The Urgency of the Role and Concept of Digital Literacy in Education in the Disruption Era (21st Century)

Moch. Alfin Khoirudin
Universitas Maulana Malik Ibrahim Malang, Indonesia
E-mail: alfinkhoirudin61@gmail.com

Article Info	Abstract
	In addition to entering the era of globalization with the start of the AEC (Asian Economic Community) and the incessant life of the 21st century, the world is currently experiencing super-fast changes marked by a new era or referred to as the era of the industrial revolution 4.0. This high competence is of course a special concern for education as the main guard for competency development. One of the most important components in this field is of course educators. An educator in this era is required to be able to make digital natives (children who know technology from birth) as human beings who will not lose and make mistakes in taking steps and in utilizing existing technology, bearing in mind that in addition to great benefits, technology is quite a threat to the development of students. Educators must be able to select and filter technology and insert value into their learning with digital literacy. So, of course this is of particular concern so that educators have this digital literacy competence. Strengthening literacy, numeracy and technological adaptation are important efforts to improve the quality of human resources in the Digital Age and the Disruption Era. Indonesia is very far behind other countries in terms of this capability. The government as well as related parties (Schools, Universities, Education Quality Assurance Institutions, and Parents) must participate in strengthening literacy, numeracy, and technology adaptation for students and educators in Indonesia. One of the activities is integrating literacy, numeracy and technology activities in learning either at school or at home.

Artikel Info	Abstrak
	Selain memasuki era globalisasi dengan dimulainya AEC (Masyarakat Ekonomi Asia) dan gencarnya kehidupan abad ke-21, dunia saat ini sedang mengalami perubahan yang super cepat yang ditandai dengan era baru atau disebut dengan era globalisasi. revolusi industri 4.0. Kompetensi yang tinggi tersebut tentunya menjadi perhatian khusus bagi dunia pendidikan sebagai garda utama pengembangan kompetensi. Salah satu komponen terpenting dalam bidang ini tentu saja adalah pendidik. Seorang pendidik di era ini dituntut mampu menjadikan digital native (anak yang sejak lahir mengenal teknologi) sebagai manusia yang tidak akan rugi dan salah dalam mengambil langkah dan memanfaatkan teknologi yang ada, mengingat selain manfaatnya yang besar, teknologi cukup menjadi ancaman bagi perkembangan peserta didik. Pendidik harus mampu memilih dan menyaring teknologi serta memasukkan nilai ke dalam pembelajarannya dengan literasi digital. Nah, tentunya hal ini menjadi perhatian khusus agar para pendidik memiliki kompetensi literasi digital tersebut. Penguatan literasi, numerasi dan adaptasi teknologi merupakan upaya penting untuk meningkatkan kualitas sumber daya manusia di Era Digital dan Era Disrupsi. Indonesia sangat tertinggal jauh dari negara lain dalam hal kemampuan tersebut. Pemerintah serta pihak terkait (Sekolah, Universitas, Lembaga Penjaminan Mutu Pendidikan, dan Orang Tua) harus ikut serta dalam penguatan literasi, numerasi, dan adaptasi teknologi bagi peserta didik dan pendidik di Indonesia. Salah satu kegiatannya adalah mengintegrasikan kegiatan literasi, numerasi dan teknologi dalam pembelajaran baik di sekolah maupun di rumah.

I. INTRODUCTION

Education has been renewed from time to time with the aim of improving the quality of education at every level. Updates occur in every aspect of education such as curricula, syllabus models or lecture program units (SAP) for higher education, strategies, techniques, approaches, and learning media. All aspects of education are undergoing renewal based on the needs of students according to the times or eras. Today it is called education in the era of technology-based reform. The role of technology

in education is manifested in learning media. Learning media that use technology at this time is known as digital-based education, where digital is the main media as a tool for implementing education. This was clearly seen at the time of the Covid-19 pandemic from March 2020 until now in 2022. Digital has an important role with the function of mediating education so that it can run well without reducing the meaning and message from educators to students even in different places. and quite a distance. Of course digital as a learning medium is designed by educators according to the needs at every level of education. There is a lot of space provided by digital that can be used for learning media. And there are also many sources of information provided by digital as learning resources, so it is called digital literacy. Digital-based education exists to cover these needs. Learning media is designed based on a foundation consisting of philosophical, historical, psychological, technological, and empirical foundations (Rohani, 2019) with the aim of not violating ethics and norms.

Talking about competence certainly will not be far from discussing education. Where education is the front line for efforts to increase competency. At present, domestic tertiary institutions are required to be able to prepare students for the need to fulfill types of work that do not yet exist. There are several types of work that will disappear from life because they have been replaced by machines. This is of course not only homework for tertiary institutions but also for all levels of education. As we all know that one of the most important components in education is the teaching staff. Educators must be able to respond to the needs of students and their environment who are struggling with virtual world activities. Even today's students are children who are referred to as digital natives or can also be referred to as the digital generation. The digital generation is that they have known electronic and digital media since birth (Kemdikbud: 2018). This generation is very familiar with social media accounts, for example: Facebook, Twitter, Path, Instagram, Youtube, and others as a place for self-exploration and extension. They also always surf to fulfill their curiosity by accessing Google, Yahoo, or other search engines (Kurnianingsih, et al., 2017).

They are open individuals with super-fast learning abilities because they can get all the information with the tools in their hands. Maybe it will be different from the existing educators. Educators today are digital immigrants, in which these individuals were born before digital technology emerged. So it is well understood that being an educator for digital natives is a challenge in itself. In addition to challenges, this digital era is also a threat to students if they do not receive guidance according to their potential. These threats include difficulty concentrating, sleeping problems, even physical and social development. So it is very necessary to have assistance from family and educators. In order to deal with students who are very closely related to digital as one of the characteristics of the industrial era 4.0, of course educators must always upgrade themselves. It could be that social problems arise in society such as cyberbullying as well because digital natives do not have and master new literacy. This new literacy includes data literacy, technology literacy, and human literacy (Rozak, 2018).

This literacy is in direct contact with the human ability to read, analyze and make conclusions based on data and information obtained, is able to understand how machines work, and has the skills to communicate, collaborate, think critically, creatively and innovatively. These abilities are summarized in digital literacy with eight important elements in it, namely: Cultural, Cognitive, Constructive, Confident, Communicative, Creative, Critics, and Civic. These aspects are a support before humans learn more about the 21st century and the industrial revolution 4.0. Therefore, an educator must master literacy. Not only old literacy (reading, writing, arithmetic) but new literacy (digital literacy) so that education continues to have its echoes in facing the industrial revolution 4.0 era by producing highly literate and competent students.

In writing this journal, it does not discuss all the foundations of learning media, but only focuses on the foundation of technology which refers to the urgency of the role of digital in education or what is familiarly known as the urgency of digital literacy. To be able to understand the role of digital in education, we must first understand the basic concept of digital literacy in education. Education is experiencing disruptive, namely that education is changing rapidly by leaving old things behind due to digital or digital disruptive developments. Education, which was previously carried out with the learning process in the same time and place between educators and students, now with the Covid-19 pandemic that has hit the country, education is carried out at the same time but in a

different place. So the role of digital in education today is very important. Digital functions not only as a link for the implementation of education but as a medium for reading and thinking skills as well as a relationship between the two that aims to meet the needs of life and prosper (Hendriani, et al. 2018).

II. METHOD

This research includes the type of library research (library research), where the research object is sought through various information from reading sources such as books, newspapers, magazines and so on. Where the data that the author takes is data sourced from scientific books that are still related to the theme discussed. The data sources in this study are books and scientific papers that discuss the urgency of digital literacy in education. The data analysis technique used in this study is content analysis, which analyzes all the data that has been obtained so that later you will get accurate data to write down and can be combined according to the data material needed.

III. RESULT AND DISCUSSION

1. The Urgency of Digital Literacy for Students

Education is closely related to educators (teachers). Where an important component in education is the educators who spearhead the implementation of learning activities. The high professionalism and performance of educators in the classroom is an indicator of the high implementation of learning. This competence certainly has an impact on the quality of education (Asmarani, 2004). In Law Number 14 of 2005 educators have a function and role as learning agents who are obliged to improve the quality of national education. These agents of change are expected to be able to lead their students to face the world of science and technology which is experiencing dynamics entering the era of the industrial revolution 4.0. Zeichner (2010) states that prospective educators must have global competence. These global competencies include the competencies needed in the 21st century era including Learning and Innovation Skills, Information, Media and Technology Skills, Life and Career Skills (P21, 2016).

In this Learning and Innovation Skill, the focus is on creativity and innovation, critical thinking and problem solving, communication, and collaboration. Creative is the process of creative thinking as a form of association of certain elements into other new combinations to produce new things that are useful. Humans are required to be creative and innovative in the 21st century. Educators must be able to become creative educators to be able to make students creative. Creative can be realized in planning, implementing, and developing learning, starting from teaching materials, learning methods, learning media, andothers.

Critical thinking is reflective and reasoned thinking with a focus on what one understands or does. Students will have the ability to compose and express, analyze, and solve problems through critical thinking. Communication skills are one of the 21st century skills that must be possessed by students. Students in this case are required to be able to understand, manage, and create effective communication in various forms both orally, in writing, and multimedia. In addition, it is also related to collaboration skills, namely mutually beneficial cooperation in an effort to solve common problems.

Furthermore, related to life skills and careers, where students must develop the ability to think, knowledge, and social-emotional. These skills include flexibility and adaptability, initiative and self-direction, social and cross-cultural skills, productivity and accountability, leadership and respon-sibility. The next aspect is information, media, and technology skills. This aspect certainly refers to the discussion of the 4.0 industrial revolution era where technological disruption occurred. Presumably these skills become very close to the existence of this industrial revolution. Among the components in this skill are information literacy, media literacy, ICT literacy (Information, Communication, and Technology). Bearing in mind that the students faced are digital natives, the infor-mation, media, and technology skills certainly receive special attention for educators. The combination of these three literacy is summarized in Digital Literacy.

Digital literacy must be understood as an important need for individuals to be able to participate in today's modern world. Digital technology allows for faster communication and information delivery than previous devices. However, it should also be realized that today's virtual world is increasingly filled with fake news content, hate speech, and even fraudulent practices. This is where each individual can place their awareness to become digital literate (Kemdikbud, 2017). It

is hoped that this digital literate can process various information, understand messages and communicate effectively. If students master digital competence, it will certainly have an impact on being left out of the existing competition. To prevent this from happening, students must be equipped with the skills to create, collaborate, communicate, work according to norms, and understand when and how technology can be used.

According to Bawden (2001) there are eight essential elements in developing digital literacy skills, namely:

a) Culture (Cultural) This is related to the understanding of educators and students regarding the various contexts of users of the digital world. Of course, this massive digital subject has its own age range.

b) Cognitive (cognitive) This cognitive ability relates to the ability to reason and think of educators and students in providing content assessments.

c) Constructive (constructive) Constructive is related to the design of something that is expert and actual.

d) Communicative (communicative) Educators and students must be able to understand how to communicate and be able to understand the performance of networks and communications in the digital world.

e) Confidence (responsible confidence) Educators and students must be able to generate self-confidence and be accounttable for what is designed.

f) Creative (creative) This skill relates to how educators and students are able to do and even create new things, perhaps also in new ways and strategies.

g) Critics (critical) This critical thinking does not necessarily make digital literate capable of responding to content in digital media carefully and wisely.

h) Civic (socially responsible) Educators and students are able to be socially responsible.

Digital literacy is a skill in itself in using and utilizing technology in the form of digital media, communication tools, or networks. This digital literacy does not only focus on one aspect of knowledge, such as the ability to map, identify, process, and use digital information wisely, smartly, accurately, precisely, and according to norms.

2. Digital Literacy Implementation Strategy in Schools

There are several strategies or ways that schools take in an effort to bring this digital literacy to school. This strategy can not be separated from the role of educators in it. As previously explained, educators today are mostly digital immigrants who are new to technology and other media. then of course there is a need for some efforts including:

Participate in various training related to digital literacy

a) Utilizing digital literacy in learning activities

b) Increase the number and variety of digital-based reading sources and media

c) School activities and school policies that utilize technology and information

d) Providing educational sites and applications as learning resource

The curriculum and learning system in schools must be integrated with an automatically connected mechanism. Educators can also increase public involvement through sharing sessions by inviting experts to share how they apply digital technology in their work activities. The involvement of stakeholders and parents of students can also be considered for developing digital literacy and helping educators as controllers when studentsare at home.

3. The Digital Era and Disruption

The Digital Age is a period in which information can be obtained and disseminated quickly and easily (Ministry of Education and Culture, 2018). In general, the Digital Age can be described as a period that has experienced development, so that in all aspects it uses digital technology assistance and equipment. The Disruption Era is a period that experiences massive changes due to innovation. These changes will certainly provide opportunities as well as challenges to every State Institution, including in the world of education. Along with the many new technological innovations, many old technologies are starting to be abandoned one by one. For that the development of technology is needed. Current technological developments are marked by the use of smartphones with advanced features, namely the internet in the field of communication, the use of applications for doing business that make it easier for entrepreneurs to reach consumers, in

financial technology the provision of digital wallets has begun to emerge so that currently transactions can be carried out using only a smartphone. Another development that is currently busy is the presence of e-commerce so that only armed with a smartphone can users buy and sell goods without having to go to the mall (Qwords, 2021).

The existence of the Digital Age has very useful benefits to make it easier to carry out any tasks and work. The Digital Age has brought many good changes, if used wisely. However, at the same time, the Digital Age also has a negative impact, making it a new challenge in this era of disruption. The era of disruption itself has very important benefits in today's life, with current digital technology users are able to easily access a wide and easy network. With developments that continue to innovate, it forces adaptation in order to be able to survive in the midst of this globalization. As a period that continues to develop, the Digital Age not only provides opportunities and benefits for its users, but also becomes a challenge in itself, because if it is not used wisely this technological development can be a cause of destruction. Digital technology is not only capable of changing the order of social, cultural and social life, but also the world of politics.

4. The Importance of Reinforcement (Literacy, Numeracy, and Adaptation) to Technology in Learning in Schools

Literacy and numeracy skills are the best protection for the progress of a country from being left behind, because almost every aspect of life requires numeracy literacy skills. In everyday life, when going into business, starting a business, health problems, even in national life, all of these require numeracy literacy skills. For example, to understand information about economics and politics. For this reason, strengthening literacy and numeracy skills in this field is very important. Digital technology is currently almost entering all aspects of life, which if used properly will be able to help humans make their work easier. Therefore, it is very important to strengthen efforts to adapt technology in this era of disruption. School is actually a place for students to gain knowledge formally, therefore literacy activities have occurred during the teaching and learning process. Even so, the fact is that the level of literacy skills of students tends to be still low. This is because the literacy process that students are going through does not reach its intended destination so that an understanding of numeracy literacy and the ability to adapt to technology cannot be mastered. For this reason, efforts to strengthen literacy, numeracy and technological adaptation are needed in schools, so that the character of students can grow and it is hoped that they will be able to become role models for other children.

Strengthening numeracy literacy and technology adaptation in schools can be realized if there is cooperation between all learning elements, namely schools, teachers, principals, students and even parents must work together. For example, schools must provide the media, learning tools, and learning resources needed. The teacher's duty is to provide direction and understanding regarding the importance of numeracy literacy and technological adaptation, as well as provide examples of its application in everyday life. Parents can act as companions to facilitate teachers and students as well as supervise and direct the use of digital media by their children.

IV. CONCLUSION AND SUGGESTION

A. Conclusion

The rise of the Industrial Revolution 4.0 has attracted a lot of attention from various fields of science. Not spared in the field of education. The era where technology has been able to disrupt all aspects of human life has had many impacts, especially on education. The difference between the generation of educators and the generation of students is one of the triggers. Educators (current parents) are digital immigrants who are not familiar with technology and media since birth, while students today are those who are referred to as digital natives who are individuals who have known technology and media since birth. So educators need to continue to improve their competence. If you look at this phenomenon, the competency that is very urgent for educators to master is Digital Literacy. Students need to improve their skills and educators need to increase their knowledge and creativity in learning digital literacy. Changes in the learning system due to the Covid-19 pandemic require teachers and students to adapt to the technology used in

the current learning process. At this time, not all learning delivered using technology can be delivered in its entirety, so it is necessary to strengthen literacy and numeracy skills to support the learning process. The fact that Indonesia's literacy and numeracy levels are very low is a challenge that must be faced in the world of education, especially teachers and students.

Teachers and students must be equipped with strong literacy and numeracy skills so they can compete with other nations in the Digital Age as it is today. In the Digital Age, information is very easy to disseminate and obtain without any restrictions. This has resulted in technological developments continuing to evolve by always innovating, until we enter the era of disruption. This is when strong literacy and numeracy is the best protection in the world of education from mistakes and being left behind. With literacy and numeracy skills, teachers and students are able to know what technology is right to use in assisting the learning process so that it can be conveyed according to what is the learning objective itself. Teachers and students can also know the positive and negative impacts of a technological develop-ment so that they can use existing technology wisely.

B. Suggestion

The discussion regarding this research is still very limited and requires a lot of input. The suggestion for the next author is to study more deeply and comprehensively about The Urgency of the Role and Concept of Digital Literacy in Education in the Disruption Era (21st Century).

REFERENCES

Asmarani, Nur'aeni. (2004). Peningkatan Kompetensi Profesional guru di Sekolah dasar. *Jurnal Administrasi Pendidikan. Bahana Manajemen Pendidikan Vol. 2 No. 1, Juni 2014, Hal. 503 – 831.*

Hendriani, dkk. (2018). Pedagodik literasi kritis: Sejarah, filsafat dan perkembangannya di dunia pendidikan. *Jurnal Pedagogia: Jurnal Ilmu Pendidikan, 16(1), 44-59.* DOI. https://doi.org/10.17509/pdgia.v16i1.10811

Kemdikbud. 2017. *Materi Pendukung Literasi Digital.* Jakarta: Kemdikbud RI

Kementerian Pendidikan dan Kebudayaan. (2018). *Seri Pendidikan Orang Tua: Mendidik Anak di Era Digital.* Jakarta: Kementerian Pendidikan dan Kebudayaan.

Kurnianingsih, Indah., dkk. 2017. *Jurnal Pengabdian kepada Masyarakat, Vol. 3, No. 1, September 2017, Hal 61-76*: Upaya Peningkatan Kemampuan Literasi Digital bagi tenaga Perpustakaan Sekolah dan Guru di Wilayah Jakarta Pusat Melalui Pelatihan Literasi Informasi.

P21. 2016. *Framework 21st Century Learning.* Washington DC: www.p21.org

Qwords. (2021, Januari 2). *Pengertian Era Digital dan Dampaknya Untuk Kehidup*an. Dikutip April 18, 2023, dari Qwords: https://qwords.com/blog/era-digital-adalah/

Rohani. (2019). *Media pembelajaran. Fakultas Ilmu Tarbiyah Dan Keguruan Universitas Islam Negeri Sumatera Uta*ra. https://id.scribd.com/document/456503736/DiktatMediaPembelajaran-RH 2019

Rozak, Abdul. 2018. *Perlunya Literasi Baru Menghadapi Era Revolusi Industri 4.*0 [diakses melalui laman http://www.uinjkt.ac.id/id/perlun ya-literasi-baru-menghadapi-erarevolusi industri-4-0/]

Zeichner, Ken. (2010). *Colloquium on the Internalization of Teacher Education* NFSA: association of international educators.