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## DIGITAL LITERACY STRATEGY IN THE INDUSTRIAL REVOLUTION ERA 4.0

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### ARTICLE INFO

*Article history:*

Received: 9 Mar 2020

Accepted: 26 Mar 2020

Published: 27 Mar 2020

*Keyword:*

digital literacy, industrial  
revolution 4.0

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### ABSTRACT

Digital literacy development can be done in the realm of schools, families, and communities. With digital literacy in schools, students, teachers, education personnel, and school principals are expected to have the ability to access, understand, and use digital media, communication tools, and networks. In family digital literacy, parents are the frontline in the digital literacy process in the family domain. Father and mother are the first and foremost educators. Community digital literacy can be developed through study groups, youth clubs, hobby communities, and community organizations. Digital literacy learning must also involve an understanding of universal values that must be obeyed by each user, such as freedom of expression, privacy, cultural diversity, intellectual rights, copyrights, and so on. Digital literacy enables a person to interact well and positively with his environment. Thus, digital literacy needs to be developed in families, schools, and communities as part of lifelong learning.

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### INTRODUCTION

Every individual needs to understand that digital literacy is an important thing needed to be able to participate in today's modern world. Digital literacy is as important as reading, writing, arithmetic, and other disciplines. The generation that grows with unlimited access to digital technology has a different mindset than the previous generation. Everyone should be responsible for how to use technology to interact with the surrounding environment. Digital technology allows people to interact and communicate with family and friends in everyday life. Unfortunately, cyberspace is increasingly filled with content that smells of lying news, expressions

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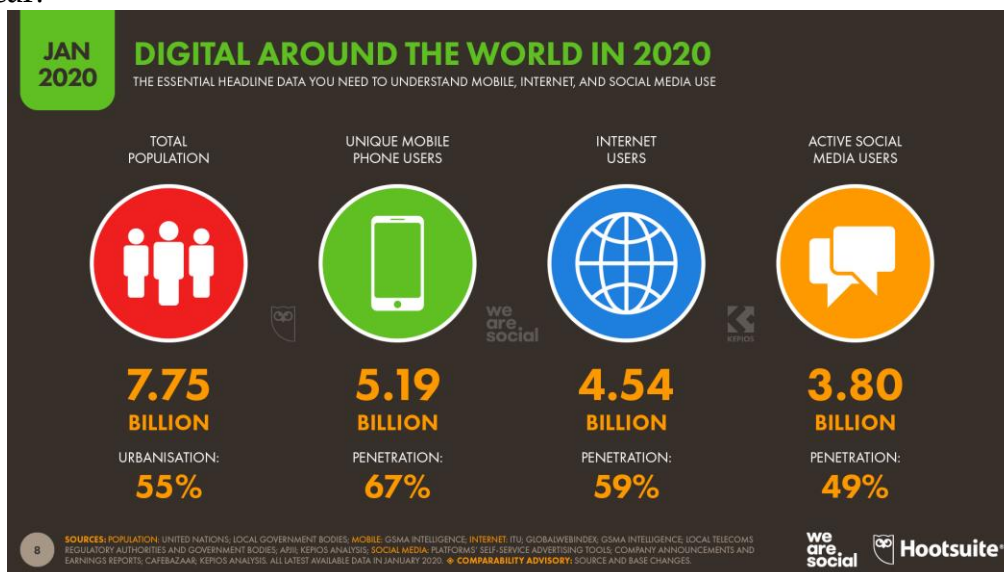
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of hatred, and radicalism, even fraudulent practices. The existence of negative content that destroys the digital ecosystem at this time can only be resisted by building awareness of each individual.

Being a digital literate means being able to process various information, be able to understand messages and communicate effectively with others in various forms. In this case, the intended form includes creating, collaborating, communicating, and working by ethical rules, and understanding when and how technology must be used to be effective in achieving goals. Including awareness and critical thinking about the various positive and negative impacts that may occur due to the use of technology in everyday life. Encouraging individuals to move from passive consumers of information to active producers, both individually and as part of the community. If the young generation lacks digital competence, this is very risky for them to be excluded from competition for work, democratic participation, and social interaction.

Digital literacy will create the fabric of society with a critical-creative mindset and outlook. They will not be easily consumed by provocative issues, victims of information hoax, or victims of digital-based fraud. Thus, the social and cultural life of people will tend to be safe and conducive. Building a culture of digital literacy needs to involve the active role of the community together. The success of building digital literacy is one indicator of achievement in the fields of education and culture.

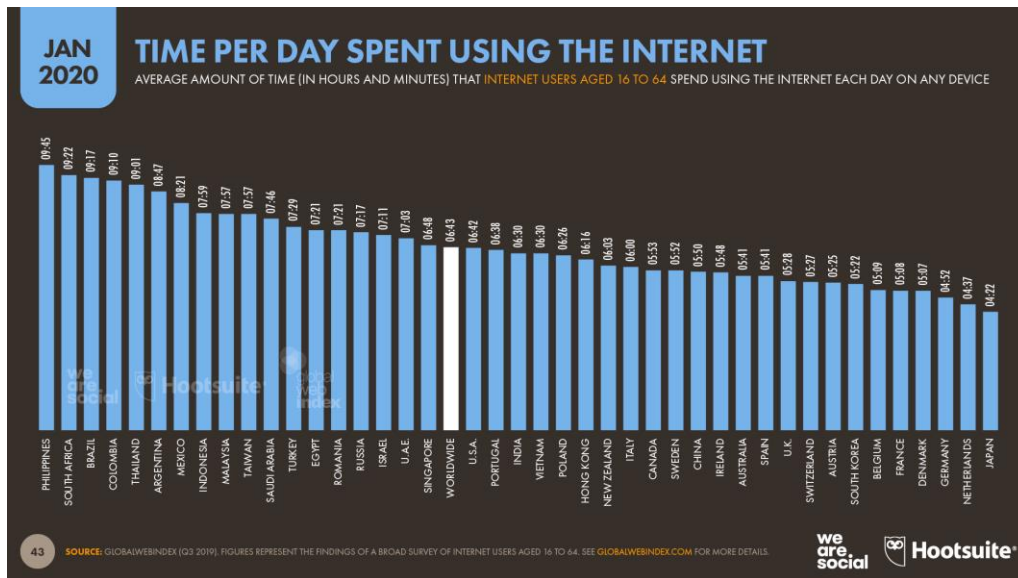
Digital Data in 2020: key figures important The role of digital in our lives has reached new heights, with more people spending more time doing more things online than ever before: (a) The number of people around the world using the internet has grown to become 4.54 billion, an increase of 7 percent (298 million new users) compared to January 2019, (b) Worldwide, there were 3.80 billion social media users in January 2020, with this number increasing by more than 9 percent (321 million users new) since this time last year. Globally, more than 5.19 billion people now use cellphones, with the number of users up 124 million (2.4 percent) over the past year.



(Source We are social, Digital 2020, Global Digital Overview)

You probably spent more than 100 days online this year. The average internet user now spends 6 hours and 43 minutes online every day. That's 3 minutes less than

this time last year, but it's still the same as more than 100 days connected time per internet user, per year. If we allow about 8 hours a day to sleep, that means we currently spend more than 40 percent of our lives using the internet. What's more, world internet users will spend a cumulative 1.25 billion years online in 2020, with more than one-third of that time spent using social media. However, the amount of time people spend online varies from country to country, with internet users in the Philippines spending an average of 9 hours and 45 minutes per day online, compared to only 4 hours and 22 minutes per day in Japan.



(Source We are social, Digital 2020, Global Digital Overview)

Indonesia is one of the countries with the largest number of internet users in the world. According to the results of a survey conducted by the Indonesian Internet Service Providers Association (APJII), the number of penetration of Internet users in Indonesia in 2018 was 171.17 million people from the total Indonesian population of 264.16 million people.



(Source: APJII, 2018)

Internet penetration in Indonesia in 2018 is 64.8%, with more than 171 million people. The data shows an increase in the percentage of user growth for 1 year (from 2017) by 10.12%, with more than 27 million people.



(Source: APJII, 2018)

## Digital Literacy

Generally, what is meant by digital literacy is the ability to use information and communication technology (ICT), to find, evaluate, utilize, create and communicate content/information, with cognitive and technical skills. There are many framework models for digital literacy that can be found on the Internet, with various names and forms. Each model has its uniqueness and superiority.

The framework offered is as follows: The framework consists of 3 (three) main parts, namely 1). protection (safeguard), 2). rights (rights), and 3). empowerment (empowerment).

Protection (safeguard): this section provides an understanding of the need for awareness and understanding of several matters relating to the safety and comfort of an anyone Internet user. Some of them are personal data protection, online safety & security, and individual privacy, with encryption technology as one of the solutions provided. Some challenges in cyberspace, including personal risks, are included in this section, including issues related to cyberbully, cyberstalking, cyber harassment and cyber fraud.

Rights: some fundamental rights must be known and respected by Internet users, as illustrated in this section. These rights are related to freedom of expression as well as intellectual property rights such as copyright and usage rights such as the Creative Commons (CC) licensing model. Then, of course, the right to gather and associate (assembly & association), including in the virtual realm, is a necessity when talking about social activism, for example, to carry out social criticism through hashtags on social media, advocacy through multimedia works (memes, cartoons, videos, etc.) to drive change with online petitions.

Empowerment: The internet can certainly help its users to produce works and performances that are more productive and meaningful for themselves, the environment and the wider community. For this reason, this section then enters several subjects that become separate challenges such as quality citizen journalism, entrepreneurship related to the use of ICTs and/or digital products such as those carried out by techno-entrepreneurs, digital start-ups. and the owner of UMKM. This section also emphasizes information ethics that highlights the challenges of hoaxes,

disinformation and hate speech and attempts to deal with it by selecting information, wise while online, think before posting.

According to Paul Gilster in his book *Digital Literacy* (1997), digital literacy is defined as the ability to understand and use information in various forms from a very wide variety of sources that are accessed through computer devices. Bawden (2001) offers a new understanding of digital literacy that is rooted in computer literacy and information literacy. Computer literacy developed in the 1980s, when microcomputers were increasingly used, not only in the business environment but also in society. However, new information literacy became widespread in the 1990s as information became more easily compiled, accessed, disseminated through networked information technology. Thus, referring to Bawden's opinion, digital literacy is more associated with technical skills of accessing, compiling, understanding and disseminating information.

Meanwhile, Douglas A.J. Belshaw in his thesis *What is 'Digital Literacy'?* (2011) says that there are eight essential elements for developing digital literacy, namely: (1) Cultural, namely understanding the diverse contexts of users of the digital world; (2) Cognitive, which is the power of thought in assessing content; (3) Constructive, namely the creation of something expert and actual; (4) Communicative, which is an understanding network and communication performance in the digital world; (5) Responsible confidence; (6) Creative, doing new things in new ways; (7) Critical in responding to content; and (8) socially responsible. Cultural aspects, according to Belshaw, become the most important element because understanding the user's context will help cognitive aspects in assessing content. From some of the opinions above it can be concluded that digital literacy is knowledge and skills to use digital media, communication tools, or networks in finding, evaluating, using, making information, and using it in a healthy, wise, intelligent, intelligent, accurate, precise, and obey the law to foster communication and interaction in everyday life.

#### **Industrial Revolution 4.0**

The Fourth Industrial Revolution or The Fourth Industrial Revolution has brought new challenges. The amazingly fast Industrial Revolution 4.0 has had an impact on technological and social change, so it is wrong to ensure the right results if it only relies on legislation and incentives from the government/regulator. At the time of the implementation of legislation and incentives from the government/regulator may be outdated or excessive. This was articulated in the White Paper published by the World Economic Forum in November 2016 that "Given the Fourth Industrial Revolution's extraordinarily fast technological and social change, relying only on government legislation and incentives to ensure the right outcomes is ill-advised. These are likely to be out-of-date or redundant by the time they are implemented.

It must be understood that the Industrial Revolution 4.0 all boils down to people and their values. Humanity needs to shape a successful future for all of us by preparing the best people and empowering them. In its most pessimistic and inhumane form, Industrial Revolution 4.0 may indeed have the potential to "robotize" humanity and thereby deprive us of our hearts and souls. But "only" as a

complement to the best parts of human nature - creativity, empathy, stewardship - it can also elevate humans to a new collective and moral consciousness based on a sense of shared destiny.

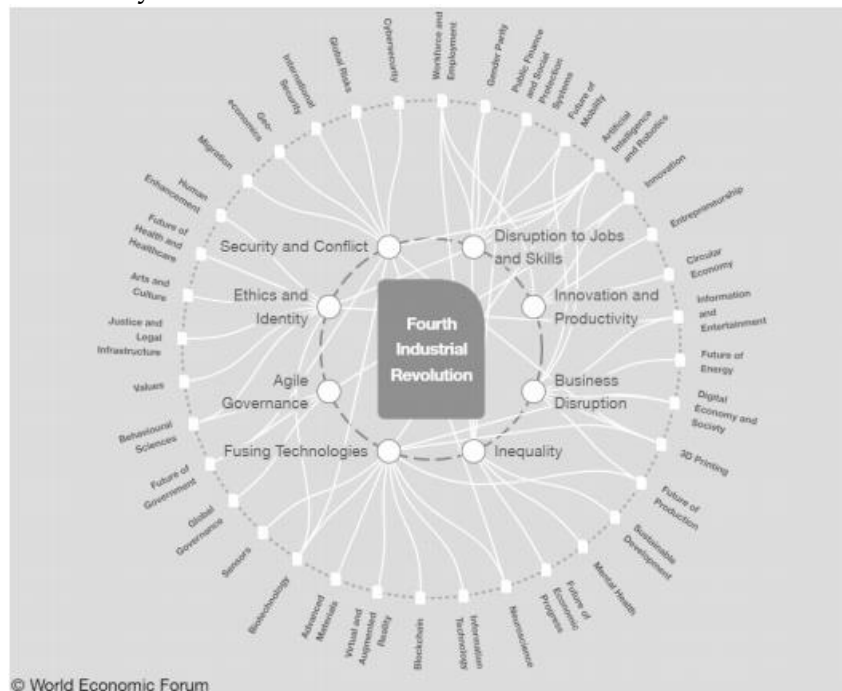


Figure 4.0 Industrial Revolution in Aspects of Human Civilization  
(Source Cyberlaw dan Revolusi Industri 4.0)

## DISCUSSION

### Basic Principles of Digital Literacy Development

According to UNESCO the concept of digital literacy overshadows and becomes an important foundation for the ability to understand the devices of technology, information, and communication. For example, ICT Literacy refers to technical capabilities that enable the active involvement of components of society in line with the development of culture and digital-based public services.

ICT literacy is explained with two points of view. First, Technological Literacy - previously known as Computer Literacy - refers to an understanding of digital technology including users and technical capabilities. Second, use Information Literacy. This literacy focuses on one aspect of knowledge, such as the ability to map, identify, process, and use digital information optimally.

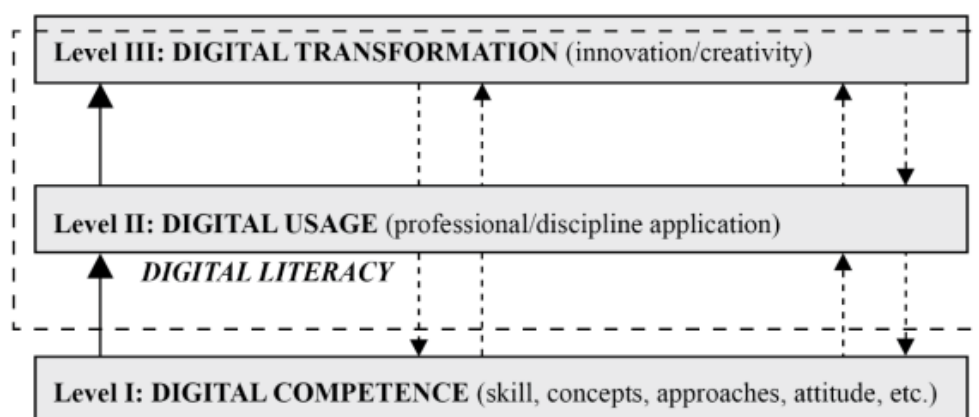
The concept of digital literacy, in line with the terminology developed by UNESCO in 2011, refers to and cannot be separated from literacy activities, such as reading and writing, and mathematics related to education. Therefore, digital literacy is a life skill that not only involves the ability to use technological devices, information, and communication, but also the ability to socialize, the ability to learn, and have the attitude, critical thinking, creative, and inspiring as digital competence.

The basic principles of developing digital literacy are as follows.

1. Understanding. The first principle of digital literacy is simple understanding which includes the ability to extract ideas implicitly and exclusively from the media.

2. Interdependence. The second principle of digital literacy is interdependence, which means how a form of media relates to others potentially, metaphorically, ideally, and literally. Previously, a small amount of media was created to isolate and publish more easily than before. Today with such a large number of media, media forms are expected to not only be side by side but also complement each other.
3. Social Factors. Sharing is not just a means to show personal identity or information distribution, but also can create its message. Who shares information, to whom the information is provided, and through what media the information is provided can not only determine the long-term success of the media itself, but can also form an organic ecosystem to search for information, share information, store information, and ultimately reshape the media itself.
4. Curation. Talking about storing information, such as storing content on social media through the "save to read later" method is one type of literacy that is associated with the ability to understand the value of information and store it so that it is more accessible and can be of long-term benefit. Advanced curation must have the potential for social curation, such as working together to find, collect, and organize valuable information.

The approach that can be taken in digital literacy includes two aspects, namely the conceptual and operational approaches. The conceptual approach focuses on aspects of social-emotional and cognitive development, while the operational approach focuses on the technical ability to use the media itself which cannot be ignored.



(Source Materi Pendukung Literasi Digital. Jakarta: Kementerian Pendidikan dan Kebudayaan, 2017)

The principle of developing digital literacy according to Mayes and Fowler (2006) is tiered. There are three levels of digital literacy. First, digital competence which includes skills, concepts, approaches, and behavior. Second, the use of digital which refers to the application of digital competencies related to certain contexts. Third, digital transformation requires creativity and innovation in the digital world.

### Strategies for Digital Literacy Movement in Schools

School digital literacy must be developed as an integrated learning mechanism in the curriculum or at least connected to the teaching and learning system. Students need to be improved in their skills, teachers need to be improved in

their knowledge and creativity in the process of teaching digital literacy, and principals need to facilitate teachers or educational staff in developing a school's digital literacy culture.

1. **Strengthening the Capacity of the Facilitator.** Strengthening literacy actors or facilitators in the school environment is emphasized in the training of principals, supervisors, teachers, and education personnel on digital literacy. The training is related to the use or use of information and communication technology in school development, for example, principals and supervisors are given training on the use of digital media in school management, teachers are given training on the use of digital media in learning, and students are encouraged to use technical information and communication intelligently and wisely. The training here is also emphasized in the example given by school principals, teachers, and education personnel related to the application of digital literacy in the school environment.
2. **Increasing the Amount and Variety of Quality Learning Resources.** Increasing the number and variety of quality learning resources in schools is a necessity that must be implemented by schools. The rapid development of science in the digital era requires renewal and the addition of new knowledge in the school environment. In this case, schools are expected to be able to increase the number and variety of quality learning resources for school residents, especially for students. Some things that can be done by schools in increasing the number and variety of quality learning resources related to digital literacy in the school environment are as follows: a. Adding Digital Literacy Reading Materials in Libraries, b. Provision of Educative Sites as Sources of Community Learning School, c. Use of Educational Applications as Learning Resources School Residents, d. Making School Journalistic.
3. **Expansion of Access to Quality Learning Resources and Coverage of Learning Participants** by a. Provision of Computers and Internet Access in Schools, b. Provision of Information Through Digital Media.
4. **Increasing Public Engagement** by a. Sharing Session, b. Stakeholder Engagement, c. Strengthening the Joint Forum of Parents and Communities.
5. **Strengthening Governance** by a. Electronic Administration System Development (administration-e), b. Making School Policy on Digital Literacy

### **Digital Literacy Movement Strategies in the Family**

The strategy of developing family digital literacy starts with parents because parents must be an example of literacy in using digital media. Parents must create a communicative social environment in the family, especially with children. Building interaction between parents and children in the use of digital media can be in the form of discussions, telling each other the positive use of digital media. The next step in the strategy of developing digital literacy in families is to introduce the basic material provided to family members, namely father, mother, and child, among others, by doing the following things.

1. **Strengthening the Capacity of the Facilitator.** Counseling about healthy internet to parents. Strengthening digital literacy for parents can be done through counseling, seminars, and training on how to use internet healthily. Parents are

taught to use secure sites that can be used by children, taught how to use social media wisely, how to maximize the internet in finding information and knowledge, and so on.

2. Increasing the Amount and Variety of Quality Learning Resources by (a) Provision of Reading Materials Related to Digital Media at Home, (b) Choosing Educative Television and Radio Shows, (c) Choosing Educational Sites and Applications as Learning Resources for Family Members.
3. Expansion of Access to Quality Learning Resources and Coverage of Learning Participants by (a) Provision of Computers, Laptops, Devices and Internet Access in the Family, (b) Providing Television and Radio as a Source of Information and Knowledge.
4. Increasing Public Engagement with Sharing Session. Sharing sessions can be done by inviting experts, practitioners, and volunteers supported by the central government, regional governments, business and industry, education volunteers, and the media to share information about how they apply digital technology in their professions and daily lives. This personal or institutional involvement of experts, practitioners, and volunteers relates to the use and use of information and communication technology for families. Sharing session activities can be done through activities in schools and communities, but the focus of the discussion is adjusted to the needs of digital literacy development in the family.
5. Strengthening Governance by (a) Making agreements or family rules, (b) Assistance

### **Strategies of Digital Literacy Movement in Society**

1. Strengthening the Capacity of Facilitators by (a) Training in the Use of Digital Applications or Devices, (b) Training on Writing and Making Blogs or Journal Media Online Daily, (c) Training on Use of Wise Internet Devices or Applications, (d) Socialization of Reference Materials on Law and Ethics in Using Digital Media.
2. Increasing the Amount and Variety of Quality Learning Resources by (a) Provision of Learning Resources about Information and Communication Technology in Public Spaces, (b) Dissemination of Information and Knowledge through Social Media.
3. Expansion of Access to Learning Resources and Coverage of Learning Participants by (a) Provision of Internet Access in Public Spaces, (b) Provision of Information Through Digital Media in Public Spaces
4. Increasing Public Engagement by (a) Sharing Session, (b) Stakeholder Engagement.
5. Strengthening Governance by (a) Making Agreements or Rules, (b) Allocating Special Budgets in Village Funds.

### **CONCLUSIONS**

Digital literacy development can be done in the realm of schools, families, and communities. With digital literacy in schools, students, teachers, education personnel, and school principals are expected to have the ability to access, understand, and use digital media, communication tools, and networks. With these

capabilities, they can create new information and disseminate it wisely. In addition to being able to master the basics of computers, the internet, productive programs, and the security and confidentiality of an application, students are also expected to have a digital lifestyle so that all their daily activities are inseparable from the thought patterns and behaviors of a digital society that are both effective and efficient. In family digital literacy, parents are the frontline in the digital literacy process in the family domain. Father and mother are the first and foremost educators. Families are obliged to protect their children from various negative environmental influences, including digital media. The development of family digital literacy emphasizes the importance of optimizing the use of positive content and filtering out negative content. In this case, the family is the main stronghold in containing negative influences for children. Community digital literacy can be developed through study groups, youth clubs, hobby communities, and community organizations. Digital literacy is an important tool for overcoming various social problems, such as pornography and bullying. Digital literacy enables people to access, sort, and understand various types of information that can be used to improve the quality of life, such as health, expertise, and skills. Digital literacy learning must also involve an understanding of universal values that must be obeyed by each user, such as freedom of expression, privacy, cultural diversity, intellectual rights, copyrights, and so on. Digital literacy enables a person to interact well and positively with his environment. Thus, digital literacy needs to be developed in families, schools, and communities as part of lifelong learning.

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