

Digital Literacy: Empowering Indonesian Women in Overcoming Digital Divide

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Abstract—The advance of information and communication technology has brought some changes to the society. Unfortunately, in Indonesia, it carries with its consequences, such as digital literacy. Based on the studies of the field, women's involvement is lower compared to that of men. The divide in digital literacy is due to several factors; those are geographic factor, skills and education, government policy, as well as economic and cultural systems. The urgency has signified the need to empower Indonesian women in using technology through digital literacy. It is expected that women will not only gain information, but also improve their quality of life. The efforts were taken through increasing Indonesian women's capacity through five competences: access, analyze and evaluate, create, reflect, and act.

Keywords: digital literacy, digital divide, women empowerment

I. INTRODUCTION

The development of digital technology in Indonesia has experienced rapid progress. People interact with digital technology almost every day, from waking up to going back to sleep. Digital technology does not only support the people's daily activities, but also bring many fundamental changes in almost all aspects of life. Besides, the desire to connect easily with relatives, friends, colleagues, business friends, and so on, leads some people to always go online. In this phase, the community has entered the era of digital society. Digital literacy is very important in today's era of digital society. Digital society is a society that cannot be separated from digital technology and the internet to support the needs of gaining information in everyday life. Digital technology can give a big contribution if people have the ability and good skills in its use. These conditions have required anyone to have the literacy, skill, or ability to use and utilize digital media.

The use of digital technology in Indonesia is still dominated by men. This can be seen from the data of in 2017, showing several 143.26 million people, equivalent to 54.68 percent of the total population of Indonesia [1]. This number shows an increase of 10.56 million people from the results of the 2016 survey of 132.7 million [2]. The composition of internet users by sex shows 48.57 percent of women and 51.43 percent of men. Based on these data, there is still a digital divide between men and women in Indonesia, where there are many Indonesian women who do not know how to use digital technology effectively. The Ministry of Women's Empowerment and Child Protection (2012) in its study found that most women have little knowledge, ability, and opportunity of access to technology. According to Susianawati in the National Seminar in the Main Meeting Room of the Rector of UNY, Wednesday, December 20, 2017, the barriers of women in using technology include a

lack of confidence, no money, inability to use smartphones, laptops or high-tech devices, and a lack of training in technology.

Digital divide is not only seen in the internet fluency between men and women, but also the accepted role in the field of information and communication technology. According to the development of information technology is still dominated by men [3]. In the context of the public space, the role of women in the work industry in the use of digital technology is mostly in administrative positions, such as handling email, processing the data, handling the operations, and others. Not many women have a role as computer scientists, programmers, and other similar professions.

Gender issues concerning equal access in digital technology are faced by women. ICT is also needed by women for various activities, such as in families, social activities, as well as economic activities. Therefore, the capacity of women in the digital field needs to be improved because it becomes an important pillar in the nation's development. Based on these problems, the researcher is interested in describing the urgency of digital literacy for the empowerment of women to reduce the digital divide in the now and in the future.

II. RESEARCH METHOD

This study employed a qualitative descriptive approach through library research by collecting the data or scientific papers aimed at the research objects [4]. In other words, the library research is carried out to solve a problem that is based on critical and in-depth study of relevant library materials.

III. RESULTS AND DISCUSSION

A. Digital Literacy

1. The definition of digital literacy

In English, literacy is "letter". In Latin, the word "literature" describes a person's ability to process and understand information in reading and writing. Literacy, as a foundation of human knowledge, continues to grow. Meanwhile, the word "digital" comes from English and in Greek it is 'digitus,' which means 'fingers'. Thus, digital literacy describes the advances in computer technology and informatics today which are all-keypad-oriented or "press the button".

The concept of digital literacy was first introduced by in his book entitled Digital Literacy, which is the ability to understand and use information from various digital contexts effectively and efficiently, such as love, career, and everyday life [5]. Suggests that digital literacy is the ability to create and share in different modes and forms; to create, collaborate,

and communicate more effectively, as well as understanding how and when to use good digital technology to support the process [6]. Extends a new understanding of digital literacy that is based on computer literacy and information literacy. Computer literacy was developed in the 1980s when microcomputers were increasingly used, not only in the business environment but also in the community [7]. Meanwhile, information literacy was established in the 1990s, when the information was more easily compiled, accessed, and disseminated through networked information technology.

Thus, it can be concluded that digital literacy is not only emphasizing the skills of operating and using various information and communication technology devices, but also requiring the ability of individuals to "read" and "understand" the contents of the information presented as well as the process of "writing" and "giving birth" to a new knowledge. Currently, the biggest challenges in the application of digital literacy in society include the ability of the community, especially women, in carrying out their roles, such as having the ability to search, track, process, and evaluate information effectively and efficiently.

2. Important elements in digital literacy

Digital literacy is an ability that must be acquired and mastered in the use of information and communication. In his article entitled *Digital Literacies for Engagement in Emerging Online Cultures*, identified nine important elements in the world of digital literacy [8]:

- a. Social networking. Social networking sites are one example of social networking or online social life. The use of social networking site services needs to be selective. The skills to utilize the features offered by each social networking site are varied. For this reason, it is necessary to know and master the basic functions of each feature. On the other hand, the ethics of using social networking sites did not go unnoticed. Digital literacy provides a way for good social networking.
- b. Trans literacy is defined as the ability to utilize all different platforms, especially to create content, collect, share, and communicate through various social media, discussion groups, smartphones, and various online services available.
- c. Maintaining privacy. The important thing in digital literacy is about how to maintain privacy in the online world. Understanding all types of cybercrime, such as online theft through credit cards (carding), getting to know the characteristics of fake sites (phishing), fraud via email, and so forth. In social networking sites, displaying personal identity should be minimized to avoid something that is not wanted.
- d. Managing identity is related to how to use the right identity in various social networks and other platforms
- e. Creating content is related to the skills to create content in various online applications and platforms, for example in PowToon, Prezi, blogs, forums, and wikis. Besides, it includes the ability to use various e-learning platforms.
- f. Organizing and sharing of content mean organizing and sharing information content to be more easily disseminated. For example, the use of social bookmarking sites facilitates the dissemination of information that can be accessed by many users on the internet.

- g. Reusing/repurposing content is the ability to make content from various types of available information to produce new content that can be reused for various needs. For example, a teacher creates the content about certain subjects with a creative common license. Then the content is uploaded on the Slideshare website so that many will download it. It can be used by others who need it by completing the information or knowledge according to their needs.
 - h. Filtering and selecting content is the ability to search, filter, and select information precisely following the desired needs, for example through various search engines on the internet.
 - i. Self-broadcasting aims to share interesting ideas or personal ideas and multimedia content for example through blogs, forums or wikis. This is a form of participation in online social society.
- ### 3. Digital Literacy competencies

In this era of information and communication technology that continues to develop so rapidly, the ability of digital literacy is important so that everyone can take advantage of the opportunities brought by these developments. maps 5 competencies in digital literacy [9].

- a. Access (access), the ability of a person to find and use digital media skillfully and share information that are relevant to others
 - b. Analyze & evaluate (analysis and evaluation), which mean understanding the message and using critical thinking to analyze the message quality, truth, credibility, and point of view, then consider the potential effects or consequences of the message.
 - c. Create (content creation), which includes writing or producing content using creativity and confidence to express themselves, supported by an awareness of the goals, readers, and composition techniques.
 - d. Reflect, which refers to the ability to reflect the social responsibility and ethical principles on one's identity and life experience as well as communication behavior.
 - e. Act (action), which means working individually and in groups to share knowledge and solve problems in the family, work environment, and community and participate as members of the community at the local, regional, national and international levels.
- To measure women's digital literacy, the researcher used these five competencies.

4. The benefits of digital literacy

Ten benefits of digital literacy in an infographic entitled *Top 10 Benefits of Digital Literacy: Why You Should Care about Technology*: Those are time saving, efficient learning, money saving, security, updated information, connectedness, better decision-making, working motivation, happiness, and global influence [10].

5. Digital Divide

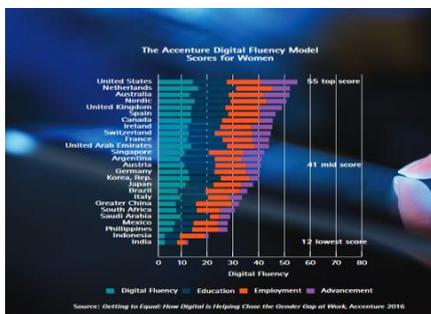
Although the digital divide in the 1990s focused on first order effects, namely the focus on accessibility to ICT infrastructure, namely on ownership, availability, and affordability of ICTs, at present the digital divide problem is generally focused on the second order effect which is related to the use of ICTs in daily life –day [11].

International Telecommunication Union has set the definition for digital divide. The term came into use in the mid-1990s addressing the troubling disparities in terms of access to information technology. Originally coined with respect to computer access, the advent of technology has seen the term evolve in reference to Internet access, broadband access, and more recently, access to the full spectrum of information and communication technologies. suggested that digital divide means the gap between individuals having speed internet access and those who do not [12]. Meanwhile, proposed that digital divide is the unequal access to internet because it is a requirement to omit the difference among the people [13]. In short, digital divide is the gap in accessing digital sources.

Suggested three types of digital divide; those are access divide, usage divide, and quality of use divide [14]. Access divide is the gap that is related to the rights of access to information and communication technology. Usage divide refers to the difference in the use of information and communication technology. Meanwhile, quality of use divide means the gap between the qualities in terms of the use of ICT. Among the causes of the gap is gender, where women have limited access to digital media and less opportunities to join any community of information and communication technology. The worse, there has been stereotyping built by women, such as technophobia, low excitement, and less capability of using technology [15].

A research conducted by revealed several factors influencing the digital divide [16]. They included demography (age, gender, education, and income), geography, government policy, culture, and economic system. The present study focuses on the digital divide between genders. It is evident in the amount of penetration and the number of internet user. In Indonesia, the number is dominated by males, with the percentage of 51,43%, while female users were only 48.57% [17]. A survey by supports the fact that digital fluency for female in Indonesia ranked the second lowest among 20 countries of global internet users (India was the lowest in the survey) [18]. The following figure illustrates the relevant condition.

FIG. 1. GETTING TO EQUAL: HOW DIGITAL IS HELPING CLOSE THE GENDER DIVIDE AT WORK, ACCENTURE



We can see that the women’s digital fluency is low. According to the Director of Accenture Indonesia, women are more excited to their social relation, rather than to their digital fluency. Mostly, Indonesian women use digital technology for social life, with as much as 60% for those aged 20-25 years old. The rest are for work (40%). Meanwhile, women

aged 26-35 years old use the internet for social life (70%) and work as well as education (30%).

Stated that women have lower access to, and lower digital skills compared to men due to several limitations (mobility, education level, time, economy, and patriarchy culture) [19]. Besides, Fowlie and Biggs also concluded that culture becomes the barrier for women to access internet [20]. In addition, other obstacles include education level, income, irrelevant content due to male domination, and security issues while going online.

explained that gender influences social existence in the internet, perception in using email, and perception of the benefits of email [21]. Women have higher perception of social function of email compared to men. Unluckily, men tend to use email easily compared to women. stated that men are more interested in using internet technology, while women in what can be done using internet [22].

Therefore, it can be concluded that women encounter several obstacles in accessing information technology.

1. In general, geography influences the access for women to information and technology. Women are more limited in terms of mobility in the conservative society, where religion and customs prohibit them from taking a trip in public without men.
2. Related to education, many women are illiterate due to minimum access to education and information, unequal training on ICT, limited time as well as economic and financial facilities.
3. The policy makers, such as government, are less concerned with women’s special needs in relation to ICT.
4. Most industries in ICT are dominated by male, which is evident in their number occupying the executive or director positions. In private sectors, women are given less opportunities to own the share or to make decision, nor to contribute to the decision-making process. Meanwhile, in the corporate, the female executive struggle to go through the glass ceiling.
5. In public space or media, women are attached with negative stigma with image and stereotype, such as sexy, taking less effort in removing them.
6. Cultural patriarchy has correlated men with duties and functions outside the households, while women with anything at home, such as taking care of the children. It influences them in using technology, a view that technology is part of men’s duty and is in the masculine domain.

At the same time, other countries, such as Singapore and Malaysia, hold different perspective of women. They are given equal rights to that of men in expressing their potentials. Therefore, it is necessary for women to have digital literacy, which may lead to improve the nation’s potential.

Women Empowerment through digital literacy

The global development with rapid progress of advance technology requires women to take part in it. Several attempts have been taken to encourage the digital literacy of the society. One of the ways is to involve women in the movement because the use of technology is not only to gain information, but also to improve their quality of life. Indonesian women should use technology for their children

learning and their family, business and works, rather than for fashion. According to Andeasson, women can use internet to help them increase the productivity, facilitate the access to new market, improve the education, open better job opportunities, as well as contribution in the economy aspect [23].

Internet has given many benefits to the users, including women. Hence, digital divide should be removed. The condition can be improved by establishing an education in relation to digital literacy and women empowerment. Widyastuti in, revealed that women empowerment related to digital media should pay attention to several aspects [24]. First, the access to digital information and individual's capabilities can be used to improve their social life. Second, they should find their motivation to use technology. Third is related to individual's social capacity, where women are required to use the media actively and confidently. Women empowerment in digital media is intended to increase their capabilities to participate in the social development, to open job opportunities in entrepreneurship, and to change the roles and functions of women in organization.

Digital literacy is the ability of an individual in accessing the digital media in five aspects; those are access, analyze and evaluate, create, reflect, and act. The first competence includes women's skills in using computer and the software as information sources. In this, women should also master the jargon used by each device. In taking the benefits of the internet instrument, the skills also cover the ways to navigate themselves in surfing the online information. The information should be relevant with the method to take notes to make visual organization, such as chart, graphs, diagram, summary, and so on. If they should share the information with others, they should think first about the truthfulness and the advantages.

Second, analyze and evaluate means the ability that begins with interpreting the data in the forms of text, illustrations, voice, and the combination of those. The higher the capability in interpreting the information, the more benefits they gain. Besides, the evaluation skills will lead women to think critically, to sort relevant and trusted information. People are exposed to abundant information; in that they do not know whether they are eligible to access the information or not. The ability will help to select appropriate information. Besides, if people want to share the information with others in social networking, they will be able to consider the effect and consequence of the information.

The third competence, create, expects women to write and arrange the information logically, thus creating a quality and ethical product. In creating the content, the product is directed to the one beneficial; thereby preventing the creator from producing "electronic trash".

Forth competence, reflect, is women's ability to write accountable information for the people, to hold the ethics in communication behavior, and to understand the rules in using digital media. Various regulations established by the government are used to protect the users and are expected to prevent less ethical behaviors. Besides, women are suggested not to reveal their identity or their families in the social networking.

Fifth aspect is act, which means woman's ability to use digital media to help them to solve any problem. Digital media can help women to overcome the family problems through the information offered in it. In working environment, it helps them to achieve and improve their performance. Meanwhile, in the society, women are expected to participate as a good citizen.

The success of digital literacy for women can be achieved if competent parties, such as government and educational institution, support them. Women can attend the training program of using digital media offered by the government or other institutions. Digitally literate women can improve the welfare of the people in general, the Indonesians in particular. The real example is technology-based occupation, such as online shop, vlogger, startup, and so on.

IV. CONCLUSION

The advance of digital technology has undergone rapid progress in Indonesia. The activities of using the digital information do not only serve to support daily activities, but also functions to create basic changes in all aspects of life. The condition requires people be gain the literacy, skills, or abilities in using and utilizing digital media. However, in Indonesia, the utilization of digital technology is still dominated by men; thereby creating digital divide.

Digital divide means the inequality in terms access to computer and internet between the groups that are based on one or more identification of social and cultural. The example is the one related to gender. The gap is due to several factors, such as geography, educational level, and government policy, economic and cultural system.

Considering the significance of the issue, it is necessary to take any effort to ensure the women's position in Indonesia to participate in the information era. Digital literacy is one of the ways to remove the division. Women are required to have five competences in digital literacy: access, analyze and evaluate, create, reflect, act.

The success of digital literacy for women can be achieved if competent parties, such as government and educational institution, support them. Women can attend the training program of using digital media offered by the government or other institutions. Digitally literate women can improve the welfare of the people in general, the Indonesians in particular.

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