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# The Availability of Access for the Disabled users on Digital Library

Fitri Mutia

(Lecturer of Library and Information Sciences,  
Faculty of Social and Political Sciences Airlangga University-Indonesia)  
(fitri.mutia75@yahoo.co.id)

## Abstract

The necessity for attention to the availability of access for the disabled users other than because it is right for them, as well as the number of disabled users in Indonesia showed a tendency to increase year by year. Many things can cause the increasing number of disabled people in Indonesia, among others due to congenital defects, genetic factors, and infectious diseases as well as accidents. The disabled user that is difficult to 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 especially support tools in order to access the collection or information in digital form.

This study aims to identify the availability of access for disabled users in the digital library. This research is descriptive and analyzing digital library website display on websites of public libraries in five major cities in Indonesia. Based on the analysis, it is known that there is no public library websites that accommodate information needs of disabled people. Even some websites, it is still difficult to access by users were normal. May the results of this study be useful for a digital library at the public library websites in expanding the reach of services to the disabled user.

Keywords: Accessibility, Disabled users, the Digital Library

## PRELIMINARY

The appearance of the information era is characterized by the rapid development of information technology sector that is able to package their knowledge and information with the use of high technology (modern). Utilization 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) to liberate mankind from the limitations of time and space. Utilization of ICT continuously and on a larger scale (heavy users) becomes one of the characteristics of the information society<sup>1</sup>. In other words in the information society, ICT must be there, as consequently openness of access to information is an absolute must do it. Knowledge-based information society is a society that is aware of the usefulness and benefits information. The society has the knowledge and ability to access and utilize information and make the information as additional value in improving the 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 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 influence the type and amount of information that can be accessed by individuals.

A lot of available information through modern technology would not only be the right group of individuals, but also the rights and needs of each individual, including the disabled. With its limitations, the disabled should also receive optimal care in accessing information. Feature technology that can be used by everyone (including disability) is a system that was created in a flexible 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. It must be realized that the development of information technology, has spurred the creation of a special technology for the disabled to be able to access information easily.

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<sup>1</sup>Martin, William J. *The Global Information Society* (England: Aslib Gower, 1995), 7-8

In Indonesia, a portrait of the disabled community is still not a major issue for students of social, community and government. They are often considered second-class communities that the majority of the marginalized people who underestimated, considered a burden to the family as it has limitations, differences or disability. On the other hand, the availability of adequate access is the right of every individual, including for the disabled. All this time, the provision of access for the disabled to be easy to get the information is still limited to the library building. For example, the exit and entrance of the building, the use of a special lift to the library, special toilets, ramps for wheelchair users, and others which are physical. The existence of disabled users should receive serious attention not only because of the access of information is their right, but also the number of the disabled in Indonesia tends to increase year by year. If they do not get attention from this moment, the more people who neglected their information needs.

Based on the results of the 2003 SUSENAS is known that number of persons with disable person in Indonesia is estimated 2,454,359 inhabitants. Whereas in 2006, the data obtained in the Indonesian health and disability-based ICF (International Classification of Functioning, Disability and Health) developed by WHO, known as 1:38% of the population suffered disability or approximately 3.063 million inhabitants<sup>2</sup>. The number grows when viewed by the results of the census of 2010, the number of 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<sup>3</sup>. The causes of disability among accidental (victims of war, riots, accidents labor/industrial, traffic accidents), disability since birth or when in the womb, 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 disabled, but the implementation is not maximized. Many implementations of government policies that have not been in favor of the interests of the disabled so that they are vulnerable to discrimination and exclusion from nation-building activities. Whereas the UN resolution 48/96 1993, stated that each country recognizes the importance of Access in the process of the equalization of opportunities in all activities in the community<sup>4</sup>. State government in this case, is not enough to just provide a physical environment that is accessible to the disabled, but also must provide access to non-physical example of access to information (knowledge) and communicate in a broader scope.

In effort to build an information society including the disabled equip with knowledge, it can take advantage of the digital library as a center of information. Digital libraries should be enjoyed by the entire community in order to materialize the human resources (HR) quality. This is an important effort in order to help each individual to develop themselves, improve the quality of life and be able to increase the influence of his existence in the life of society.

### **Access for Human Rights**

Throughout human history, information and knowledge are an important thing that is always used, only on the past time, the information has not become a major commodity. Now, the existences of information occupy a more fundamental function even strategic in all areas of life. In the information society era, the power in the hands of community groups who controls the information. If the information is controlled by a specific group of people, it can lead to conflict because of an imbalance between the information held by individuals. By realizing this, if disabled people are not assisted in accessing information in order to realize their independence, then they will always be a group of people who were suppressed or controlled by other groups.

Access is human rights that have been declared universally applicable by the United Nations (UN Resolution # 48/96 of 1993) and ratified in the Indonesian legislation. Access is useful for

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<sup>2</sup>Irwanto et al. *Situation Analysis of Disability in Indonesia: A Desk-Review*. Depok: Center for Disability Studies, University of Indonesia Fisip, 2010. Accessed at <http://aid.dfat.gov.au/Publications/Documents/pwd-sit-bahasa.pdf>

<sup>3</sup>Rahayu, AnggerWiji. *Language, Data and Facts about Disabled people*, Accessed at <http://sosbud.kompasiana.com/2012/12/15/bahasa-data-dan-fakta-penyandang-disabilitas-511135.html>.

<sup>4</sup>Tarsidi, Didi. *Standard on the Equalization of Opportunities for Persons with Disabilities (UN Resolution # 48/96 1993)*, 1998. Accessed at <http://www.idp.europe.org/Indonesia/docs/per.standar>.

creating a barrier-free environment, safe and independent, negate 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, including the disabled.

Access 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 for individuals from accessing information through a variety of media and information center. System for accessing information should be designed to facilitate individuals to send and receive information, regardless of the degree of disability, age, or other limitations. Access disable person in a variety of media and information center should be easier with time and cost the same as the access used by normal individuals. Ideally, when a manufacturer makes a masterpiece of technology, must also take into account the use of its products by the disabled so that their market share expanded.

In Act 4/1997, Article 1, paragraph 4, stated also that Accessis an amenity provided for persons with disable person in order to achieve equality of opportunity in all aspects of life. This means that Accessis provided to create an environment that enables disabled people can live in a decent society. More specifically in Article 6, paragraph 4 of the law, clearly states that Accessis the right of everyone with special needs in order to live independently<sup>5</sup>. Keep in our mind, the disabled do not seek sympathy from normal society or the manufacturer of modern technology so that their attention in a way that is specially prepared 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 of individuals who 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 experience barriers (disability), but also a normalsociety<sup>6</sup>. For example, a location that is easily accessible can prevent accidents, a technology designed to simultaneously unify the normal individual needs and disable person would save the cost of production, and in the end, easy access to all community members will support the realization of sustainable development. Thus, access is available for all levels of society able to be opportunity to create conditions for the people who are able to play an active role on a larger scale (global).

### **Library Physical Access for Disabled**

Study of the physical library building accessfor the disabled has been quite widely discussed by several authors. Generally, the discussion is discussed with looking at the condition of the college library on providing building that is accessible to the disabled. For example, the central library of the University of Gadjah Mada (UGM) Yogyakarta became one of the buildings that provide access for the disabled. The driveway is in the form of a ramp and elevator with a low key for wheelchairs, have been provided. In addition, the plan space UGM library is placed near the elevator up to be used by all users including disabled users as it is equipped with Braille. The concern UGM library to access for the disabled is a form of support for the provision of opportunity for disabled people to receive education together with other students (inclusions system) in the university. Of course, the disabled who received at several faculty must meet certain requirements. Despite of about 6-7 thousand new annual students of UGM, there is only one or two students with disable person are accepted, but it is a very big impact on the realization of the independence of the disabled<sup>7</sup>. Some of the physical facilities so that students with disable person can move easily in the campus area has also been provided, for example ramp (which has a field path with a certain slope), a special bathroom, and lettered books in Braille.

Another example is the campus library of Airlangga University (building B) Surabaya, although there is also a relatively narrow ramp and left-right side is not equipped to handle. Libraries were constructed in the 1980s, there has been designed taking into account the needs of disabled users. It can be seen from the lift is available only in use for lifting. Though library building consists of three floors, it is certainly difficult for disabled users to access information on floor 2 and 3. In

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<sup>5</sup>Law No. 4/1997 on *Persons with Disabilities*.

<sup>6</sup>Baumel, Auriel. *Aksesability*. Magazine: Messenger of Health, 2006

<sup>7</sup>Bulak Sumur Pos. *Inovation for Person With Diferent Ability*. Media Communication University of Gadjah Mada, 2012, 6.

1998, it was built library on the campus C, this building has begun to facilitate disabled users, among others, provided a ramp that is wide enough, the elevator and bathrooms for the disabled.<sup>8</sup>

In UIN Sunan Kalijaga (Yogyakarta) and the University Brawijaya (Malang) also established the Center for Studies and Disability Services (PSLD)<sup>9</sup>. One academic support facilities are much in demand by the disabled because it provides easy access to information. Disabled Corner is integrated services of UIN Sunan Kalijaga's central library's collections are accessed by the disabled. The corner provides facilities of ICT to access information in the library. There are also books in braille letters and other facilities that facilitate disabled users in accessing information such as Al Qur'an in Braille, digital talking book of Mitra Netra production, and technology tools to facilitate access to the book, which is a computer equipped Jaws (Job Access With Speech - screen readers) that helps in navigating menus and contents of a computer, scanner and open book software, are software optic character re-cognition (OCR) that is accessible for the disabled who have obstacles in view. They can bring a book which is read on the corner, then scan the book to be a document in the file soft, and read soft file documents of the book with computer talk.<sup>10</sup>

In contrast to some previous studies, in this paper of authors discuss the availability of access to information for disabled people in the digital library website of public library. Some libraries sampled in this study is the public library website Surabaya city, DKI Jakarta, Medan, Yogyakarta and East Kalimantan. The author has two reasons why conduct a study on the public library digital library but so far more common in the college library. First of all, there are enough studies that discuss the theme of the digital library in the college library, therefore, the author would like to give a different picture of the condition of the digital library in the public library, especially in services for the disabled. The second reason, because of disable person can access public library is bigger than in college libraries, especially public libraries has been designed for all members of society, including the disabled. Disable person the opportunity to access information through the public library is certainly wider than the college library. For those with disable person who do not get an opportunity to go to college they can access information through the public library.

Besides, according to Atkinson and Dhiensa, the ideal public library is the main information center for the disabled in finding information<sup>11</sup>. This is motivated by the history that shows public libraries in Liverpool (UK) has been providing services for the disabled since 1857. At that time, the library provides books printed in Braille for the blind. Since then, services for the disabled had been developed not only to help those who are blind, but also people who are deaf, disabled and so on. And for discussion of digital library on special libraries such as in libraries (Foundation for Blind Children Persons) YPAB, Foundation for the Physically Disabled Children (YPAC) or Extraordinary School (SLB) which specifically provide services to disabled people, are still assessed, because there is no facility for accessing information digitally.

### **Digital Library and Disability**

The presences of technology like a golden opportunity for the disabled to improve their quality of life. Technology is able to provide opportunities for disabled people 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 disabled. Not just make the gap widening for the disabled in accessing information. The most important thing in a technology that is created is that its presence can be enjoyed not only by those who are normal, but also by the disabled.

Transfer of conventional libraries to digital libraries is triggered by the presence of ICT and the Internet is causing many collections available in digital form. The digital library is an organization that provides resources, including the preparation of staff specialized in selecting, structuring,

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<sup>8</sup>Puspitasari, *Guides For Disabled Friendly Libraries*. Papers, 2012

<sup>9</sup>Bulak Sumur Pos, *op.cit*, 11.

<sup>10</sup> Utami, Nadia Wasta.

*Sparkling dark gaps in the Information Era Digitalise*. Accessed at [https://www.academia.edu/5404179/Gelap\\_dalam\\_Gemerlap\\_kesenjangan\\_akses\\_informasi\\_difabel\\_di\\_tengah\\_era\\_digitalisasi](https://www.academia.edu/5404179/Gelap_dalam_Gemerlap_kesenjangan_akses_informasi_difabel_di_tengah_era_digitalisasi)

<sup>11</sup>Atkinson and Dhiensa, Jones (ed). *Improving Library Services to People With Disabilities* (Great Britain: Chandos Publishing: 2007), 2.

accessing, interpreting, disseminating, storing the results in the form of a digital work and presenting it economically for community purposes<sup>12</sup>. According to Hasibuan, digital library or a digital library system is the concept of using the internet and information technology in library management.<sup>13</sup>

Related to the concept of disability, hence the term disability is an acronym derived from the English phrase Different Ability, which after absorption into the Indonesian is disabled<sup>14</sup>. It was introduced in 1999 by some activists of the disability movement in Indonesia, this term appears based on the reality that every human being is created differently so they have different abilities. The word used instead of the term disabled people with disable person who impressed negative and discriminatory, in addition it was confirmed that there are no defects, there is only a difference.

Change the mention of people with disable person into disabled not only change the terms, however, alter the meaning of the recognition of the capabilities of the individual who has a physical condition (body) is different from the others. This change was made in order to gradually change the way the general public, that the disability is deemed not to have benefits for life and just be a burden to the normal<sup>15</sup>. The use of the term connotes a positive difference in the ability assessed, in contrast to the term defect is identified as a deficiency or something negative.

When a library wants to provide services to the disabled, then the library should know clearly how the characteristics of the disabled. According to the World Health Organization (WHO) on the international classification of functioning, disability and health, provide an overview of disability is a term that includes disturbance, activity limitations<sup>16</sup>, and participation restrictions. Disorders associated with problems in body function or structure, whereas the activity limitation is the difficulty faced by individuals in performing a task or perform an action. The participation restriction is a problem experienced by an individual to engage in public life. Thus 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 disabled condition arises due to the interaction of individuals with disable person with the surrounding environment that gave rise to barriers because it is not accessible to the disabled. More specifically, the disabled are a concern in this study are individuals who have limited see (visually disabled, blind), to hear and moving obstacles. Disable person whose experience barriers to notice usually includes individuals of the greatest obstacles in accessing information via computer media (internet)<sup>17</sup>. They require assistive technology is more variable than other types of disable person.

### **Technology and Information Access for Disabled**

Information technology offer new opportunities for disabled people to access information and perform communication between individuals, shop/trading from home, and other forms of participation such as searching for information, and even distance learning. A major obstacle for the disabled in the use of information technology is a form of design equipment such as keyboard, mouse, monitor and printer 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 who can read Braille text and so on.

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<sup>12</sup>Don Waters in Sugiharto, *Digital Libraries: A Discourse of Developing Library of the Future in Indonesia*. 2011. Accessed at [www.pdii.lipi.go.id/.../Sugiharto-Digital](http://www.pdii.lipi.go.id/.../Sugiharto-Digital) Library

<sup>13</sup> Hasibuan, at Umami. *Digital Libraries, And Prospects Towards Resource Sharing*. Vision Library, vol.14 / 1/2012. Accessed at [www.pnri.go.id/iFileDownload.aspx?ID...Digital.pdf](http://www.pnri.go.id/iFileDownload.aspx?ID...Digital.pdf)

<sup>14</sup>Bulak Sumur Pos, *op.cit.* 3.

<sup>15</sup>Asyhabuddin. *Disability and Inclusive Education: Chances at STAIN Purwokerto*. Thought Journal of Alternative Education, INSANIA Vol. 13 / No. 3 / September- December 2008.

<sup>16</sup>Hernon dan Calvert, *Improving The Quality of Library services For Student With Disabilities* (London: Greenwood Publishing, 2006), 4.

<sup>17</sup>Paciello, Michael. *Web Accessfor People With Disable person* (Kansas: CMP Media Inc, 2000), 7-9.



For the producers of technology, in fact they do not create a new pure technology. How it works traversed by disabled when accessing information about the same as when an electronic media presents a collection accessible by normal individuals, starting from the beginning to the end. By utilizing a document processing tool, the texts are converted and then generate collections in digital form. This is the same as when processing a collection of books into Braille writing, or into a book "voice".

The presence of information technology has enabled a (collection) is widely accessible and in large numbers by the public. Seeing the opportunity, libraries can provide collection in a variety of formats so that the library can perform the function library extensively. Librarians should also be responsive to the needs of disabled people when they want to search for information, for example by providing special equipment for the disabled who have barriers to the printed paper (print disability) as well as those who are blind, so as to overcome the barriers they face. As mentioned in the introduction on this paper, the number of disabled people from year to year continues to increase. In fact, WHO estimates that in 2020 the numbers of disabled people in particular are experiencing visual barriers reached 76 million people world population<sup>18</sup>. As a result, there are a number of that, users candidate who can't read ordinary printed collections, they require the collection is printed with Braille or converted collections in digital form (sound).

Various types of collection provided by public libraries ranging from printed books, e-books, online journals and so on, providing an alternative for the disabled to access the information. Along with the presence of the digital era, the collection that is used to access manually (printed in large size), was changed to access electronically. Currently, some public libraries offer a portal that can be accessed by users online, so that users can enjoy services such as online news, online journals, e-books and so on. Of course, the collection should also be accessible to disabled people for example by storing the desired information and 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 disabled in accessing information that can be prepared right solution. The rights for the disabled to access information impact needs to hold tools (Assistive Technologies) for them. Thus, the information that was initially difficult to access, in the presence of assistive technology becomes easy to access. Assistive technology is a product, tool, equipment, modified or customized to enhance the ability of disabled 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 no other additional tools that need to be installed prior to use by the disabled, but the price is relatively expensive technology. Besides, there are also specific information that can't be translated (read) by assistive technologies (screen reader) as information in the form of images, advertisements, illustrations, and formula (mathematics, physics, chemistry) as assistive technology is only able to read the text in the form of a sentence.<sup>19</sup>

Ease or difficulty of use of a technology, it can be seen when the technology in the hands of those who need it. Accessible technology is a form of technology that is able to meet the unique needs of each individual. Some assistive technologies are:<sup>20</sup>

1. Pointing device

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

2. Alternative keyboards

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<sup>18</sup>Atkinson dan Dhiensa, Jones (ed.), *Op. Cit.*, 4.

<sup>19</sup>Tilley, Bruce and Hallam, at Jones (ed.) *Adaptive Technology for People With Physical Disabilitites Using Information and Communications Technology* (Great Britain: Chandos Publishing, 2007).

<sup>20</sup>McMenemy and Burton at McMenemy and Poulter. *Delivering Digital Services* (London: Facet Publishing 2005), 26-27.

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

### 3. Solution using software

Disable person whose experience barriers to see will have difficulty reading the text that appears on the screen. Solutions that can be done by using JAWS software, to read on a computer screen. This software is able to read the writing on the screen, informing when there is a picture or a link to the current page (read). In addition, there is also the voice recognition software (speech recognition) that helped disabled people to give commands to the computer and allows commands are 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 costs should be budgeted quite large. But at least in the public library, for the disabled are provided tracking ball and a keyboard with large letters.

### 5. Availability of the functions of Windows XP

In Windows XP, available systems such as enlarging the screen, voice command settings, touch the on-screen keyboard. The system can be accessed through the Start feature, Accessories, Accessfrom the main menu.

## Condition Analysis of Digital Library at the Public Library in Indonesia

This section describes the way of the digital library on the condition of public library websites in five major cities in Indonesia. As seen among other aspects regarding the ease of access to the OPAC (Online Public Access Catalog), how adaptable a website providing digital services, the speed of the network to access, easy access to public users and availability of services for the disabled.

### A. Website of Surabaya Library (<http://digital-library.surabaya.go.id/>)

This website was built as a guide and introduction to the public library to the community of Surabaya city. A large part of the library's website contains information about what's in the library, includes organizational structure, the latest information from the library, activities that will be carried on, products, services, articles, and digital libraries. Although there is a digital library features, but this website can't say as a digital library. This is due to the absence of an online catalog that can be accessed by the user through the website, including the unavailability of digital books that can be read (accessed) by the public. View website only lists a synopsis alone, so that people can't see the whole book to be downloaded. It can be said, the website is not working properly digital library expected.

In the library's website there is a digital library features, but those features do not function properly. Although normal person is understood about the world of computer technology, it is difficult to access this website, especially the disabled would be more difficult to find a good information in the form of books and so forth. Figure below show the digital library website Surabaya:

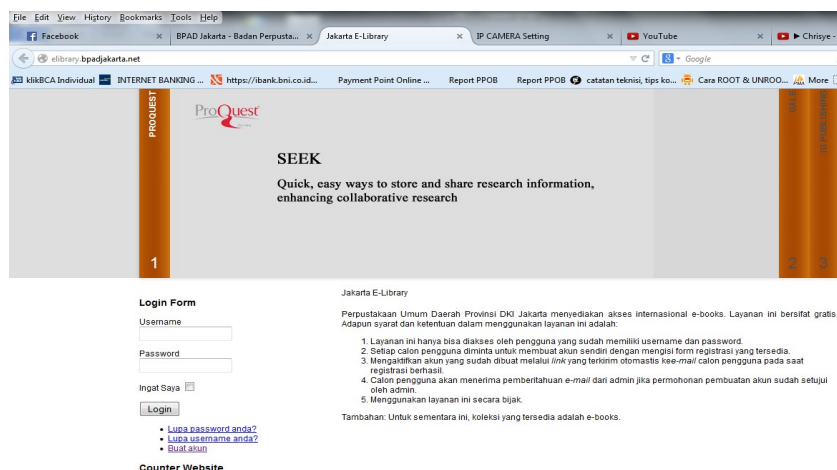


Based on the picture above, it appears that the digital library menu does not display the entire contents of the book to be downloaded by the people of the city of Surabaya, so only briefly display the contents of the collection and can only be read in the library location. In addition, some pages and

menus are served in the website can't be accessed, it is due to the unavailability and yet the inclusion of content to be in the show. This website only displays information and profile library, still a lot of menus and facilities are not functioning that can't be said as a digital library. Access to the library website Surabaya is still relatively slow and zoom often damaged when using a low-speed internet connection.

## B. Website of Jakarta Library (<http://www.bpadjakarta.net/>)

Jakarta library's website has some links and an attractive appearance. There are many features



and all the links can be accessed easily. However, to access the OPAC does not appear explanation of how visitors can access it (how to register). Figure below show e-library page of Jakarta library:

Figure 2. E-Library page of Jakarta Library

As seen in the picture above to access the e-library, users must register by creating an account that has provided the link (link) by the library. Only currently available in the e-library library Jakarta is an e-book that displays not only all of synopsis of the contents of the book. As for borrowing, users still have to visit the library. On this website there are no services for disabled users.

## C. Website of Medan Library (<http://perpustakaan.pemkomedan.go.id>)

Library website of this city is more perfect because there is a facility of e-books that can be accessed by the public digitally and in book form as a whole (not just the synopsis). The following figure shows an example:

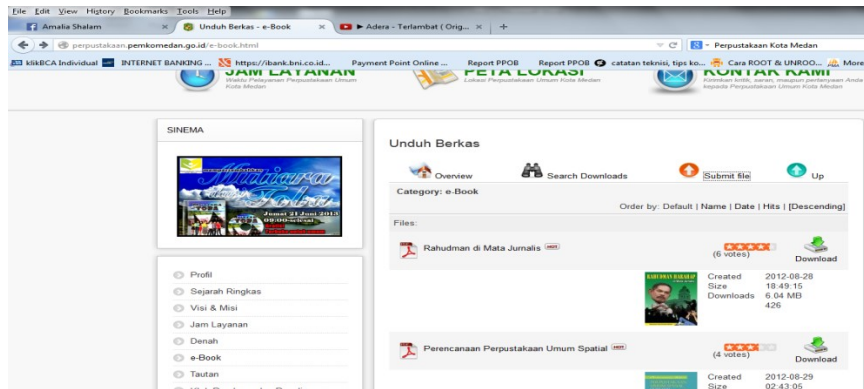


Figure 3. Display page E-Book Medan Library

Collections are displayed on e-book page on the website is still very limited, so if you want to know the other books collection, users have to come directly to the library. The OPAC display library website as follows:

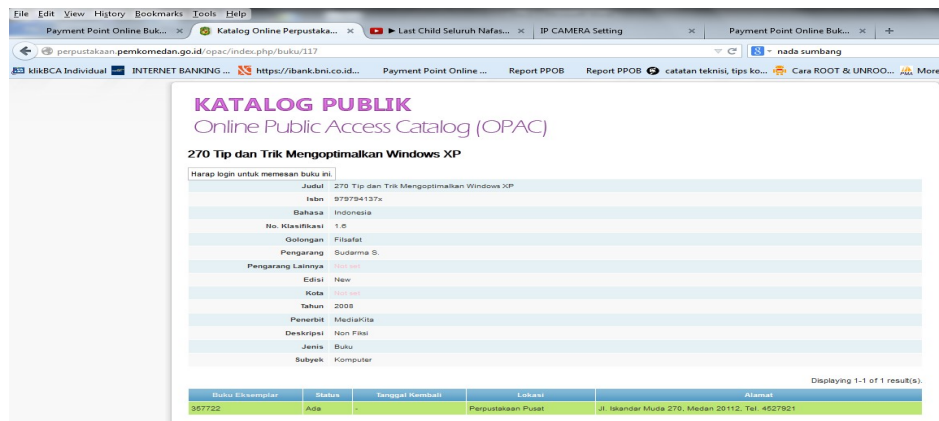


Figure C.3 Catalog Page Display Medan Library

For catalog the library website of the city has entered the category is classified as a digital library, because it can be easily accessed by the public without having to register. The system also works quickly search to find the information. Users who are looking for the collection, doesn't have to come to the library, but they can use the library OPAC website. Website library of Medan city is classified website that already understand the desire library users in the digital era, where OPAC and e-book has been functioning well, although the contents of the collection has not been too much. Besides, there are no digital library services for disabled users in the library.

#### D. Website of Yogyakarta Library (<http://perpustakaan.jogjakota.go.id>)

Website library Yogyakarta city is almost similar with Medan Library Website. Both have facilities OPAC and e-book function properly, although it is not much. Here is a picture page of the library website service in the city of Yogyakarta:



On the website of Yogyakarta city library users who want to search the digital collections will not be difficult, because the facilities are on offer in the website is relatively easy to be accessed by the general visitors. On this website not found a special service for disabled users.

#### E. Website of East Kalimantan Library (<http://perpustakaan.kaltimprov.go.id/>)

Website library east Kalimantan is a collection digitally, and users who want to access the service first have to register to the website. OPAC and other menus in this website is functioning properly. The following viewed page e-book library website:

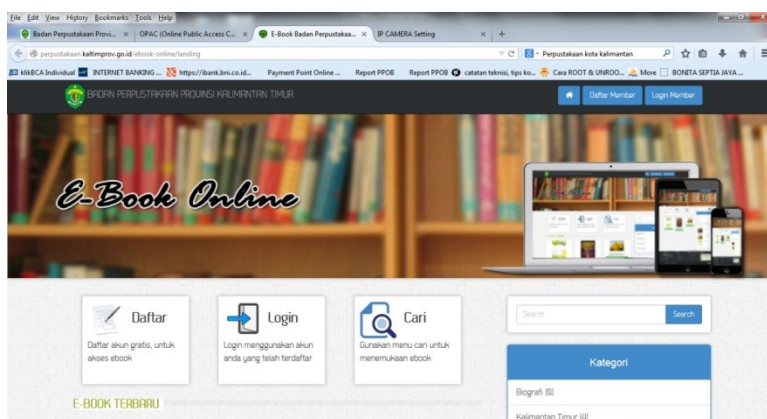


Figure 5. Page eBook Library website East Kalimantan

Website library east Kalimantan is presenting digital library service, the function menu has been running the website and can be accessed easily by users, with registration before searching and downloading books electronically. However, that has not been digital library services for the disabled on the library website.

Based on the description of the digital library condition in several public libraries in Indonesia, the following table will show the condition each of the library website based on some aspects as follows:

Table 1  
Digital library access on the Public Library Website in (some city) Indonesia

No.	Aspect	Site				
		Surabaya Library	Jakarta Library	Medan Library	Yogyakarta Library	East Kalimantan Library
1.	OPAC	X	V	V	V	V
2.	Digital Services 100%	X	X	X	V	V
3.	Quick Access	X	X	V	X	V
4.	Ease of general Users	V	X	V	V	X
5.	Services for the disabled	X	X	X	X	X

Source: Data processed, 2014.

Based on the overview of the digital library website for five public libraries in major cities of Indonesia, it appears that, conditions are still difficult to access either by public or difabled users Starting from the problems that are difficult to access features, menus are no contents, information collection incomplete, obtain a complete collection still have to visit the library, which is sometimes weak network conditions and so on. The level of difficulty was even greater if the disabled community groups want to access the website. Can be seen in Table 1, there is no website that is accessible to the disabled. Indeed, the disabled can only access with the aid of additional equipment, assistive technology or add specific software. But when you see the website at the public library, is still not available system functions such as enlarging the screen, voice command settings, information in Braille writing, and information in audio format, which can be used by disabled people when accessing services in the existing digital library the website of the public library.

The availability of specific technologies can help the disabled to access a website and get a lot of information. If these barriers can be overcome, then the problems associated with the software, operating system and programs that are used can be overcome. Judging from the aspects that support the realization of the digital library, the library website in general the city of Yogyakarta and East Kalimantan more readily called digital library other than the three libraries. Of course, it takes effort sincerely to realize a digital library that can be easily, quickly and contains information that is up to date, to be accessed by the public. One thing to also be realized is the availability of access for disabled users on the website.

### Conclusion

The library is named a digital library if it can full all kinds of collections and services on the website and easily accessed by the user without having to come to the library locations including also without difficult procedures. However, the condition is still not met in Indonesia, because not all digital libraries in Indonesia adhere to the digital system as a whole. Libraries still use a hybrid system, which despite being a computer and internet use in the management, collections and services but still can't be enjoyed to the fullest by a wide circle through cyberspace (the internet).

Ideally, the concept of a library for all not just the idea of the absence of the application. The library should have a commitment to serve all users under any circumstances, so that the library should endeavor to provide a facility that allows users to access information. Among those with disable person are also entitled to use the library facilities like a normal person. However, in fact until recently most library services can't be used by the disabled.

Many factors have to be a barrier for the disabled to be able to enjoy the facilities of the digital library. Factors such problems were encountered limited tools to perform the digitization of special collections disable person, expensive tools to access the collection and minimal funds to implement digitization, no doubt become a barrier for disabled people to find information and new knowledge for himself.

In general, a technology designed to match the needs of a normal individual. This has often led to his exclusion the disable person of modern technology. The information available in the Internet media will be less accessible to the disabled if not provided assistive technology that bridges the barriers. By providing appropriate assistive technology, the library can ensure convenience for disabled people to access the information.

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## **2. Bukti konfirmasi review dan hasil revisi pertama(19 Oktober 2015)**



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Your paper Title **The Availability of Access for the Disabled users on Digital Library** is accepted for Publication in International Journal of Knowledge Management and Practices based on minor corrections mentioned below:

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Please mark the corrections in red and mail us your revised file and scanned copy of duly signed and filled copyright form attached herewith by 26<sup>th</sup> October 2015.

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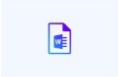

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# **The Availability of Access for User with Disability on Digital Library**

## **Abstract**

The necessity attention to the availability of access for user with disability not only because it is rights for them, but also their number in Indonesia showed a tendency to increase every year. Many things can cause the increasing number of people with disability in Indonesia, among others due to congenital defects, genetic factors, and infectious diseases as well as accidents. The user with disability that is difficult 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 try to analyzing digital library display on websites of public libraries in five major cities in Indonesia. Based on the research, we can see that almost none digital library that accommodate information needs of people with disability, even some websites, are still difficult to access by normal users. In the future, digital library should give a better service not only for normal user but also for user with disability.

Keywords: Accessibility, User with disability, Digital Library

## **Introduction**

The appearance of the information era where characterized by the rapid development of information technology sector that is able to package their knowledge and information with the use of high technology (modern). Utilization 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) help people to liberate from the limitations of time and space. Utilization 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 cause 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 utilize 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 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 influence the type and amount of information that could be access by individuals.

A lot of available information through modern technology would not only be the rights of special groups, but also the rights 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 used by everyone (including people with disability) is a system that was created in a flexible 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 realize 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 communities, marginalized 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 rights of every individual, including for 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 rights, 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, would be more people who neglected their information needs.

Based on the results of the National Census (2003), the number of persons with disable in Indonesia estimated 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), known as 1:38 % of the population suffered disability or approximately 3.063 million inhabitants (Irwanto, 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 happen because of some reason like accidental (victims of war, riots, accidents labor/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, but the implementation still not maximized. Many implementations of government policies have not been in favor 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 recognizes the importance of access in the process of the equalization of opportunities in all activities in the community (Tarsidi, 1998). State government in this case, is not enough just provide a physical environment that 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 that equip with information (knowledge), it can take advantage from digital library as one of information center. Digital library should be accessible and easy to use by the entire community in order to maximize 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 known as important thing that always used, only on the past time, the information has not become a major commodity. Now, the existences of information occupy a more fundamental function even strategic in all areas of life. In the information society era, the power in the hands of person or community groups who controls the information. If the information controlled by a person or specific group of people, it can lead conflict because of imbalance between the information held by individuals. By realizing this, if people with disability not assisted in accessing information in order to realize their independence, then they will always be a group of people who suppressed or controlled by other groups.

Access is human rights that 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, negate 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, including the people with disability.

Access 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 media and information center. System for accessing information designed to facilitate individuals to send and receive information, regardless of the degree of disability, age, or other limitations. Access of people with disability in a variety media and information center should be easier with time and cost the same as the access used by normal individuals. Ideally, when a manufacturer makes a masterpiece of technology, must also take into account the use of its products by the people with disability so that their market share expanded.

In Act 4/1997, Article 1, paragraph 4, 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 provided to create an environment that enables people with disability can live in a decent society. More specifically in 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 so that their attention in a way that is specially prepared 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 who 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), but also a normal society (Baumel, 2006). For example, a location that is easily to access can prevent accidents, also 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 realization of sustainable development. Thus, access is available for all levels of society able to be 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 start with looking at the condition of the university library on providing building that is accessible for people 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 is in the form of ramp and elevator with a low key for wheelchairs, have been provide. In addition, the space plan about UGM library near the elevator and 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 the opportunity for people with disability to receive same education with other students (inclusions system) in the university. Of course, the people with disability who already accepted at several faculties should meet certain requirements. Despite of about 6-7 thousand new annual students at UGM, there only one or two students with disability are accepted every year, but it give big impact on the realization of the independence of the people with disability (Bulak Sumur Post, 2012). Some of the physical facilities that help students with disability to 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 not equipped with handle. The library ware constructed around 1980, there has not been designed taking into account the needs of user with disability. It can be seen from the lift is available only in use for lifting

some goods (books). Though library building consists of three floors, it is certainly difficult for user with disability to access collection and service on floor 2 and 3. In 1998, University of Airlangga built library on the campus C, which facilitate physical access for user with disability like providing a ramp that wide enough, the elevator and toilet for the people with disability (Puspitasari, 2012).

In Islamic University of Sunan Kalijaga (UIN) Yogyakarta and University of Brawijaya Malang, also established the Center for Studies and Disability Services (PSLD) (Bulak Sumur Post, 2012). This center becomes one academic support facilities that 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 user with disability in accessing information. For example like Al Qur'an in Braille, digital talking book which produce from Mitra Netra, computer equipped with JAWS (Job Access With Speech) that helps in navigating menus and contents on computer screen, also scanner and printer Braille software, Optic Character Re-cognition (OCR) software which help people with print 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 are the public library websites Surabaya, DKI Jakarta, Medan, Yogyakarta and East Kalimantan. The researcher has two reasons why conduct a study about digital library on the websites of public library, which 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, because of people with disability has the opportunity to access public library wider than university libraries, especially public libraries has been designed for all members of society, including the people with disability. In other word, 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, the ideal public library is the main information center for the people with disability in finding information (Atkinson and Dhiensa, 2007). This motivated by the history that shows public libraries in Liverpool (UK) has been providing services for the people with disability since 1857. At 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. For 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, are still difficult, because there are only few facility (almost none) to accessing information digitally.

### **Digital Library and Disability**

The presences of technology like 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, not just create a wide gap for the people with disability in accessing information. The most important thing in a technology is the fact that its presence could enjoyed not only by those who are normal, but also by the people with disability.

A change from conventional library to digital library triggered by the presence of technology and the internet that cause many collections available in digital form. A digital library known as organization that provide resources, including the preparation of staff specialized 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.

Discussing related to the concept of disability, hence the term disability is an acronym derived from the English phrase *Different Ability*, which after absorption into Bahasa Indonesia become disabled or people with disability (Bulak Sumur Post, 2012). The word began introduced in 1999 by some activists of disability movement in Indonesia, this term appears based on the reality that every human being created differently so they have different abilities. The word change into “people with disability” to disappear negative impressed and discrimination, and besides that, it is confirmed that no defects but only a difference.

Change the label of people with disability into people with people with disability not only change the terms, however, alter the meaning of the recognition of the capabilities of the individual who has a physical condition (body) is different from the others. This change was made in order to gradually change the way public opinion, that the disability is deemed not to have benefits for life and just be 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 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, provide an overview of disability is a term that includes disturbance, activity limitations and participation restrictions (Hernon dan Calvert, 2006). Disorders 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 people with disability condition arises due to the interaction of individuals with people with disability with the surrounding environment that 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 limited (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 offer new opportunities for people with disability to access information and perform communication between individuals, shop/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 a form of design equipment such as keyboard, mouse, monitor and printer 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 who can read Braille text and so on.

For the producers of technology, in fact they do not create a new pure technology. How it works when people with disability accessing information, would be the same as when an electronic media presents a collection that accessible for normal individuals, starting from



the beginning to the end. By utilizing a documents processing tool, the texts are converted and then generate collections 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 numbers by the public. Seeing the opportunity, libraries should provide collection in a variety formats so that the library can perform the function of library extensively. 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 numbers of people with visual disability reached 76 million people world of population (Atkinson dan Dhiensa, 2007). As a result, there are number of users who not abled 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, 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 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 access in prints, becomes easy with the presence of assistive technology. Assistive technology is a product, tool, equipment, modified or customized 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 no other additional tools that need to be installed prior to use by the people with disability, but the price is relatively expensive. Besides that, another difficulties from this technology are specific information can't be translated (read) like information in the form of images, advertisements, illustrations, and formula (mathematics, physics, chemistry) as assistive technology only can read the text in the form of a sentence (Tilley, Bruce and Hallam, 2007).

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

#### 1. Pointing device

Many people with disability who have difficulty when settings (navigation) on the desktop with the mouse which 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, then people with disability can easily run the computer desktop.

#### 2. Alternative keyboards

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

#### 3. Solution using software

People with visual disability will have difficulty reading the text that appears on the screen, so it better to using JAWS software to read on computer screen. This software able 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 helped people with disability give commands to the computer and allows 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 costs quite expensive. Considering the cost, at least public library provided tracking ball and a keyboard 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. The system can be access by the user through the *Start feature, Accessories, Accessibility* from the main menu.

### Analysis of Digital Library Websites in Indonesia

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

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

This websites was built as a guide and introducing the public library to the community of Surabaya city. A large part of the library's websites contains information about service and collection in the library, includes organizational structure, the latest information from the library, activities that carried on, products, services, articles, and digital libraries. Although there is a digital library features, but this websites not categorize as digital library. This is due to the absence of an online catalog that can be access by the user through the websites, including the unavailability of digital books that can be reads by the public. The websites only lists a book synopsis, so that people do not know the whole book, this means the websites is not working properly as digital library expected.

In this library's websites there is a digital library features, but the features do not function properly. Even for normal person who understood about computer technology system, it is still difficult to access this websites, and it is more difficult for people with disability to find good information in the form of books and so forth. Figure 1 show the digital library websites Surabaya :



Figure 1. The "best seller" Page

Based on the figure 1, the digital library menu does not display the entire contents of the books that user want to download, only display brief contents of the collection and read it in the library location. In addition, some pages and menus that served in the websites difficult to accessed, it is due to the unavailability content to show. This websites only displays information and library profile, a lot of menu and facilities are still not functioning, so it hard to say as a digital library. Access to the digital library Surabaya websites relatively slow and often damaged when using a low-speed internet connection.

## B. Digital Library of Jakarta (<http://www.bpadjakarta.net/>)

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

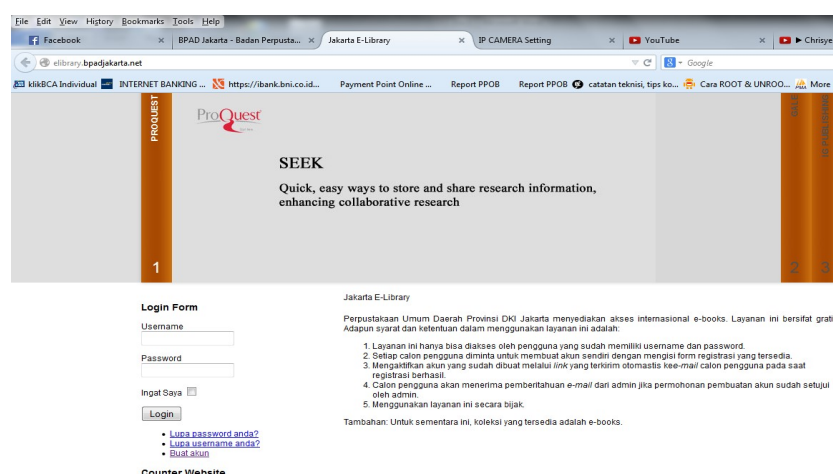
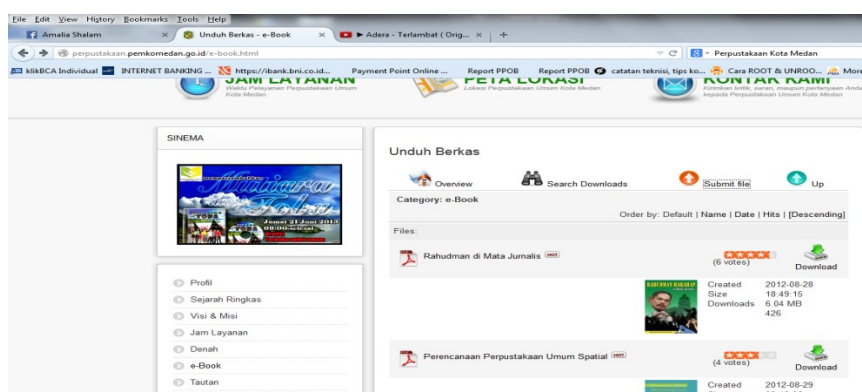


Figure 2. "E-Library" page

As seen in figure 2, to access e-library users must register by creating an account that has provided the link by the library. The e-library only serve a synopsis of the the book, if someone want to read all the content or borrowing the book, they still have to visit the library. On this websites there are no services for user with disability.

## C. Digital Library of Medan (<http://perpustakaan.pemkomedan.go.id>)

This library gives a better service for the user because there are facility of full digital books that can be accessed by the public digitally , not just the synopsis. Figure 3 shows an



example:

Figure 3. "E-Book" page

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

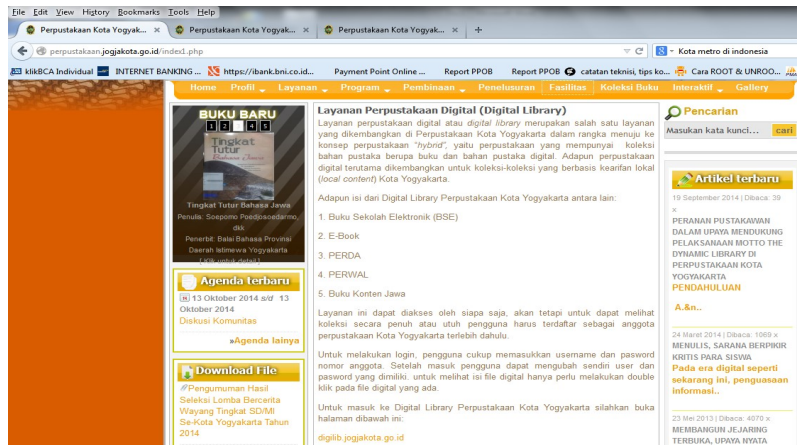


Figure 4: Catalog Page

The catalog of this library can be easily access by the public without register. The system also works quickly search to find the information. Users who are looking for the collection just use the library OPAC, and no need for them to visit the library. Websites library of Medan city is classified as websites that already understand the desire library users in the digital era, where OPAC and e-book has been functioning well, although the contents of the collection has not been too baru. But, still there are no digital library services for user with disability in that library.

#### D. Digital Library of Yogyakarta (<http://perpustakaan.jogjakota.go.id>)

Websites of Yogyakarta city library is almost similar with Medan Library Websites. Both have facilities OPAC and e-book function properly, although it is not much. Figure 5 show the library websites service page of Yogyakarta:



Figure 5. Digital Library Page

On the library websites of Yogyakarta city, user who wants to search digital collections would not facing difficulties, because the facility that offers in the websites are relatively easy accessed by a general user. But, like other digital library websites, we not found a service for user with disability in this library.

**E. Digital Library of East Kalimantan (<http://perpustakaan.kaltimprov.go.id/>)**

Websites of East Kalimantan digital library serve digital collection, and users who want to access the collection have to register to the websites. OPAC and other menus in this digital library, have functioning properly. The figure 6 viewed e-book page from this library:

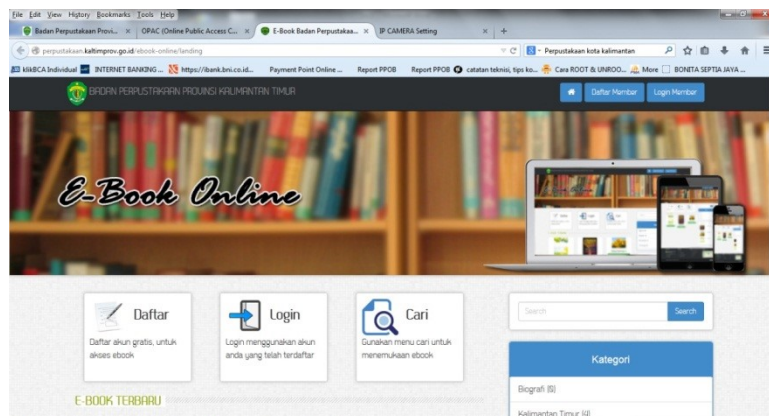


Figure 6. E-Book Page

The digital library websites of East Kalimantan already present digital library service, the function menu has been running well the websites and can accessed easily by users, with registration before searching and downloading books electronically. However, this digital library still not having 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, the table 1 will show the condition each of the library websites based on some aspects as follows:

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 to general users	√	X	√	√	X
5.	Services for people with disability	X	X	X	X	X

Source: Data processed, 2014.

Based on the overview from five digital library websites in Indonesia, all websites are still difficult to access either by public or by user with disability. The difficulty starting from the problems features access, 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 websites that is accessible for user 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 used for people with disability when accessing services in the digital library.

The availability of specific technologies can help the people with disability to access a websites and get a lot of information. Indeed, they can only access all information with the aid of additional equipment, assistive technology or add specific software. If librarian can overcome the barriers, then the problems associated with the software, operating system and programs that are used will be solve. Some aspects that support to build digital library, as we can see that the digital library websites of Yogyakarta and East Kalimantan more ready as digital library other than the three libraries. Of course, it takes a big support and effort to create a digital library which can be easily, quickly and contains up to date information that accessed by the public including for user with disability.

## **Conclusion**

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

Ideally, the concept of library for all, not just the idea that absence of the application. The library should have a commitment to serve all users under any circumstances, so that the library should endeavor to provide a facility that allows users to access information. Among all kind 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 a barrier for people with disability to enjoy the facilities and services of the digital library. Such factor were encountered limited tools to perform the digitization of special collections, an expensive tools to access the collection but minimal funds to implement digitization, no doubt become a barrier for people with disability to find information and new knowledge for they daily life.

In general, a technology 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 in the internet will be less accessible to people with disability if not provided assistive technology 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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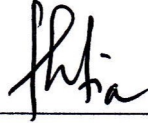
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# THE AVAILABILITY OF ACCESS FOR USER WITH DISABILITY ON DIGITAL LIBRARY

FitriMutia\*

*\*Lecturer of Library and Information Sciences, Faculty of Social and Political Sciences Airlangga University, Indonesia. Email: fitri.mutia75@yahoo.co.id*

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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.

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 in the 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 be barrier-free when all these parts can be accessed by the people including them with disability.

Access through 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 of people with disability in a variety of 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 easy to 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 for people 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 (inclusion 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 at UGM, only one or two students with disability are accepted every year, but it gives a 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 disability to 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 was constructed around 1980; 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 centre 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 Braille software, Optic Character Recognition (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 have been 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 create a wide gap for the people with disability in accessing information. The most important thing in a technology is the fact that its presence could be 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 disability try 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 texts are 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 reach 76 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 can only 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://digitallibrary.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 this website, 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.

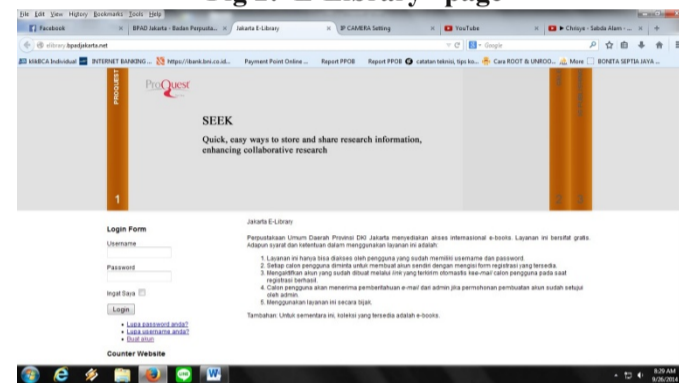
As shown in Fig. 1, the digital library menu does not display the entire content of the books that a user wants to download; it only displays brief content of the collection. In addition, some pages and menus that are served on the website are difficult to access. It is due to the unavailability of content 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**

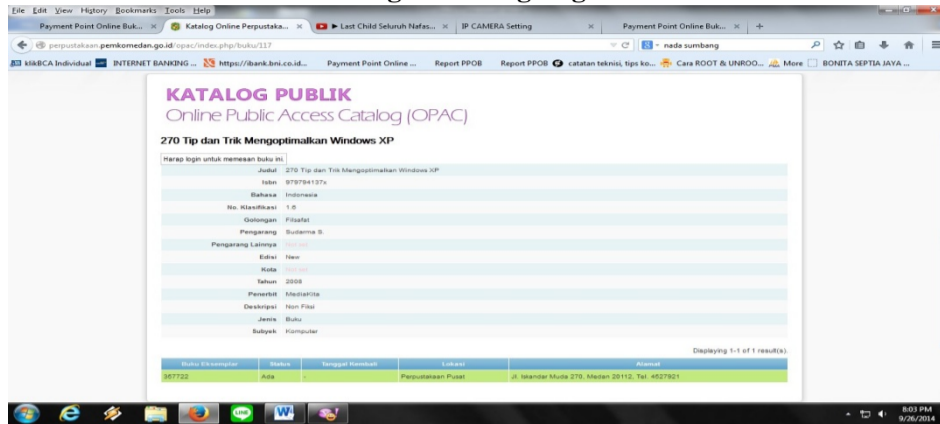


As seen in Fig.2, to access e-library, users must register by creating an account the link to which has been provided by the library. The e-library only serves a synopsis of the book, if someone wants to read all the content or borrow the book, they still have to visit the library. On this website there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

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

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

**Fig 4:Catalog Page**

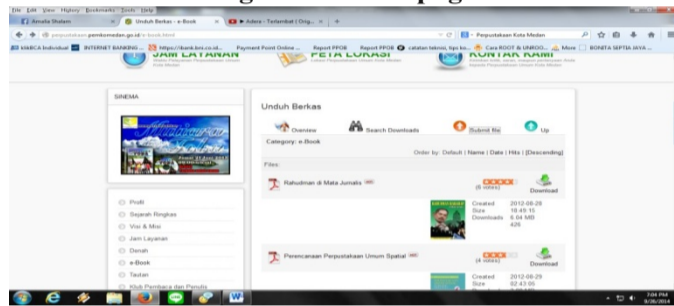


for the collection can just use the library OPAC, and need not visit the library. Website of library of Medan city is classified as website that already understands the desire of library users in the digital era, where OPAC

This library gives a better service to the users because there are facilities of full digital books that can be accessed by the public, not just the synopsis. Fig.3 shows an example.

and e-books facilities have been 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.

**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.

**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**

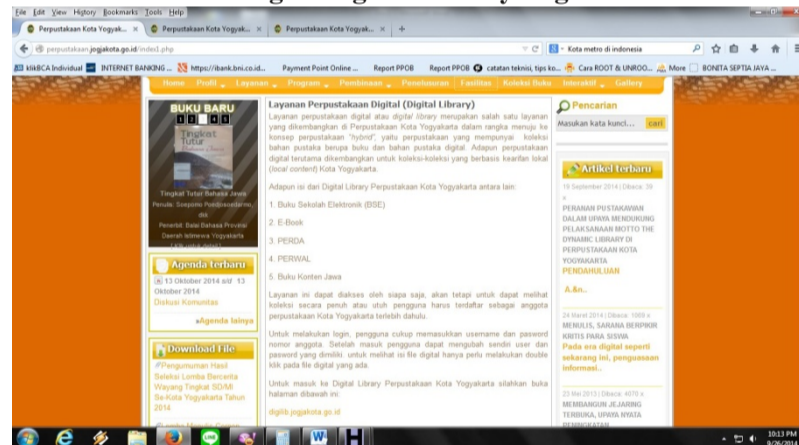


Fig 6:E-Book Page

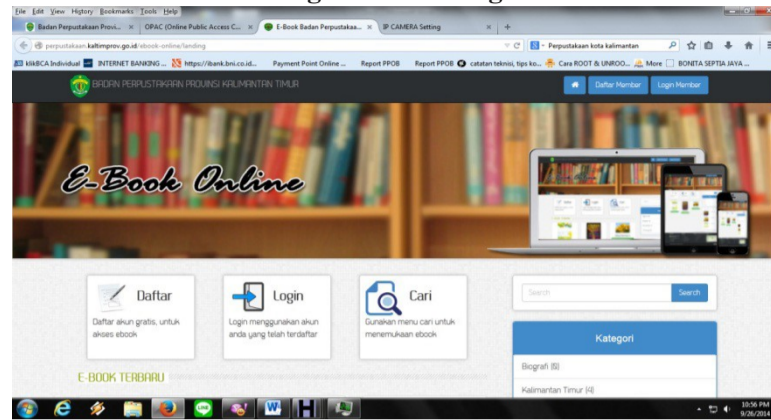


Table 1: Digital Library Websites in Indonesia

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 to general 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 on the 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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