

Identification of Self-Efficacy Levels in Digital Literacy Among Generation Z on Higher Education Students

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Abstract

Current students need to be aware that self-efficacy in digital literacy is essential to ensure openness to technology and to possess the competence to manage available information. Digital literacy is related to the skills required to live, learn, and work in a digital society. Students who have self-efficacy in digital literacy skills will be able to strategically use technology to find and evaluate information, connect and collaborate with others, produce and share content, and use the internet and technology to achieve various personal, academic, and professional goals. This research is conducted in the form of a quantitative approach using Two-way ANOVA data analysis. The aim of this research is to describe self-efficacy in digital literacy skills among Generation Z students and the use of information and communication technology in learning.

Keywords: *Digital Literacy, Self-Efficacy, Generation Z, Gender*

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INTRODUCTION

The dynamic and ever-changing nature of technology requires students to continuously update their knowledge and competencies (OECD, 2015). With the rapid transfer of knowledge and the global phenomenon of technological diversity, it is crucial for students to possess digital literacy skills expected of digital natives. This is necessary for effectively performing tasks in a knowledge-based society and digital technology-driven environment.

(Martin, 2008) defines digital literacy as "the awareness, attitude, and ability to use digital tools to identify, access, manage, integrate, and create new information through the use of metacognitive skills." The key skills required in digital literacy include accessing, producing, and sharing accurate information and using technology in the learning process with various technologies correctly (Hamutoğlu, Canan-Güngören, Kaya-Uyanık & Gür-Erdoğan, 2017). According to (Theron et al, 2017), although it is assumed that students are digitally literate and skilled in accessing and using the internet, they need to understand the accuracy and trustworthiness of the information they access online. Improving digital literacy skills has an

impact on enhancing students' ability to provide high-quality evidence-based information to the community.

The majority of current students belong to the Generation Z, which includes individuals born between 1997 and 2012. Generation Z is a cohort of individuals born from the mid-1990s to the mid-2010s. They are often considered tech-savvy as they were raised in an era where the internet, social media, and smart devices became integral parts of daily life. Growing up in the technology era, Generation Z tends to have a strong belief in their abilities to understand, access, and interact with various digital platforms (Self-efficacy in digital literacy).

Self-efficacy is an individual's assessment and belief in how successful they can overcome challenging situations they may encounter in the future (Senemoğlu, 2018). In other words, self-efficacy is the learner's belief in their ability to successfully manage situations that may contain new and unexpected elements (Gredler, 2017; Honarзад & Rassaei, 2019). Individuals with high self-efficacy are more likely to exert effort to complete tasks, demonstrating resilience and persistence in the face of challenges (Maja, 2022; Leuwol et al., 2023). Moreover, these individuals are more willing to try new things, and they can tackle tasks more easily that they feel they have more control over the environment (Senemoğlu, 2018).

Self-efficacy in digital literacy for Generation Z not only encompasses technical skills but also the ability to understand the social impact and digital ethics. Self-efficacy is closely linked to digital literacy, where individuals' confidence in improving their digital knowledge and skills affects their overall digital literacy levels (Lin et al., 2023). Individuals with high levels of self-efficacy in digital literacy tend to feel capable of using software, online platforms, and other digital resources to acquire, evaluate, and convey information. This research is conducted to describe:

1. Digital literacy self-efficacy among students based on gender.
2. Describe students' self-efficacy in digital literacy based on Self-Efficacy components.
3. Describe the components of students' self-efficacy based on gender.

METHODS

This research employs a quantitative method. This approach is chosen based on the issue to be investigated, which is the analysis of the level of self-efficacy in digital literacy among Generation Z students. The sample for this study consists of 146 Generation Z students selected through random sampling from various faculties at Universitas Negeri Padang.

FINDING AND DISCUSSIONS

The research implementation begins with an initial analysis through the distribution of a questionnaire identifying internet usage among Generation Z. Based on the preliminary analysis, the 3 researcher successfully identified factors influencing the level of digital literacy self-efficacy among Generation Z students at Universitas Negeri Padang. The identification results indicate that Generation Z spends time on the internet for activities such as seeking information, entertainment, and engaging in e-commerce.

Based on the internet utilization questionnaire, the data obtained are as follows:

1. Generation Z students spend a significant amount of time using the internet for entertainment, accounting for 60%.
2. Generation Z students spend a considerable amount of time using the internet for entertainment, amounting to 25%.
3. Generation Z students spend a notable amount of time using the internet for entertainment, totaling 15%.

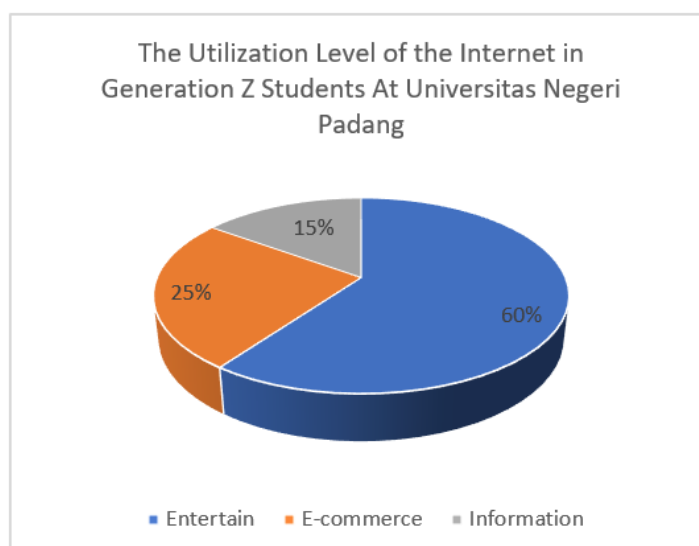


Figure 1. The Utilization Level of the Internet in Generation Z Students At Universitas Negeri Padang

Based on the preliminary analysis, this research proceeds by developing an instrument for self- efficacy in digital literacy among Generation Z. The indicators in this study refer to the Generalized Self- Efficacy Scale (GSES) by Schwarzer and Jerusalem (1995), adapted to measure the digital literacy abilities of students.

Table 1. Instruments to measure students' digital literacy abilities.

No	Dimension	Indicators
1	Maginitude	Complete the assignment in various difficulty levels having faith in being able understanding chemical matter
2	Strenght	Use hard work to complete tasks complete the task and have maximum learning achievement spend more time to complete task/problem encountered
3	Generality	Being able to finish problems in various situations use effeitive startegy to achieve maximum results

In the next stage, the measurement of the hypotheses in the research is conducted trogh a Two-way ANOVA test.

Table 2. Hypothesis testing using Two-Way ANOVA

Source	Type III Of Squares	df	Mean Square	F	Sig
Self Efficacy	36.293	2	18.147	3.129	.045
Gender	10.938	1	10.938	1.886	.170
Self Efficacy *Gender	65.487	2	32.743	5.647	.004

This research found that there is a significant difference in students' digital literacy skills based on self-efficacy ($p\text{-value} = 0.045 < 0.05$). However, there is no significant difference in digital literacy between males and females ($p\text{-value} = 0.170 > 0.05$). Furthermore, regarding the difference in self- efficacy based on gender, there is an interaction with a Sig value of $0.004 < 0.05$. Therefore, it can be concluded that there is a difference in self-efficacy between males and females.

Table 3. Self Efficacy

Dependent variable: digital literacy				
95% Confidence Interval				
Self Efficacy	Mean	Std.Error	Lower Bound	Upper Bound
Magnitude	19.571	.202	19.175	19.968
Strenght	19.333	.202	18.936	19.729
Generality	18.870	.202	18.474	19.266

Meanwhile, the self-efficacy component that has the most significant impact on students' digital literacy skills is magnitude. Magnitude refers to the issue related to the degree of difficulty of tasks faced by individuals. The higher the level of task difficulty, the higher the efforts made by students in seeking problem-solving through various digital literacy activities. For example, students may search for answers on the internet through browsing or engage in discussions on online forums when facing challenging tasks in digital literacy.

Table 4. Gender

Dependent Variable: Digital Literacy				
95% Confidence Interval				
Gender	Mean	Std.Error	Lower Bound	Upper Bound
Male	19.098	.169	18.767	19.429
Female	19.418	.161	19.102	19.733

Although there is no significant difference in digital literacy between males and females, the average digital literacy score for males is 19.098, which is slightly lower than the average digital literacy score for females, which is 19.418.

Table 5. Self Efficacy * Gender

Dependent Variable: Digital Literacy					
95% Confidence Interval					
Self Efficacy	Gender	Mean	Std.Error	Lower Bound	Upper Bound
Magnitude	Male	19.956	.292	19.382	20.530
	Female	19.187	.278	18.640	19.733
Strenght	Male	18.985	.292	19.411	20.227
	Female	19.680	.278	19.133	20.227
Generality	Male	18.353	.292	17.779	18.927
	Female	19.387	.278	18.840	19.933

Based on the results of this research, it can be observed that males tend to have a stronger magnitude (19.956 > 19.187) compared to females. This suggests that males tend to have a strong belief in their abilities to perform tasks or achieve specific goals. On the other hand, in the strength component, males have a mean of 18.985, which is lower than the mean for females, which is 19.680. Strength is related to the ability to stay stable and resilient in facing challenges or difficulties. In the last component, Generality, males have a mean of 18.353, which is also lower than the mean for females, which is 19.387. This indicates that females are more capable of using various methods and approaches to tackle problems and questions. They are not limited to seeking answers only on the internet but also through books and other textual readings.

DISCUSSION

This research demonstrates that strong self-efficacy has a powerful impact on students' digital literacy skills. Self-efficacy also influences proximal cognition components, where competent individuals are more likely to strive for acquiring new skills, persevere, and show persistence in completing tasks. They are willing to invest considerable time in pursuing specific goals (Semali & Mehta, 2012). Compared to individuals with low self-efficacy, those with high self-efficacy feel more confident in their actions, ideas, and emotions that influence their future. Individuals with high self-efficacy tend to see challenges as opportunities to learn and grow, whereas those with low self-efficacy perceive them as threats to their self-esteem (Aharony, 2011; El Haj, S. & Benhima, 2024; Mantasiah & Yusri, 2018; YENTÜR, 2023). Self-efficacy is crucial in enhancing students' motivation to complete challenging tasks and achieve specific goals (S. Ravikumar, 2011; İnce, 2023). This statement is reinforced by the research findings that the strongest component of student self-efficacy is magnitude, referring to the level of difficulty associated with an effort. The more challenging the problems encountered, the stronger the effort exerted by students to seek desired answers.

Furthermore, the self-efficacy component that influences digital literacy is Strength (belief strength). Strength represents the individual's robust belief in their abilities. A strong and firm expectation in individuals encourages perseverance in striving to achieve goals, even if they may not have supporting experiences. Strength has an impact on the digital literacy of Generation Z students, as they believe that through the use of the internet, they will find answers to the questions they encounter. Generation Z students are also more inclined to seek answers through the internet, which will enhance their confidence and provide material for discussions in both classroom and extracurricular forums. In the context of generation Z students, self-efficacy influences their digital literacy, particularly in their confidence in using the internet as a resource for finding answers (Şorgo et al., 2017). Research by (Hamilton & Qi, 2023) shows that the ease of accessing information online can increase individuals' confidence in their knowledge, which potentially leads to overconfidence when internet access is unavailable. Representative experiences in observing the success of others also affect the dimension of Strength. Observing others who can perform activities in stressful conditions without causing negative impacts may help students develop significant self-confidence. Through these experiences, students can learn how to successfully complete a task (Lent, R. W., 2016). Efforts to create such strong beliefs require extensive experience, especially in facing various difficulties and demanding situations, as well as perseverance and consistency.

Meanwhile, in terms of the generality aspect, it is lower than the other components in this study. Generality is related to the application of self-confidence in various faced situations, indicating how broad someone's belief is in their abilities across different situations or tasks. The concept of generality, which reflects the breadth of an individual's self across various situations, is crucial in understanding how individuals perceive their abilities in diverse contexts (B, 2023). In the context of generation Z students a lower level generality can be attributed to their heavy reliance on the internet when encountering challenges, potentially limiting their exploration of alternative problem solving approaches (Kawabe et al., 2016). The lower Generality is due to the dependency of Generation Z students when confronted with problems and questions. Generation Z students tend to seek answers through the internet and may not consider other options besides using the internet. Some studies have explained internet addiction in Generation Z during activities. Despite their excellence in using technology, Generation Z has weaknesses, such as being less skilled in verbal communication (Rini, 2016). Generation Z is less fond of processes; they are generally impatient and prefer instant things. This aspect reflects discomfort when unable to retrieve or search for information through smartphones. This is because smartphones provide convenience in accessing information (Fajri & Ruhaena, 2017; Hanika, 2015; Jocom, 2013).

CONCLUSION

Generation Z students with strong self-efficacy tend to be more daring to try anything. Strong self-efficacy, supported by a generation accustomed to using technology, influences the ability to skillfully sift through information that supports self-improvement. The strongest component of self-efficacy in Generation Z in this study is magnitude. This aspect influences individuals in choosing behaviors and actions that they are likely to try based on their efficacy expectations regarding the level of task difficulty. Meanwhile, there is no difference in digital literacy between males and females. Regarding the difference in self-efficacy components based on gender, males score higher on the magnitude component, while females score higher on the Strength and Generality components.

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