must register by creating an account the link to which has been provided by the library. The e-library only serves a synopsis of the book, if someone wants to read all the content or borrow the book, they still have to visit the library. On this website there are no services for users with disability.

Digital Library of Medan (http://perpustakaan.pemkomedan.go.id)

This library gives a better service to the users because there

Fig 4:Catalog Page

are facilities of full digital books that can be accessed by the public, not just the synopsis. Fig.3 shows an example.

Fig 3:"E-Book" page

The collections displayed on this page are still very limited, so if a user needs to know another kind of collection, they have to come directly to the library. We can see the display of library OPAC in Fig. 4.

The catalog of this library can be easily accessed by the public without registering. The system also works quickly to find the information. Users who are looking for the collection can justuse the library OPAC, and need not visit the library. Website of library of Medan city is classified as website that already understands the desire of library users in the digital era, where OPAC and e-books facilities havebeen functioning well, although the contents of the collection have not been too much. But, still there are no digital library services for users with disability in that library.

Digital Library of Yogyakarta (http://perpustakaan.jogjakota.go.id)

Website of Yogyakarta city library is almost similar to Medan Library Website. Both have facilities OPAC and e-books which function properly, although it is not much. Fig. 5 shows the library website's service page of Yogyakarta.

On the library website of Yogyakarta city, user who wants to search digital collections would not face difficulties, because
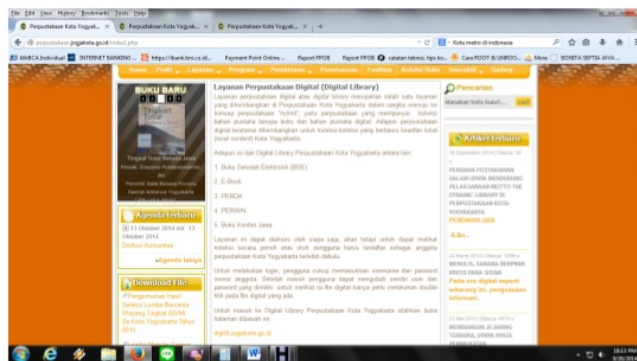
Fig 5: Digital Library Page

Fig 6:E-Book Page

Table 1: Digital Library Websites in Indonesia

No.	Aspect	Site				
		Surabaya	Jakarta	Medan	Yogyakarta	East Kalimantan
1.	OPAC	X	√	√	√	√
2.	Digital services 100%	X	X	X	√	√
3.	Quick access	X	X	√	X	√
4.	Ease togeneral users	√	X	√	√	X
5.	Services for people with disability	X	X	X	X	X

Source: Data Processed, 2014

the features offered on the website are relatively easy to access by a general user. But, like other digital library websites, we could not find a service for users with disability in this library.

Digital Library of East Kalimantan (http://perpustakaan.kaltimprov.go.id/)

Website of East Kalimantan digital library serves digital collection, and users who want to access the collection have to register onthe website. OPAC and other menus in this digital library function properly. Fig. 6 shows an e-book page from this library.

The digital library website of East Kalimantan already presents digital library services. The function menu has been running well on the website and can be accessed easily by users, with registration before searching and downloading books electronically. However, this digital library still does not have an access for people with disability to capture, codification, and sharing information and knowledge.

Based on the description of the digital library condition in several digital libraries in Indonesia, Table 1 shows the condition of each of the library websites based on some aspects.

Based on the overview of five digital library websites in Indonesia, it can be said that all websites are difficult to access either by public or by users with disability. The range of difficulty includes the problems like no contents in the menus, information collection incomplete, visit the library to have a complete collection, weak network connection and so on. The level of difficulty was even greater if the people with disability want to access the websites. From Table 1, we can see there is no website that is accessible to users with disability. There are not available system functions such as enlarging the screen, voice command settings, information in Braille writing, or information in audio format, which can be used by people with disability when accessing services in the digital library.

The availability of specific technologies can help the people with disability to access a website and get a lot of information. Indeed, they can only access all information with the aid of additional equipment, assistive technology, or additional specific software. If librarian can overcome the barriers, then the problems associated with the software,

operating system and programs that are used will be solved. Some aspects can support to build digital library, as we can see that the digital library websites of Yogyakarta and East Kalimantan are more ready as digital library in comparison to other three libraries. Of course, it takes a big support and effort to create a digital library which contains up to date information and can be easily and quickly accessed by the public including for users with disability.

CONCLUSION

A digital library should give all kinds of collections and services on the website and can be easily accessed by the users without having to come to the library and without difficult procedures. However, that condition is still not met in Indonesia, because all digital libraries do not adhere to the digital system as a whole. Libraries still use a hybrid system, which uses computer and Internet to manage the library, but collections and services still can't be enjoyed by all users through cyberspace.

Ideally, the concept of library should be for all, not just the idea which do not work in absence of the application. The library should have a commitment to serve all users under any circumstances, so that the library should endeavour to provide a facility that allows users to access information. Among all kinds of users, people with disability are also entitled to use the library facilities like a normal person. However, in fact until recently it is hard for most library services to meet the information needs of people with disability.

Many factors become barrier for people with disability to enjoy the facilities and services of the digital library. Such factors encountered include limited tools to perform the digitisation of special collections, expensive tools to access the collection but minimal funds to implement digitisation, which no doubt become a barrier for people with disability to find information and new knowledge for their daily life.

In general, a technology is usually designed to match the needs of a normal people. This has often led to the exclusion of people with disability in modern technology. The information available on the Internet will be less accessible by people with disability if assistive technology is not provided that bridges the barriers. By providing appropriate assistive technology, the library can ensure convenience for people with disability to access the information.

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