

# Increasing Human Literacy for Generation Z Through Learning to Use Technology in Indonesia

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## Abstract

The use of technology in the learning process is quite commonly used today, such as online learning. To be able to carry out this online learning, it is necessary to have three literacy skills, namely technological literacy, data literacy, and human literacy. Generation Z, currently in the world of education, uses various learning methods, such as online learning. This study aims to see how the application in the use of technology can improve human literacy skills for Gen Z in Indonesia. This research will be conducted using a qualitative SWOT analysis method. This study found that there are still difficulties in increasing human literacy for Gen Z because of their characteristics, most of which are difficult to communicate directly and instantly. Then the characteristics of most of them also choose to live in the present, their attention span is still short, and their ability to validate information is relatively low.

**Keywords:** *Human Literacy, Online Learning, Blended Learning, Generation Z.*



## A. INTRODUCTION

Generation Z is the generation that, from birth, interacted with technological advances. Their upbringing is even helped by technology and the internet. Born between 1995 and 2012, they never had the chance to experience life without technology and the internet. The existence of technology and the internet has become an essential element of their lives and daily lives. For Generation Z, technology and the internet are something that must exist, not an innovation as other generation view (Szymkowiak et al., 2021).

Advances in technology and the rapid flow of information through the internet have affected the lives of Generation Z. They are used to communicating using the gadgets they have, seeing news about various things from the outside world via the internet, playing games, and even shopping through one object that is in their hands, namely a smartphone (gadget). Almost all Generation Z have this smartphone, rich or included in the poor category, who live in urban and rural areas. It can be said that all Generation Z are exposed to smartphone use every day. The level of dependence of Generation Z on smartphones is higher than on television. They will be more upset if they can't access the internet than if they lose their pocket money (Vițelar, 2019).

Generation Z is very familiar with social media. The results of Palley's research show that 60% of Generation Z respondents start their social life online, 50% of Generation Z prefer to communicate online rather than talk directly in real life, and

even 70% of Generation Z are more comfortable communicating with their friends online (Moslehpour et al., 2021).

Given how Generation Z uses technology and the internet in their daily life, they are trained to be interested in several subjects or issues simultaneously. This condition is probably due to the high synchronization of motor skills possessed by Generation Z, especially in the eyes, hands, and ears, compared to other generations before them (Poláková & Klímová, 2021).

Berkup describes some of the characteristics of Generation Z related to the use of technology. Some elements referred to are socializing through the internet and consuming the internet very quickly, with technology in their hands tend to be efficient and innovative, like games that challenge creativity (Hoxha & Zeqiraj, 2019).

In the use of technology, especially smartphones, some Generation Z uses it for their self-empowerment and entertainment. However, this contrasts with the other Z generations, who still have very low digital literacy awareness and generally use smartphones only for consumptive purposes. According to Perrez, Generation Z has an excellent orientation to education, especially lifelong learning, and has a lot of skills and knowledge related to technology because of their high integration on the internet (Pemberton & Takhar, 2021).

One day, Generation Z spends about 9 hours a day using their smartphones, making them very dependent on mobile technology. Even so, Generation Z cannot analyze the validity of the information they get or use it critically. Their attention span is concise, about 8 seconds (Chicca & Shellenbarger, 2018).

Given how the characteristics of Generation Z are very fond of using their gadgets, learning methods have begun to be developed to meet their preferences. Currently, many learning methods use technology, which is more often called e-learning, blended learning, or online learning. However, this does not mean that the face-to-face learning method is no longer used for learning in Generation Z. The face-to-face learning method is still used, especially in Indonesia (Dabija et al., 2019).

Researches related to learning with this technology are also increasingly being published. For example, how the learning approach for Generation Z is associated with e-learning, education in the industrial revolution era, the use of technology and learning characteristics, or how digital learning is. The Ministry of Research and Higher Education has also begun to promote e-learning. Coinciding with the commemoration of National Education Day 2018, the Minister of Research, Technology and Higher Education, Prof. Muhammad Nasir, launched e-learning/Hybrid learning through SPADA Indonesia. The launch of e-learning/Hybrid learning ensures the quality of higher education evenly in Indonesia. In addition, the Minister of Research and Technology hopes that all academics and the general public must have technological literacy skills, data literacy, and human literacy. Technological literacy is the ability to understand how machines work and use technology applications (Coding/Programming, Artificial Intelligence, & Engineering Principles). Data literacy is the ability to utilize data in the form of reading, analyzing, and using information (Big Data) in the digital world. Human

literacy is the ability to communicate, collaborate, think critically, be creative and innovative, have leadership skills, teamwork, and so on (Oke & Fernandes, 2020).

With this appeal, the question arises of how learning using technology can improve the three literacy, especially related to human literacy. Keep in mind that using e-learning means that Generation Z will increasingly depend on technology, especially smartphones. According to Turner, Generation Z is less able to communicate face-to-face and tends to use smartphones to avoid situations they don't want, so their skills to cope with difficult situations will be very low the more they use their smartphones. According to Steyer, high technology can potentially interfere with neurological development. When an individual overuses a search engine that can find any answer needed in seconds, it will change the pattern of concentration, reading, and contemplation. In addition, it is increasingly seen that Generation Z has lost cultural and religious values or norms. For example, more and more of the LGBT community grew up within Generation Z because it was common for them to show their sexual orientation. This condition needs to be a consideration for the Government or the Lecturers and Teachers in providing material in e-learning related to human literacy (Gould et al., 2020).

This study examines how learning using technology can improve human literacy in Generation Z. Technological literacy and implementation of data literacy are closely related to the ability to use technology, so learning through e-learning, blended learning, or online learning will facilitate literacy improvement. Meanwhile, human literacy is different from the other two types of literacy. Is it possible that learning with technology can improve human literacy or even weaken literacy ability?

## **B. LITERATURE REVIEW**

### **1. Generation Z**

Based on the division of the year of birth, Generation Z is those born between 1995 and 2010. Zemke tries to distinguish Generation Z from other generations based on birth year. They divide into five generations: the veteran generation born from 1925 to 1946, the baby boomer generation born from 1946 to 1960, generation X born from 1960 to 1980, generation Y born from 1980 to 1995, and generation Z born from 1995 to 2010. In addition to differences in the birth year, there are also differences in character between Generation Z and previous generations. Bencsik explains the difference between Generation Z and other generations (Arora et al., 2020).

From the point of view of seeing things, Generation Z tends to have no sense of commitment, is happy with what they have, and lives for the moment. In contrast to the Baby Boomer Generation, who tend to think in an integrated and communal manner, Generation X tends to have a self-centered perspective and is for medium-term interests, while Generation Y or millennials tend to be more egoistic and for short-term interests (Goh & Baum, 2021).

In terms of using IT, Generation Z uses it intuitively because they are born familiar with IT. Meanwhile, the Baby Boomer Generation is a generation that is very dependent on their instructions, and in using technology, it is not complete, meaning

that only certain technologies or parts are used and even, then at certain times. Most of them find it difficult to instruct themselves to interact with IT, and some are still willing to try but unable to understand fully. Compared to the Baby Boomer Generation, Generation X is more confident in using IT, while Generation Y uses IT daily (Ling et al., 2017).

Regarding the values adopted, Generation Z has a quick reaction to anything, lives for the moment, does not think long enough, seeks pleasure so that there is an overlapping of boundaries between work and entertainment, divided attention, no desire to understand things, lack of thinking consequent. Very different from the Baby Boomer Generation, who are patient, have high EQ, value tradition more, and work hard, but tend to be passive, cynical, and inflexible. Generation X is more open and respects differences, hardworking, practical, fair, and obeys the rules but is materialistic and wants to prove himself. The values embraced by Generation Y demand freedom of information, flexibility, high mobility, creativity, independence, happiness to seek new forms of knowledge so that their knowledge is broad but shallow, does not respect tradition, low EQ and soft skills, arrogant, likes to work at home and part-time (Folmer et al., 2019).

The research conducted by The Haris Poll Research Institute in New York on Generation Z and Generation Y showed the average online use in a week carried out by Generation Z and Generation Y. Generally, they visit websites that share videos, watch online videos, and play online games. Generation Z prefers Youtube or other learning applications, while Generation Y prefers printed books for learning. However, both Generation Z and Generation Y consider teachers or lecturers to be an essential part of learning and self-development, and like the activity of interacting directly with classmates as a learning experience. When finding problems related to education, both Generation Z and Generation Y prefer to find out on their own through the internet, books, or friends rather than asking the teacher (Setiawan et al., 2018).

Generation Z is exposed to media via the internet for a long time, more than any other activity besides sleep. Even from a demographic point of view, the active use of media through the internet affects those who live in urban and rural areas, not only the rich but also those with weak economic conditions. According to Palley, 50% of Generation Z are more comfortable communicating online than in person, even when talking to friends, 70% of Generation Z prefer to communicate online rather than in person (Milkman, 2017).

Generation Z's dependence on search engines is very high, but they are less able to criticize the validation of the information they get. Their tendency to be easily satisfied (instant gratification). In learning, Generation Z prefers to pay attention and practice, not by reading or listening to lectures. Therefore, Generation Z requires a different learning method from previous generations (Lien et al., 2017).

According to Mosca, Generation Z has a short attention span. They are easier to understand visual images. Therefore, for Generation Z, the proper learning is using images, animations, or videos.

## 2. Learning

Learning is a human effort to acquire knowledge and skills by producing long-term change. The characteristics of learning that have occurred are (a) the achievement of new behavior; (b) able to remember information, facts, and knowledge faster than before; (c) being able to see and discuss a topic in more detail.

Initially, people were more familiar with the learning process that was carried out face-to-face (face-to-face learning). Face-to-face learning is learning that is carried out with a straightforward interaction process between the instructor (teacher) and the participants or students. Generally, learning is done by lecture method, question and answer, discussion, demonstration, experiment, and so on (Yuan & Wu, 2020).

There are four quadrants of learning settings: direct synchronous, virtual synchronous, independent asynchronous, and collaborative. Synchronous learning settings are different from asynchronous ones. According to Riva, synchronous learning is learning with real-time communication, such as in conversations or discussions. An example of a synchronous direct is face-to-face learning, while an indirect (offline) synchronous example is learning with webinars. While asynchronous learning refers to learning with communication outside of real-time, so it usually uses text, video, or audio chat. Text and digital tools that encourage asynchronous learning include videos, bulletin boards, reading, and writing or blogging activities (Lestari et al., 2021).

## 3. Distance-learning

Distance learning is learning that is carried out between instructors and participants who are in different locations. Distance learning was started in the early 18th century. The first form of distance learning was by sending paper-based learning materials by post, and then students also sent their assignments by post to evaluate their learning materials. This condition causes slow communication and does not allow interaction between instructors and participants (Pregowska et al., 2021).

The implementation of distance learning is increasingly advanced using digital computing technology. This technology makes the distance of distance-learning implementation can be further and spread everywhere. By using email, web-based resources, or online discussions, the implementation of distance learning becomes more interactive and can help many participants or students involved in the learning process to understand the material better (Crowe et al., 2017).

## 4. E-learning, Online-learning, Blended (Hybrid) Learning

There are various definitions related to e-learning. Some of the authors in the article discuss e-learning as learning that is accessed through web-based technology. Another article mentioned that the content and teaching methods in e-learning are not only through the CD Room, internet, or intranet, but also through audio, video recording, satellite broadcasts, and interactive TV.

Tavangarian explains e-learning as a form of learning and teaching supported electronically procedurally to influence knowledge construction based on the

knowledge that participants already have, experience, and practice in the field. Thus, interaction and communication can be done directly or through a network using technology. This definition the author considers the most appropriate because it can distinguish more clearly between e-learning and online learning (Martin & Alvarez Valdivia, 2017).

E-learning has three functions, namely (a) supplements or additions. Because it is additional, students do not have to access electronic learning materials, but by accessing them, participants will gain further knowledge and insight; (b) complement or complement. E-learning materials are intended to complement or enrich participants who take part in traditional learning (face to face); (c) substitute or substitute. E-learning replaces face-to-face classes, so students can independently manage learning activities and adjust their time to other activities (Sagita & Khairunnisa, 2020).

In practice, e-learning is a continuum that has three categories, namely:

- a. Adjunct is face-to-face learning coupled with supporting materials that can be searched through the internet or using the help of computers, LCD projectors, or other multimedia in the classroom;
- b. Mixed/Blended is using an online learning system (distance) as an inseparable part of the face to face learning;
- c. Fully online is a learning and interaction process completely online (remotely) without using face-to-face at all.

Online learning is a part of distance learning that utilizes technology to mediate learning. Learning is fully delivered through internet technology. Neither participants nor instructors need to access learning materials at the same time. Currently, online learning is often computer-based or web-based. Considering the above definition, it can be concluded that online learning is the latest generation of distance learning. In addition, online learning is also part of e-learning because it uses electronic technology (Khlaif et al., 2021).

Based on the e-learning continuum that has been explained in the previous sub-chapter, it can be said that blended learning is a combination of face-to-face implementation with online learning. In addition to using the term blended learning, they often use the term hybrid learning or mixed mode. Blended learning does not mean incorporating technology into face-to-face learning but is an effort to redesign the learning process developed and scheduled through direct and visual instructions. The interaction created through blended learning is more intensive, between participants and instructors, between fellow participants, or between participants and the learning content. Blended learning combines synchronous and asynchronous learning methods (Philipsen et al., 2019).

### **C. METHOD**

This research will be conducted using a qualitative approach through the SWOT method. The data used in this study came from various research results and previous studies still relevant to this research. After the researcher has collected the

research data, the data will then be processed so that later the results of this study can be found.

## **D. RESULT AND DISCUSSION**

### **1. Acceptance of the Use of Technology in Learning**

Generation Z students' acceptance of technology in learning, such as e-learning, digital or mobile learning, is relatively high. They consider e-learning very useful in Malaysia, so they intend to continue using it. Meanwhile, in Kuwait, using mobile learning is regarded by students and lecturers as an exciting experience. In the United Arab Emirates, e-learning is exciting because students find it easy to find the information they need. The same thing also happened in China, where interest in e-learning is increasing, although face-to-face learning remains the primary method.

In Indonesia, data from the Ministry of Research, Technology, and Higher Education shows an increase in the number of courses participating in Blended Learning. This increase also affects the number of students who participate in learning activities using this technology. In addition, there are also online courses or online courses and professional teacher education, which will also affect the number of participants who take lessons with this technology.

Suppose you look at the high acceptance of Generation Z to this learning, of course. In that case, it can be related to the characteristics of Generation Z as the most participants in learning using this technology. Generation Z has an excellent orientation to education especially lifelong learning and has a lot of skills and knowledge related to technology because of their high integration on the internet. However, is this the will of Generation Z, or are they only following this learning because it is required from specific courses they take on campus?

### **2. Generation Z's Ability in Independent Learning**

Generation Z is indeed interested in learning by using technology. But according to McConnell, Generation Z's online participation in China is low due to a lack of initiative. Their independence in independent e-learning learning depends on their background, and they expect the lecturer to explain to them fully.

This condition is probably because Generation Z has a character that lacks commitment, is easily satisfied instantly, seeks pleasure, and lives for the moment. Generation Z is less able to validate all the information it gets. His attention span is short. When Generation Z is interested in learning using technology, they will take this process seriously. However, their tendency to be easily satisfied and their low commitment coupled with a short attention span will make them only momentarily commit to living it enthusiastically and seriously. Furthermore, they will live it just following the directions and demands given by the lecturer or learning organizer. Sometimes they even become busier with other things that are considered interesting, such as chatting through social media or viewing other information that is not significantly related to learning content. There are times when they are more busy

collecting additional information from sources that are not necessarily reliable because they cannot validate the incoming data.

Boredom and demotivation will be more easily felt when the system or facility using e-learning, including mobile learning or digital learning, supports the learning process. If the system and facilities are inadequate, Generation Z, accustomed to using information and communication technology, will tend to get bored and lose enthusiasm in the learning process. This can be seen from the factors influencing student acceptance in e-learning in Malaysia or the United Arab Emirates. The same is, of course, also felt by Generation Z in Indonesia or other places.

In Indonesia, because the government greatly facilitates learning using technology, the learning process is also monitored. This will cause Generation Z as participants to participate in the Blended Learning process by following the established standards. But it still needs to be investigated how Generation Z's initiative when undergoing online lectures of their own accord is also held by the Directorate General of Belmawa, Kemenristek Dikti. Especially if the target is Generation Z, who are in remote areas of the country where the possibility of an internet network is still inadequate.

### 3. Learning with Technology to Improve Human Literacy in Generation Z in Indonesia

Can learning using technology improve human literacy, especially for Generation Z. A SWOT analysis can be used to answer this question, as shown in table 1:

**Table 1. SWOT Analysis of Learning with Technology to Improve Human Literacy in Generation Z in Indonesia**

Strength	Weakness
Learning with technology is directly supported by the government by holding online learning	For some Generation Z in rural areas, it may be challenging to use learning using technology because they are not used to using it
Generation Z is very fond of using technology in their daily lives, so they are likely to prefer learning with this technology	There are still many areas or universities that have inadequate facilities for the use of learning with this technology, such as an internet network that is not smooth
Availability of various kinds of information to increase the knowledge of learning participants	It is challenging to provide learning related to soft skills when only relying on e-learning (online)
	The more often you use e-learning, Generation Z's oral communication skills get lower

	Extending technology exposure time to Generation Z
<b>Opportunity</b>	<b>Threat</b>
Creating online games for learning simulations such as those related to decision making	Suppose there is no good regulation in searching for information. In that case, Generation Z is increasingly vulnerable to obtaining information whose contents cannot be accounted for and can damage their ethics and morals.
Building a learning website to support the improvement of human literacy that is adapted to Indonesian norms, culture, and ethics	Because information from various cultures that may be contrary to Indonesian and eastern culture will cause Generation Z not to understand the culture of their own country

So far, the learning materials provided are, of course, adapted to the curriculum and learning objectives that have been set. Online learning is almost the same as face-to-face learning to increase knowledge cognitively. Especially for blended learning, the increase in cognitive knowledge will be more pronounced because it is designed under the supervision of an instructor or lecturer. Based on research and Technology and Higher Education standards, interactions between students and lecturers can be done online and offline. Thus, courses that participate in online or blended learning related to understanding technology should be able to achieve an increase in technology and data literacy. This increase in technology and data literacy will be felt more if the material provided is accompanied by good practice.

With the character of Generation Z, who uses information technology intuitively because they are born familiar with technology, it should be easier for them to improve their technology and data literacy skills. But if you remember, Generation Z spends more time online on YouTube or social media such as Instagram and Snapchat. An assumption needs to be proven that they are mostly just connoisseurs or spectators, only a few who use these applications to improve their abilities and creativity. This is also supported by their habits that tend to be less thoughtful and pleasure-seeking.

Increasing human literacy for Generation Z will be more difficult. Human literacy, which includes communication, collaboration, critical thinking, and creative and innovative skills, will be more difficult if only online learning is used. Human literacy is closely related to character development. Until now, character development through face-to-face learning is also considered not very successful, let alone relying on online learning. The ability to interact directly, less favored by Generation Z than online communication, will make increasing human literacy even more challenging.

Generation Z still needs guidance from lecturers in learning. This is mainly because Generation Z tends to think less and seek pleasure. In general, learning with technology has so far been more helpful in increasing knowledge or cognitive, for that

practice in the field under direct guidance from lecturers both online, primarily offline, is a must for Generation Z.

Relying too much on learning with technology in Generation Z will only increase their dependence on technology. Instead, they will find it increasingly difficult to interact and socialize directly. Human literacy skills need leadership experience and problem-solving, likely more easily obtained through direct interaction and organizational participation.

With low information validation capabilities, having a variety of data and information will make it more difficult for them to analyze a problem. Coupled with the lowering of their traditional values, it becomes a big task for the previous generation to help the character development of Generation Z. Although the universal concern that Generation Z has we need to respect, the cultural values that tend to be considered ancient Generation Z still need to be upheld. These values are the identity of a nation. As has happened in the Middle East region, which is concerned about the mixing of the opposite sex through online communication, it is necessary to think about the best way to regulate the application of learning using technology to minimize the possibility of such mixing.

The use of e-learning is still needed in learning, mainly to provide information on what is happening in one's own country or the world, which can show problems in human life, issues due to errors in communication, or mistakes in decision making that can lead to war or disaster. However, it takes practice in the real world rather than cyberspace to hone communication, leadership, and decision-making skills.

## E. CONCLUSION

Generation Z has specific characteristics that are different from other generations. Although they generally accept and are enthusiastic about learning using technology, intensive interaction between Generation Z and its lecturers is still very much needed. This is due to the characteristics of Generation Z, who tend to want instant, live for the moment, have a short attention span, and have low information validation ability. To improve human literacy, Generation Z still needs a lot of hands-on practice in the real world, plus technology to find actual information about what is happening in their own country or the outside world.

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