



Improving Students' Creative Thinking Ability Through Independent Learning and Intellectual Intelligence

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Abstrak

Penelitian ini dilatarbelakangi oleh rendahnya kemampuan berpikir kreatif mahasiswa. Tujuan penelitian ini adalah untuk menguji dan menganalisis Peningkatan Kemampuan Berpikir Kreatif Mahasiswa Melalui Kemandirian Belajar dan Kecerdasan Intelektual. 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) Kemandirian Belajar berpengaruh positif dan signifikan Terhadap Kemampuan Berpikir Kreatif Mahasiswa, 2) Kecerdasan Intelektual berpengaruh positif dan signifikan Terhadap Kemampuan Berpikir Kreatif Mahasiswa, dan 3) Kemandirian Belajar dan Kecerdasan Intelektual berpengaruh positif dan signifikan Terhadap Kemampuan Berpikir Kreatif Mahasiswa. Temuan penelitian ini mengisyaratkan pentingnya kemandirian belajar dan kecerdasan intelektual dalam meningkatkan kemampuan berpikir kreatif mahasiswa.

Kata Kunci: *Kemampuan Berpikir Kreatif, Kemandirian Belajar dan Kecerdasan Intelektual*

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Abstract

This research is motivated by the low ability of students' creative thinking. The purpose of this study was to examine and analyze the Improvement of Students' Creative Thinking Ability Through Independent Learning and Intellectual Intelligence. This research uses a quantitative approach with a survey method. The sampling technique used purposive sampling of 100

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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 indicate: 1) Learning Independence has a positive and significant effect on Students' Creative Thinking Ability, 2) Intellectual Intelligence has a positive and significant effect on Student Creative Thinking Ability, and 3) Learning Independence and Intellectual Intelligence have a positive and significant effect on Student Creative Thinking Ability. The findings of this study indicate the importance of learning independence and intellectual intelligence in improving students' creative thinking skills.

Keywords : *Creative Thinking Ability, Independent Learning and Intellectual Intelligence*

Introduction

The purpose of an education is to provide an environment that allows students to be able to develop abilities (potential), especially in terms of increasing creative thinking optimally (Aflah, 2023). Harriman explained that creative thinking is a thought that tries to create new ideas (Wulandari, 2019).

According to Munandar (2016) creativity is very important to build because creative thinking is an essential requirement for individual activities, raises various alternative possibilities for solving a problem, and improves one's quality of life. However, according to research conducted (Wulandari, 2021; Hasanah, 2021) says that students' creative thinking abilities in Indonesia are still low. This shows that the goals of education in Indonesia have not been achieved and the implementation of education has not had a positive impact in terms of increasing the creative thinking abilities of the nation's children.

Low creative thinking ability can be influenced by several factors, including learning independence and intellectual intelligence. This is in accordance with research conducted by (Erni 2022) which says that there is an effect of independent learning on the ability to think creatively. We need to know in advance that learning independence is a skill to carry out individual learning activities on the basis of

one's own desires in order to understand a learning material so that it can be used to create alternative solutions to the problems encountered (Amalia et al., 2018).

With independent learning, students can create independent characters in learning, motivate students to learn on their own initiative, teach students to be responsible and confident in solving their own problems (Fatimah & Sumartini 2022). Meanwhile, according to Mudjiman (in Asrori, 2020, p. 121) learning independence means that students are able to actively learn independently, which is driven by an intention or motive to master a competency in order to solve a problem, built with the provision of knowledge or competencies they already have.

In research conducted by (Al Aslamiyah 2019; Diana et al. 2020) said that there is still a problem of independent learning among students in Indonesia. This is one of the factors in the decline in the creative thinking ability of students in Indonesia. According to Desmita (2016, p. 190); Ali & Asrori (2017, pp. 119-120) indicators of student learning independence are as follows; 1) Free and responsible, 2) Progressive and tenacious, 3) Initiative or creative, 4) Confident, 5) Self-control.

The next factor that influences the ability to think creatively is the intellectual intelligence factor. Intellectual intelligence is intelligence that is used to think logically

& rationally, namely a linear way of thinking which includes the ability to count, analyze to evaluate and so on (Sharif 2023). In theory intelligence to think logically and rationally will provide and strengthen the ability to think creatively. However, not much has been researched.

Aspects of intellectual intelligence have three aspects, namely: 1) The ability to solve problems where individuals who have intellectual intelligence have the ability to demonstrate knowledge of the problem at hand, make the right decisions, solve problems optimally showing a clear mind. 2). Verbal intelligence where individuals who have intellectual intelligence have good vocabulary, read with full understanding, are intellectually curious, show curiosity. 3). Practical intelligence where individuals who have intellectual intelligence understand situations know how to achieve goals, are aware of the world around them, show interest in the outside world (Febri Sulistiya, 2016: 15).

However, the results of the study with the number 78.49 classify the intellectual intelligence of Indonesian people at the threshold. Intellectual intelligence that is below average has not been achieved by Indonesian people (Gatra, 2022). Apart from that, research on the effect of intellectual intelligence on the ability to think creatively is also very minimal, so it is necessary to conduct deeper research.

Based on the background and previous studies that have been described by the author, the writer is interested in researching " Improving Students' Creative Thinking Ability Through Learning Independence and Intellectual Intelligence". The purpose of this study was to examine and analyze the Improvement of Students' Creative Thinking Ability Through Independent Learning and Intellectual Intelligence. The research findings are expected to be able to contribute ideas

about the importance of Improving Students' Creative Thinking Ability Through Independent Learning and Intellectual Intelligence.

Method

This research uses a quantitative approach with a survey method. The research was conducted to examine the effect of independent learning (X1) and learning motivation (X2) on critical thinking (Y). The sampling technique used purposive sampling of 100 students. The instruments used are tests and questionnaires. Indicators of independent learning variables are 1) having a sense of responsibility, & not depending on other people, 2) having great curiosity, 3) having an attitude of self-confidence (Mummy, 2013). Indicators of intellectual intelligence variables are 1) figure ability, verbal ability and numerical ability (Adinda, K., & Rohman, 2015). While the variable indicators of creative thinking ability are fluency, flexibility, originality, and elaboration (Treffinger et al., 2002).

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 ².

Results and Discussion

Research Result

Overview of Research Respondents Respondents Based on Gender

Table 1. Respondents by Gender

No	Gender	Amount	Percentage
1	Man	35	35
2	Woman	65	65
	Total	100	100

Source: Data Processing Results, 2023

Respondents Based on Age

Table 2. Respondents by Age

No	Age	Amount	Percentage
1	18-21	66	66
2	22-25	33	33
	Total	100	100

Source: Data Processing Results, 2023

Classic assumption test

Normality test

Table 3. Normality Test Results

	Unstandardized Residuals
asyp. Sig (2-tailed)	0.890

Source: Data Processing Results, 2023

From the results of the normality test, it is known that the sig result of the study is 0.890, 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
Learning Independence (X1)	0.077
Intellectual Intelligence (X2)	0.095

Source: Data Processing Results, 2023

Based on Table 4 above, X1 shows that self-efficacy has a significant value of 0.077 where $0.077 > 0.05$ where there is no heteroscedasticity for X2 namely Entrepreneurship Education obtains a significance value of 0.095, where $0.095 > 0.05$ and there is no heteroscedasticity.

Autocorrelation Test

Table 5. Autocorrelation Test Results

Durbin Watson Values	Information
2,270	There is no autocorrelation

Source: Data Processing Results, 2023

Multicollinearity Test

Table 6. Multicollinearity Test Results

Variable	tolerance	VIF	Information
Learning Independence (X1)	0.730	1,360	There is no multicollinearity
Intellectual Intelligence (X2)	0.660	1.375	There is no multicollinearity
Creative Thinking (Y)	0.790	1,280	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	0.380	1,650	0.000
Learning Independence (X1)	0.285	0.850	0.000
Intellectual Intelligence (X2)	0.680	1,250	0.000
Adjusted R square	0.690		

Source: Data Processing Results, 2023

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

$$\text{Creative Thinking Ability} = 0.380 + 0.285 (\text{Independence in Learning}) + 0.680 (\text{Intellectual Intelligence}) + e$$

T test

Table 8. T test results

Variable	T _{count}	T _{Table}	Sig
Learning Independence (X1)	0.850	0.674	0.003
Intellectual Intelligence (X2)	1,250	0.674	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 learning independence variable (X1) obtained a t count of 0.850 with a significance of 0.003. Because t count > t table (0.850 > 0.674) or a significance of less than 5% (0.000 < 0.05) partially the learning independence variable (X1) has a significant effect on the creative thinking ability variable (Y) then H1 is accepted.
- 2) The t test on the intellectual intelligence variable (X2) obtained a t count of 1.250 with a significance of 0.000. Because t count > t table (1.250 > 0.681) or a significance of less than 5% (0.000 < 0.05) partially the intellectual intelligence variable (X2) has a significant effect on the creative thinking ability variable (Y) then H2 is accepted.

Determination Test

The value of the coefficient of determination or adjusted R square in this research model is 0.690 or 69% which means that learning independence and intellectual intelligence in influencing creative thinking ability is 65 % while the remaining 31% is influenced by other variables not included in this study.

Discussion

The Effect of Independent Learning on Students' Creative Thinking Ability

Based on the results of the partial test through multiple regression, learning

independence (X1) has a significant positive effect on creative thinking (Y) . With Tcount 0.850 > Ttable value 0.674 and a significance value of 0.003 < 0.05. This means that the higher the student's learning independence, the higher the student's creative thinking ability, conversely the lower the student's learning independence, the lower the student's creative thinking ability.

Independent learning has a significant influence on the ability to think creatively. Learning independence involves the ability to organize and manage learning independently. When someone is able to study and complete tasks independently, they feel more confident in facing challenges and finding creative solutions (Astuti, Bintang, Utami, & Akbar, 2020).

Independent learning provides freedom and flexibility for individuals to explore new ideas. When people are in control of their own learning process, they are more likely to come up with original and creative ideas. Learning independence encourages a person to be more critical of the information and knowledge they encounter. In the process of independent learning, individuals learn to evaluate ideas, analyze arguments, and seek innovative solutions (Ratnaningsih, 2007).

In independent learning, individuals can choose the learning method that best suits their style and interests. This enables the development of divergent thinking skills, namely the ability to see problems from various perspectives and generate unconventional solutions (Trijaya, 2020). Independent learning involves the willingness to take initiative in learning. Individuals who learn independently tend to be more willing to take risks and try new things. This supports the ability to think creatively, where new ideas often emerge

through exploration and experimentation (Pratiwi, Supandi, S., & Harun, 2021).

In the context of education, it is important for educators to encourage and support student learning independence. By providing space and opportunities for students to take an active role in their learning, creative thinking skills can be improved and nurtured more effectively (Huda, Mulyono, & Rosyida, 2020).

The Influence of Intellectual Intelligence on Students' Creative Thinking Ability

Based on the results of the partial test through linear regression Intellectual intelligence (X2) has a significant positive effect on creative thinking (Y) . With a Tcount of 1.250 > a Ttable value of 0.674 and a significance value of 0.015 <0.05. This means that the higher the student's intellectual intelligence, the higher the student's creative thinking ability, conversely the lower the student's intellectual intelligence, the lower the student's creative thinking ability.

Intellectual intelligence, which is also known as cognitive intelligence or IQ intelligence, has a significant influence on the ability to think creatively (Barus, 2020). High intellectual intelligence is often associated with strong analytical thinking abilities. Individuals with high intellectual intelligence tend to have the ability to solve problems systematically, analyze information carefully, and identify complex relationships and patterns. This analytical thinking ability can support creative thinking processes by enabling deep and critical thinking (Diana, 2022).

High intellectual intelligence is often associated with greater memory capacity. Individuals with high intellectual intelligence tend to be able to store, remember, and access information more efficiently. This strong memory capacity can

facilitate the exploration of broad ideas and knowledge, which are important resources in the creative thinking process. High intellectual intelligence can also provide greater thinking flexibility (Eva, & Kusri, 2016). Individuals with high intellectual intelligence tend to be able to think flexibly, change perspectives, and explore various options. The ability to move between different concepts and approaches to thinking allows individuals to generate creative ideas and unexpected solutions.

High intellectual intelligence often corresponds to a broader level of knowledge and skills. Individuals with high intellectual intelligence tend to have a fast learning capacity and are able to master various disciplines. Extensive knowledge and in-depth skills can provide a solid foundation for creative thinking by enriching the available mental resources to connect and integrate various concepts (Cahyono, 2017).

While intellectual intelligence can provide a good foundation, it is also important to remember that creative thinking skills can be developed through practice, experience and the right approach. Many other factors, such as the environment, motivation, and continuous learning, also play an important role in the development of creative thinking abilities (Khumaidi, K., & Tarmudji, 2014).

The Effect of Learning Independence and Intellectual Intelligence on Students' Creative Thinking Ability

The results of the study simultaneously stated that independent learning (X1) and intellectual intelligence (X2) had a positive and significant impact on creative thinking skills (Y). With an Fcount value of 0.690 with a Ftable value of 0.674, a significance value of 0.000 <0.05. It means

The results of this study are in line and consistent with the results of previous studies (Yeni, S., Buyung, B., & Dewi, 2020; Akhdiyati, AM, & Hidayat, 2018; Ladjar, 2018) which revealed that Learning Independence and Intellectual Intelligence had an effect on Against Creative Thinking Ability.

Conclusion

Based on research problems, theoretical studies, research results, and discussion on Improving Students' Creative Thinking Ability Through Independent Learning and Intellectual Intelligence , the authors can draw conclusions, namely 1) Learning Independence has a positive and significant effect on Students' Creative Thinking Ability, 2) Intellectual Intelligence has a positive effect and significant to Students' Creative Thinking Ability, and 3) Learning Independence and Intellectual Intelligence have a positive and significant effect on Students' Creative Thinking Ability.

Based on the results, discussion and conclusions about Improving Students' Creative Thinking Ability Through Independent Learning and Intellectual Intelligence, the authors' recommendations are 1) For teaching staff, it is best to encourage students to think divergently by asking open questions, inviting them to see problems from various perspectives, and develop alternative solutions. Provide challenges that stimulate creative thinking and give them the freedom to explore various options, 2) For students, it is better to read a variety of books, articles and other materials. Explore topics that interest you outside of school subjects. By continuing to broaden your knowledge, you will have richer resources to produce creative ideas, 3) For future researchers, it is best to

conduct research by adding other variables that are thought to influence creative thinking as well as adding mediating or moderating variables that are thought to strengthen or weaken this influence

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