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

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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.

Results and Discussion

Research Result

Overview of Research Respondents

Respondents Based on Gender

<table>
<thead>
<tr>
<th>No</th>
<th>Gender</th>
<th>Amount</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Man</td>
<td>45</td>
<td>45</td>
</tr>
<tr>
<td>2</td>
<td>Woman</td>
<td>55</td>
<td>55</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Data Processing Results, 2023

Respondents Based on Age

<table>
<thead>
<tr>
<th>No</th>
<th>Age</th>
<th>Amount</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>18-21</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>2</td>
<td>22-25</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Data Processing Results, 2023

Classic Assumption Test

Normality Test

<table>
<thead>
<tr>
<th>Unstandardized</th>
<th>Residuals</th>
</tr>
</thead>
<tbody>
<tr>
<td>asymp. Sig (2-tailed)</td>
<td>0.070</td>
</tr>
</tbody>
</table>

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>
<thead>
<tr>
<th>Free Variables</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digital Literacy (X1)</td>
<td>0.088</td>
</tr>
<tr>
<td>Self Efficacy (X2)</td>
<td>0.085</td>
</tr>
</tbody>
</table>

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>
<thead>
<tr>
<th>Durbin Watson Values</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.480</td>
<td>There is no autocorrelation</td>
</tr>
</tbody>
</table>

Source: Data Processing Results, 2023

**Multicollinearity Test**

<table>
<thead>
<tr>
<th>Variable</th>
<th>tolerance</th>
<th>VIF</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digital Literacy (X1)</td>
<td>0.820</td>
<td>1.250</td>
<td>There is no multicollinearity</td>
</tr>
<tr>
<td>Self Efficacy (X2)</td>
<td>0.830</td>
<td>1.380</td>
<td>There is no multicollinearity</td>
</tr>
<tr>
<td>Critical Thinking (Y)</td>
<td>0.840</td>
<td>1.250</td>
<td>There is no multicollinearity</td>
</tr>
</tbody>
</table>

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>
<thead>
<tr>
<th>Variable</th>
<th>Reg</th>
<th>Q</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constants</td>
<td>0.340</td>
<td>1.670</td>
<td>0.000</td>
</tr>
<tr>
<td>Digital Literacy (X1)</td>
<td>0.265</td>
<td>0.880</td>
<td>0.000</td>
</tr>
<tr>
<td>Self Efficacy (X2)</td>
<td>0.650</td>
<td>1.270</td>
<td>0.000</td>
</tr>
</tbody>
</table>

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:

Critical Thinking = 0.340 + 0.265 (Digital Literacy) + 0.650 (Self Efficacy) + e

**T test**

<table>
<thead>
<tr>
<th>Variable</th>
<th>T count</th>
<th>T Table</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digital Literacy (X1)</td>
<td>0.880</td>
<td>0.680</td>
<td>0.003</td>
</tr>
<tr>
<td>Self Efficacy (X2)</td>
<td>1.270</td>
<td>0.680</td>
<td>0.030</td>
</tr>
</tbody>
</table>

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 0.003. Because t count > t table (0.880 > 0.680) or a significance of less than 5% (0.003 < 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 count > t 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 (Sarie, 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).

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 (Mutia, 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 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).
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 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


