



## The Role of Digital Literacy and Self Efficacy in Enhancing Students' Critical Thinking in Learning in the Digital Era

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### Abstrak

Penelitian ini dilatarbelakangi oleh rendahnya kemampuan berpikir kritis mahasiswa. Tujuan penelitian ini adalah untuk menguji dan menganalisis peranan digital literacy dan self efficacy dalam meningkatkan critical thinking mahasiswa di era digital. Penelitian ini menggunakan pendekatan kuantitatif dengan metode survey. Teknik pengambilan sample menggunakan purposive sampling sebanyak 100 orang mahasiswa. Instrumen yang digunakan adalah tes dan angket. Teknik analisis data yang digunakan adalah asumsi klasik, analisis korelasi, dan analisis regresi linear berganda meliputi pengujian hipotesis Uji T, Uji F dan Uji R2. Hasil penelitian ini menunjukkan 1) Digital literacy berpengaruh secara positif dan signifikan terhadap critical thinking mahasiswa di era digital, 2) Self Efficacy berpengaruh secara positif dan signifikan terhadap critical thinking mahasiswa di era digital, dan 3) Digital literacy dan self efficacy berpengaruh secara positif dan signifikan terhadap critical thinking mahasiswa di era digital. Temuan penelitian ini mengisyaratkan pentingnya digital literacy dan self efficacy dalam meningkatkan critical thinking mahasiswa di era digital.

**Kata Kunci :** *Digital Literacy, Self Efficacy, Critical Thinking, Era Digital*

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### Abstract

*This research is motivated by the low critical thinking skills of students. The purpose of this research is to examine and analyze the role of digital literacy and self-efficacy in increasing students' critical thinking in the digital era. This research uses a quantitative approach with a survey method. The sampling technique used purposive sampling of 100 students. The instruments used are tests and questionnaires. The data analysis technique used is the classical assumption, correlation analysis, and multiple linear regression analysis including hypothesis testing T test, F test and R2 test. The results of this study show 1) Digital literacy has a positive*

*and significant effect on students' critical thinking in the digital era, 2) Self-Efficacy has a positive and significant effect on students' critical thinking in the digital era, and 3) Digital literacy and self-efficacy have a positive and significant effect and are significant to students' critical thinking in the digital era. The findings of this study hint at the importance of digital literacy and self-efficacy in increasing students' critical thinking in the digital era.*

**Keywords :** Digital Literacy, Self Efficacy, Critical Thinking, Digital Era

### Introduction

The Covid-19 pandemic has become a serious problem, especially in the education sector. Limited activities, forcing students to change learning methods by utilizing technological media and moving to a more complex digital era. According to Sukmana (2005) Digitalization requires equipment such as computers, scanners, media source operators and supporting software.

According to (Ni'mah 2021) during the Covid-19 pandemic digitalization was quite flexible to apply because it can adapt to the needs of educational elements, become a means of meeting learning objectives, and facilitate the learning process.

Significant changes in the learning culture have an impact on many aspects of student abilities, especially on critical thinking skills, where critical thinking is also one of the skills that animates 21st century learning. According to (Fadillah 2022) critical thinking is something that must always be built, because these skills play an important role in responding to the challenges of the 4.0 industrial revolution in the digitalization era.

Improving critical thinking, in the fast-paced digital era, is a new challenge for lecturers and students. This is in line with research (Sulaiman, 2020) which states that most students in Indonesia feel that the way they are taught at the university does not allow room for critical thinking. This will have an impact on reducing students' ability to think critically in the future.

In preventing a decrease in critical thinking skills, Digital literacy and self-efficacy will have an important role as

factors that support the improvement of students' critical thinking skills. This is in accordance with research conducted (Rochmatika, 2022) which says digital literacy has a positive effect on critical thinking skills.

Digital literacy can be defined as a basic skill in using information and digital tools strategically to use it critically as an effort to solve problems in real life (Cartelli et al, 2020).

According to (Rizal, 2020) digital literacy for students is still in the low category because the frequency of using digital technology for entertainment purposes is higher than for academic purposes. Because of the need for Digital Literacy for the use of academic interests, it is an important sector that must be considered.

Furthermore, self-efficacy is another factor that must be considered in improving critical thinking skills. According to Bandura (1994) Self efficacy is a person's belief in his ability to organize and carry out a series of actions needed to complete a particular task. Students who have confidence in their ability to complete assignments well will naturally maximize critical thinking. This is in line with research conducted by Prajono (2020) which says students with high self-efficacy have excellent mathematical critical thinking skills in analyzing, identifying problems, connecting concepts, solving problems, and evaluating given problems.

On the other hand, the transformation/digitization of the learning process from face-to-face (offline) to online

(online) raises many problems for students. In Lestari's research (2021) explained that online learning causes students to experience academic stress, because they are not used to it and lack of preparation makes students confused in online learning, the accumulation of information or concepts for students is less useful, students become passive, less creative and productive. This affects the quality of self-efficacy of students.

Based on the background and previous studies that have been described by the author, the writer is interested in researching the Role of Digital Literacy and Self Efficacy in Enhancing Students' Critical Thinking in Learning in the Digital Era . The purpose of this research is to examine and analyze the role of digital literacy and self-efficacy in upgrading critical thinking of students in the digital era . The findings of this study are expected to be able to provide views and insights about the importance of digital literacy and self-efficacy in upgrading critical thinking of students in the digital era.

## Method

This research uses a quantitative approach with a survey method. This research was conducted to examine the effect of digital literacy (X1) and self-efficacy (X2) on critical thinking (Y). The sampling technique used purposive sampling of 100 students. The instruments used are tests and questionnaires. Digital literacy variable indicators are Access, Analyze, Create, Reflect and Act (Naufal, 2021). Indicators of self-efficacy variables are Magnitude, Strength, Generality (Bandura, 1997). While the variable indicators of critical thinking skills are Basic Clarification, The Bases for a decision, Inference, Advanced Clarification, Supposition and integration (Alfaro-LeFevre, 2016).

The data analysis technique used is the classical assumption with the aim of understanding the data used beforehand is in accordance with the requirements, correlation analysis is to find out how close the relationship between the independent variables and the dependent variable is. Furthermore, data analysis techniques to see the effect of independent learning and learning motivation on students' critical thinking skills using multiple linear regression analysis. Then using hypothesis testing T test, F test and R test <sup>2</sup>.

## Results and Discussion

### Research Result

#### Overview of Research Respondents

##### Respondents Based on Gender

Table 1. Respondents by Gender

No	Gender	Amount	Percentage
1	Man	45	45
2	Woman	55	55
	Total	100	100

Source: Data Processing Results, 2023

##### Respondents Based on Age

Table 2. Respondents by Age

No	Age	Amount	Percentage
1	18-21	50	50
2	22-25	50	50
	Total	100	100

Source: Data Processing Results, 2023

### Classic Assumption Test

#### Normality Test

Table 3. Normality Test Results

	Unstandardized Residuals
asympt. Sig (2-tailed)	0.070

Source: Data Processing Results, 2023

From the results of the normality test, it is known that the sig results from the study are 0.070, which means that the sig

value is > 0.05, indicating that the data is normally distributed.

**Heteroscedasticity Test**

Table 4. Heteroscedasticity Results

Free Variables	Sig
Digital Literacy (X1)	0.088
Self Efficacy (X2)	0.085

Source: Data Processing Results, 2023

Based on Table 4 above, X1 shows that self-efficacy has a significant value of 0.088 where  $0.088 > 0.05$  where there is no heteroscedasticity for X2 namely Entrepreneurship Education obtains a significance value of 0.085, where  $0.085 > 0.05$  and there is no heteroscedasticity.

**Autocorrelation Test**

Table 5. Autocorrelation Test Results

Durbin Watson Values	Information
2.480	There is no autocorrelation

Source: Data Processing Results, 2023

**Multicollinearity Test**

Table 6. Multicollinearity Test Results

Variable	tolerance	VIF	Information
Digital Literacy (X1)	0.820	1.250	There is no multicollinearity
Self Efficacy (X2)	0.830	1.380	There is no multicollinearity
Critical Thinking (Y)	0.840	1.250	There is no multicollinearity

Source: Data Processing Results, 2023

Based on Table 6 above, it can be concluded that multicollinearity does not occur because the tolerance value is greater than 0.1 and the VIF value is not less than 0.10.

**Multiple Regression Test**

Table 7. Multiple Regression Test Results

Variable	Reg	Q	Sig
Constants	0.340	1,670	0.000
Digital Literacy (X1)	0.265	0.880	0.000
Self Efficacy (X2)	0.650	1.270	0.000
Adjusted R square	0.610		

Source: Data Processing Results, 2023

Based on the results of the regression test in the table above, the following equation can be written:

$$\text{Critical Thinking} = 0.340 + 0.265 (\text{Digital Literacy}) + 0.650 (\text{Self Efficacy}) + e$$

**T test**

Table 8. T test results

Variable	T <sub>count</sub>	T <sub>Table</sub>	Sig
Digital Literacy (X1)	0.880	0.680	0.003
Self Efficacy (X2)	1.270	0.680	0.030

Source: Data Processing Results, 2023

Based on Table 8 T-test results it can be seen that:

- 1) The t test on the digital literacy variable (X1) obtained a t count of 0.880 with a significance of 0.000. Because  $t \text{ count} > t \text{ table}$  ( $0.880 > 0.680$ ) or a significance of less than 5% ( $0.000 < 0.05$ ) partially the digital literacy variable (X1) has a significant effect on the critical thinking variable (Y) then H1 is accepted.
- 2) The t test on the variable self efficacy (X2) obtained a t count of 1.270 with a significance of 0.000. Because  $t \text{ count} > t \text{ table}$  ( $1.270 > 0.681$ ) or a significance of less than 5% ( $0.000 < 0.05$ ) partially the self-efficacy variable (X2) has a significant effect on the critical thinking variable (Y) then H2 is accepted.

**Determination Test**

The coefficient of determination or adjusted R square in this research model is 0.610 or 61% which means that digital literacy skills and self-efficacy in influencing critical thinking are 61% while the remaining 39% are influenced by other variables not included in this study.

## Discussion

### The Effect of Digital Literacy on Critical Thinking in Learning in the Digital Era

Based on the results of the partial test through multiple regression, digital literacy (X1) has a significant positive effect on critical thinking (Y). With Tcount 0.880 > Ttable value 0.680 and a significance value of 0.000 < 0.05. This means that the higher the student's digital literacy, the higher the student's critical thinking, conversely the lower the student's digital literacy, the lower the student's critical thinking ability.

Digital literacy has a significant influence on critical thinking skills in learning in the digital era. In the digital era, information is easily accessible via the internet (Sarief, 2022). Students with good digital literacy can collect and evaluate various sources of information critically. They can sort out information that is relevant, valid and reliable, and avoid spreading fake news (hoaxes) (Haryudo, Bashri, A., & Shodiq, 2023).

Digital literacy encourages users to critically process and analyze the information they encounter. Students can hone skills in identifying strong arguments, recognizing bias, and carefully evaluating data (Rochmatika, I., & Yana, 2022). The digital era allows students to interact and collaborate with others online. Online learning platforms, forums or discussion groups can help students to share ideas, debate and critically question other points of view. This improves their ability to see problems from various perspectives (Dinata, 2021).

Digital literacy allows students to use various supporting tools and technologies, such as presentation software, word processing software, or data visualization tools. By utilizing this tool, students can present their arguments more effectively, organize information well, and dig deeper into data (Amaly, N., & Armiah, 2021).

### The Effect of Self Efficacy on Critical Thinking in Learning in the Digital Era

Based on the results of the partial test through linear regression self-efficacy (X2) has a significant positive effect on critical thinking (Y). With Tcount 1.270 > Ttable value 0.681 and a significance value of 0.000 < 0.05. This means that the higher the student's self-efficacy, the higher the student's critical thinking, conversely the lower the student's self-efficacy, the lower the student's critical thinking ability (Sukma, Y., & Priatna, 2021).

Self efficacy or self-confidence has an important influence on critical thinking skills in learning in the digital era. Individuals with high self-efficacy tend to be more motivated to develop critical thinking skills. They have confidence that they are able to master these skills and see challenges as opportunities to learn and grow (Munadi, 2022).

Students who have high self-efficacy tend to have strong confidence in their ability to think critically in digital contexts. They believe that they can find solutions, identify mistakes, and make good decisions in using technology (Mutiar, F., Kesumawati, N., & Marhamah, 2023). High self-efficacy helps students overcome obstacles and uncertainties that may arise in digital learning. They are more likely to face challenges, try new approaches, and adapt to changes in technology more effectively.

High self-efficacy helps students make better decisions in using technology in learning. They feel confident in selecting

appropriate tools and resources, evaluating information critically, and using technology effectively according to learning objectives (Yulianto, A., Mashudi, M., & Herkulana, 2019). In the context of learning in the digital era, it is important for educators and educational institutions to pay attention to and strengthen student self-efficacy. Encouraging students to develop their self-confidence in using technology and critical thinking skills will have a positive impact on their learning in the digital era (Sartika, 2014).

### **The Effect of Digital Literacy and Self Efficacy on Critical Thinking in Learning in the Digital Era**

The results of the study simultaneously state that digital literacy (X1) and self-efficacy (X2) have a positive and significant impact on critical thinking skills (Y). With an Fcount value of 1.670 with a Ftable value of 0.610, a significance value of  $0.000 < 0.05$ . This means that the higher the student's digital literacy and self-efficacy, the higher the student's critical thinking, conversely the lower the student's digital literacy and self-efficacy, the lower the student's critical thinking ability.

This research is consistent and in line with the results of previous studies (Rochmatika & Yana, 2022; Debby, M., Faith, P., & Anggraini, 2023; Nura, 2020; Dewi, L., ReJeki, S., & Sulisno, 2019; Sukma, Y., & Priatna, 2021; Muhammad, NI, Amran, M., & Satriani, 2021) which reveals Digital Literacy and Self Efficacy for Critical Thinking in Learning in the Digital Era.

### **Conclusion**

Based on research problems, theoretical studies, research results, and discussions about The Role of Digital

Literacy and Self Efficacy in Enhancing Students' Critical Thinking in Learning in the Digital Era, while the conclusions of this study are 1) Digital literacy has a positive and significant effect on students' critical thinking in the digital era, 2) Self Efficacy has a positive and significant effect on critical thinking thinking of students in the digital era, and 3) Digital literacy and self-efficacy have a positive and significant effect on students' critical thinking in the digital era.

Based on the discussion and conclusions about the Role of Digital Literacy and Self Efficacy in Enhancing Students' Critical Thinking in Learning in the Digital Era, the authors' recommendations are **1) For teachers**, teaching staff should provide challenging questions and problems to improve critical thinking skills. Invite students to solve complex problems and think analytically, **2) For students**, preferably reading a variety of materials, including books, articles, journals, and other sources of information, will help you gain multiple perspectives. This will broaden your understanding of various issues and help you develop a more critical mindset, 3) For future researchers, it is best to conduct research by adding other variables that are thought to influence critical thinking and adding mediating or moderating variables that are thought to strengthen or weaken that influence.

### **Reference**

A Cartelli, Frameworks for Digital Competence Assessment: Proposals, Instruments, and Evaluation, Proceedings of Informing Science & IT Education Conference (InSITE), 2010, pp. 561-573.

Amaly, N., & Armiah, A. (2021). Peran Kompetensi Literasi Digital Terhadap Konten Hoaks dalam Media

- Sosial. *Alhadharah: Jurnal Ilmu Dakwah*, 20(2), 43-52.
- Asaniyah, "Pelestarian Informasi Koleksi Langka: Digitalisasi, Restorasi, Fumigasi." Buletin Perpustakaan No. 57 Mei 2017.
- Bandura, A., & Wessels, S. (1994). *Self-efficacy* (Vol. 4, pp. 71-81).
- Debby, M., Iman, P., & Anggraini, V. (2023). Pengaruh Kemampuan Literasi Digital Terhadap Kemampuan Berpikir Kritis Siswa SD Kelas VI. *Jurnal Riset Teknologi dan Inovasi Pendidikan (Jartika)*, 6(1), 01-10.
- Dewi, L., ReJeki, S., & Sulisno, M. (2019). *Pengaruh Self Efficacy Terhadap Critical Thinking Perawat* (Doctoral dissertation, Universitas Diponegoro).
- Dinata, K. B. (2021). Analisis Kemampuan Literasi Digital Mahasiswa. *Edukasi: Jurnal Pendidikan*, 19(1), 105-119.
- Fadillah, A. A., Melyana, A., Anggraeni, A. N., Afiyah, A. D., Aprilia, D., Nuraeni, E., ... & Wulandar, S. (2022). Membangun Critical Thinking Pembelajaran di Era Digital. *TSAQOFAH*, 2(4), 413-422.
- Haryudo, S. I., Bashri, A., & Shodiq, S. (2023). Pengaruh Kemampuan Berpikir Kritis & Literasi Digital terhadap Wawasan Kebangsaan. *JP (Jurnal Pendidikan): Teori dan Praktik*, 8(1), 70-76.
- Lestari, A. (2021). Strategi Mahasiswa dalam Meningkatkan Minat Belajar, Self-Efficacy, Self Regulated pada Pembelajaran Daring di Masa Pandemi Covid-19. *Didaktis: Jurnal Pendidikan Dan Ilmu Pengetahuan*, 21(3).
- Muhammad, N. I., Amran, M., & Satriani, D. H. (2021). Hubungan antara Efikasi Diri dengan Kemampuan Berpikir Kritis IPA Siswa. *Jurnal Pendidikan Dasar Dan Menengah (Dikdasmen)*, 11-20.
- Munadi, Y. (2022). *Pengaruh Efikasi Diri Terhadap Berpikir Kritis Pada Mata Pelajaran Fiqih Di MTs Al-Mursyidiyyah* (Bachelor's thesis, Jakarta: FITK UIN Syarif Hidayatullah Jakarta).
- Mutiara, F., Kesumawati, N., & Marhamah, M. (2023). Problem Based Learning Terhadap Kemampuan Berpikir Kritis Berdasarkan Efikasi Diri Pada Siswa MTs Kelas VII. *Teorema: Teori dan Riset Matematika*, 8(1), 100-107.
- Naufal, H. A. (2021). Literasi digital. *Perspektif*, 1(2), 195-202.
- Ni'mah, D. Z., Chamalah, E., & Azizah, A. (2021). Fleksibilitas dan aksesibilitas digitalisasi pembelajaran bahasa dan sastra indonesia di masa pandemi covid-19. *Jurnal Ilmiah SEMANTIKA*, 3(01), 84-90.
- Nura, S. R. (2020). *Pengaruh Model Pembelajaran Radec Berbasis Literasi Digital Terhadap Kemampuan Membaca Kritis Dan Berpikir Kritis Siswa Sekolah Dasar* (Doctoral dissertation, Universitas Pendidikan Indonesia).
- Prajono, R., Gunarti, D. Y., & Anggo, M. (2022). Analisis kemampuan critical thinking matematis peserta didik SMP ditinjau dari self efficacy. *Mosharafa: Jurnal Pendidikan Matematika*, 11(1), 143-154.

- Rochmatika, I., & Yana, E. (2022). Pengaruh Literasi Digital Dan Gaya Belajar Terhadap Kemampuan Critical thinking Siswa SMAN 1 Tukdana. *Perspektif Pendidikan dan Keguruan*, 13(1), 64-71.
- Rizal, R., Rusdiana, D., Setiawan, W., & Siahaan, P. (2020). The digital literacy of the first semester students in physics education. *Jurnal Pendidikan Fisika*, 8(2), 101-110.
- Sarie, F. L. (2022). *Pengaruh Program Literasi Digital Tular Nalar Mafindo Terhadap Kompetensi Critical Thinking (Survei pada Guru SMA di Daerah Istimewa Yogyakarta)* (Doctoral dissertation, UIN Sunan Kalijaga Yogyakarta).
- Sartika, M. (2014). *Pengaruh Model Pembelajaran Berbasis Masalah dan Efikasi Diri Terhadap Hasil Belajar dan Kemampuan Berpikir Kritis Siswa pada Materi Sistem Pencernaan Makanan di SMA Negeri 3 Medan* (Doctoral dissertation, UNIMED).
- Sukma, Y., & Priatna, N. (2021). Pengaruh self-efficacy terhadap kemampuan berpikir kritis siswa pada mata pelajaran matematika. *Jurnal Ilmiah Soulmath: Jurnal Edukasi Pendidikan Matematika*, 9(1), 75-88.
- Sulaiman, A., & Azizah, S. (2020). Problem-Based Learning Untuk Meningkatkan Kemampuan Critical thinking Di Indonesia: Sebuah Tinjauan Literatur Sistematis. *PEDAGOGIK: Jurnal Pendidikan*, 7(1), 107-152.
- Yulianto, A., Mashudi, M., & Herkulana, H. (2019). Pengaruh Kemampuan Komunikasi Interpersonal dan Efikasi Diri Terhadap Kemampuan Berpikir Kritis Siswa SMA. *Jurnal Pendidikan dan Pembelajaran Khatulistiwa (JPPK)*, 8(10).