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The Effect of the Simulation Method on Creative Thinking Ability and Basic Teaching Ability of Islamic Religious Education Students

Hamzah[1*], Nur'aini[2]
*Corresponding author
[1]drhamzah7730@gmail.com, [2]nuraini@uis.ac.id
[1, 2]Sekolah Tinggi Agama Islam Ibnu Sina, Batam

Abstract

This study aims to determine the effect of the simulation method on the ability to think creatively and the basic teaching skills of students majoring in Islamic Religious Education (IRE) at the Ibnu Sina High School-Batam. The approach used in this research is quantitative, using quasi-experimental techniques. The research design used is the pre-test and post-test design. The sample used in the study was students majoring in IRE, totalling 23 people who took the Learning Methods and Strategies course. Data collection is done by testing techniques. The test is used to measure students' creative thinking skills and basic teaching abilities. Data were analyzed using the N-gain and correlation test and F test, in this case, it was done with the help of SPSS 16 software. Based on the data and analysis results and statistical tests (N-gain test) it can be concluded that the simulation method has an effect on the ability to think creatively by 56 % and the basic ability to teach students majoring in Islamic Religious Education (IRE) at the Ibnu Sina High School-Batam is 79%. Based on the F test, these results are in the very convincing category. Therefore it can be said that the simulation method can be used as an alternative to developing students' creative thinking skills while improving their basic teaching skills.

***Keywords**: simulation method, creative thinking, basic teaching skills*

Abstrak

Penelitian ini bertujuan untuk mengetahui pengaruh metode simulasi terhadap kemampuan berpikir kreatif dan kemampuan dasar mengajar mahasiswa jurusan Pendidikan Agama Islam (PAI) di Sekolah Tinggi Ibnu Sina-Batam. Pendekatan yang digunakan dalam penelitian adalah kuantitatif, dengan teknik quasi eksperimen. Desain penelitian yang digunakan adalah pretes and postes desain. Adapun sampel yang digunakan dalam penelitian adalah mahasiswa jurusan Pendidikan Agama Islam (PAI) yang berjumlah 23 orang yang mengikuti mata kuliah Metode dan Strategi Pembelajaran. Pengumpulan data dilakukan dengan teknik tes. Tes digunakan untuk mengukur kemampuan berpikir kreatif dan kemampuan dasar mengajar mahasiswa. Data dianalisis dengan menggunakan N-gain dan uji korelasi serta uji F, dalam hal ini dilakukan dengan bantuan software SPSS 16. Berdasarkan data dan hasil analisis serta uji statistic (uji N-gain) dapat disimpulkan bahwa metode simulasi berpengaruh terhadap kemampuan berpikir kreatif sebesar 56% dan kemampuan dasar mengajar mahasiswa jurusan PAI di Sekolah Tinggi Ibnu Sina-Batam 79%. Berdasarkan uji F, hasil tersebut termasuk ketagori sangat meyakinkan. Oleh sebab itu dapat dikatakan bahwa metode simulasi dapat digunakan sebagai alternative dalam mengembangkan kemampuan berpikir kreatif mahasiswa sekaligus meningkatkan kemampuan dasar mengajarnya.

Kata Kunci: metode simulasi, berpikir kreatif, kemampuan dasar mengajar

INTRODUCTION

One important factor in improving the quality of education is the availability of teachers who can think and act creatively. This is because the teacher's creative thinking ability is the main source of teacher creativity in carrying out learning, including in forming collaborative learning (Peralta & Tirado, 2023). Therefore the development of creativity in learning is an important element in education (Muhammad, 2023). Creativity in learning will be realized by teachers who can think creatively, while creative teachers will be able to create creative students as well (Kau, 2017). Teachers who are creative in carrying out learning can also influence students' interests and learning outcomes (Adawiyah et al., 2023), student learning motivation (Adawiyah et al., 2023), and students' creative thinking skills (Niamis, 2019; Nishfi, 2022). Therefore, teacher creativity in carrying out the learning process is an important factor in improving the quality of education (Nishfi, 2022).

The teacher's creativity in carrying out the learning process is greatly influenced by his creative thinking skills, the better his creative thinking skills, the better his creativity in learning (Pentury, 2017; Nurwidodo et al., 2023, Hidayat et al., 2023). Therefore, developing the creative thinking skills of prospective teacher students is a must to create creative teachers in the future. Student teacher candidates who can think creatively will also have a positive impact on their abilities, for example in terms of problem-solving (Widiansah, 2019), increasing their ability to develop learning media (Nurhayati & Rahardi, 2021), increasing self-confidence (Nurwati & Alimuddin, 2017), can also improve their learning outcomes in general (Sahwari, 2021). Thus it can be understood that the ability to think creatively has a positive impact on students in general and especially prospective students of Islamic Religious Education (IRE) teachers.

Islamic Religious Education (IRE) is an important and strategic subject. Therefore, the government requires that IRE be taught at every level of formal education, starting from Elementary School to Higher Education. This indicates that IRE has an important role in nation-building, both in the field of education and other

fields, including in terms of maintaining national unity. Empirically, the important role of IRE in various ways, for example in forming the character of students (Rustan, 2018), and national character (Anwar, 2016), reducing or eliminating juvenile delinquency and in building and developing local wisdom (Saad, 2015) also in terms of building families and communities (Mursyid, 2021).

Referring to the important role of IRE in nation-building, as described above, the implementation of IRE learning in schools and tertiary institutions must be carried out in a quality manner. Especially in tertiary institutions, apart from creating an Islamic character, learning IRE is also intended to create qualified prospective IRE teachers (Arif, 2022). One indicator of a quality IRE teacher is his ability to carry out learning. In carrying out IRE learning, it is strongly influenced by the basic teaching skills possessed by the teacher. Therefore, the basic teaching skills of prospective teachers are one of the main competencies that they must master. Basic teaching skills equip teachers or prospective teachers to deliver subject matter so that it is right on target (Mansyur, 2017).

According to J. Skovsgaard et al. (2018), Madjid (2019), and Findeisen & Seifried, 2023), basic teaching skills are special abilities or skills that must be possessed by teachers, lecturers, and instructors to carry out teaching tasks effectively, efficiently and professionally. Dyah (2020) and Specia et al. (2022), state that there are eight basic skills (competencies) for teaching: skills to ask questions, provide reinforcement, carry out variations, explain, open and close lessons, guide small group discussions, manage classes, teach small groups and individuals. Thus it can be understood that there are various kinds or types of basic teaching skills. Therefore, the implementation of learning activities is of course related to the ability of the teacher personally and one of them is the ability to think creatively.

Various efforts have been and continue to be made to improve basic teaching skills, both for students and in-service teachers. One of the efforts to improve basic teaching skills is through learning using the simulation method (Tram, 2022; and A.Ghani & Mohd, 2022). This is because the simulation method

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uses a training concept that demonstrates something in an artificial form that is similar to the real situation (Li et al., 2022). In other words, the simulation method is a depiction of a system or process by demonstrating the use of actors (Hasbullah, 2021; Xue et al., 2022; Vladimír, 2022).

According to several studies, the simulation method has many advantages, including improving soft skills (T. Handayani, 2017), improving student learning outcomes (Riyanto, 2018), increasing understanding of the concepts being studied (Priyono, 2016; Anisa & Astriani, 2022), as well as being able to improve certain skills in students (Sulaeman et al., 2022; Tram, 2022). Thus, the use of the simulation method is believed to have a positive impact on students.

The urgency of the simulation method in learning has not been fully implemented optimally in the field of education. Several studies related to the simulation method have not specifically linked this simulation method to students' creative thinking skills and basic teaching skills, especially students majoring in IRE. This simulation method has also not been fully implemented at the Ibnu Sina-Batam Islamic College, mainly related to efforts to improve students' creative thinking abilities and basic teaching skills. Therefore, it is not yet known exactly how the effect the simulation method has on critical thinking skills and basic teaching skills for prospective IRE teacher students, especially at the Ibnu Sina Islamic High School, Batam. Therefore, the focus of the research is to determine the effect of the simulation method on critical thinking skills and basic teaching skills for prospective IRE teacher students, especially at the Ibnu Sina Islamic High School, Batam.

METHOD

The approach used in this research is quantitative, using quasi-experimental techniques with pre-test and post-test design models (Hastjarjo, 2019). The population used was students majoring in IRE, totaling 23 people who took the Learning Methods and Strategies course. Data collection was carried out using test techniques, namely to measure students' creative thinking abilities and basic

teaching abilities. Variable tests of creative thinking skills include aspects of fluent thinking, flexible thinking, originality, elaboration, and evaluation (Febrianti et al., 2016; Hidayat & Widjajanti, 2018; Haerunisa et al., 2021). The basic teaching skills cover aspects: asking questions, giving reinforcement, holding variations, explaining, opening and closing lessons, guiding small group discussions, managing classes, and teaching small groups and individually (Putri, 2020).

The creative thinking ability instrument was adapted from (Widiansah's (2019) research, with several adjustments, mainly related to content as a test medium. In this study, the content used is Islamic Religious Education. This instrument consists of 25 questions, with a score range of 0-100. The variable of basic teaching skills is measured using multiple choice questions consisting of 40 questions, with a score range of 0-100.

Data analysis was carried out in several stages, namely: stage 1, the initial assessment of each respondent. At this stage, each respondent is given a score according to the results achieved with the formula:

$$Ns1 = S \times 4 \quad \ldots\ldots\ldots\ldots\ldots (1)$$

$$NS2 = S \times 2.5 \quad \ldots\ldots\ldots\ldots (2)$$

Notes:
Ns1 is the final value obtained by the respondent in variable 1
NS2 is the final value obtained by the respondent in variable 2
S is the score obtained (test score)

Stage 1 analysis is used to carry out the process of categorizing student abilities in each measured variable. Categorization is done based on the score obtained and in a certain range of scores. The basis for decision-making is based on Table 1 as follows:

Table 1.
Categorization of student abilities in each variable

Range Score	Category
$N > 70$	High
$30 < N \leq 70$	Moderate
$N \leq 30$	Low

The second stage of analysis is to use N-gain. This analysis was carried out to know the increase in students' abilities on the variables measured, namely critical thinking skills and basic teaching skills. The formula used is as follows:

$$N - gain = \frac{Spos - Spre}{Smax - SPre} x\ 100\%$$

Decision-making is based on the following score ranges:

Table 2.
N-Gain Classification

N-Gain	Category of Improvement
g > 0,70	High
0,30 < g ≤ 0,70	Moderate
g ≤ 0,30	Low

The 3rd stage of data analysis is a hypothesis truth test, this test is carried out with a T-test which in this case is carried out with the help of SPSS 16 software

RESULT AND DISCUSS

This research was conducted in the range from January to May 2022 at the Ibnu Sina-Batam campus, in the Learning Methods and Strategies course. Before the implementation of learning, all students were asked to take a pre-test (as initial data), and at the end of the learning session, students were asked to fill out a post-test on each research variable. The data obtained at the end of the learning session is used as a reference for categorizing student abilities, both in terms of creative thinking skills and basic teaching skills. Based on the results of the test analysis on each variable, the categorization data is obtained as follows:

Table 3.
Percentage of Student Ability Categories in Each Variable

No	Variables	Range Score	Frequency	Percentage (%)	Category
	Creative Thinking Ability	N > 70	11	47,83	High
		30 < N ≤ 70	7	30,43	Moderate
		N ≤ 30	5	21,74	Low
	Total/ Average		23/ 71.52	100	Moderate
	Basic Teaching Skills	N > 70	13	56,52	High
		30 < N ≤ 70	7	30,47	Moderate
		N ≤ 30	3	13,01	Low
	Total/Average		23/81,23	100	High

Based on the data in Table 3, it can be seen that students' creative thinking skills are generally in the "high" category, namely 11 out of 23 people or around 47.83% scored more than 70 (N>70). As for students with "moderate" and "low" ability categories, respectively, were 30.43% and 21.74%. As for the basic teaching skills variable, in general, it is also dominated by students with "high" ability categories. It can be seen that 13 out of 23 students or around 56.52% scored more than 70 (N>70). The students with the "moderate" and "low" categories were 30.47% and 13.01%, respectively. This is also reinforced by the average value of each variable, which is 71.52 in the "high" category for creative thinking abilities and 81.23 for basic teaching skills in the "high" category.

Furthermore, to see the increase in students' abilities in each variable, the N-gain test was carried out. Based on this test, in general, the increase in student abilities in each variable can be seen in Table 4 below:

Table 4.
Student Ability N-gain Test Results for Each Variable

No	Variables	N-gain	Frequency	Percentage (%)	Category
1	Creative Thinking Ability	N > 0,7	9	39,13	High
		0,3 < N ≤ 0,7	9	39,13	Moderate
		N ≤ 0,3	5	21,74	Low
	Total		23/0,56	100	Moderate
2	Basic Teaching Skills	N > 0,7	11	47,83	High
		0,3 < N ≤ 0,7	8	34,78	Moderate
		N ≤ 0,3	4	17,39	Low
			23/0,79	100	High

In Table 4 above, it can be seen that in general students' critical thinking skills and basic teaching skills have increased. In the creative thinking variable, as many as 9 or about 30.13% of students increased in the "high" and "medium" categories. As for the rest, namely, 5 people, or around 21.74% experienced an increase in the "low" category. On average, the increase in students in this variable is in the "moderate" category with an average N-gain value of 0.56 or an increase of 56%.

In the basic teaching skills variable, students who increased in the "high" category were 11 out of 23 people or around 47.83%. Next are students with an

increase in the "medium" category of 34.78% and an increase in students in the "low" category of 17.39%. In general, students' basic teaching skills increased in the "high" category. This is based on the average N-gain value of 0.79 9 (N > 0.7) or an increase of 79% in this variable.

Furthermore, to find out the truth of the hypothesis proposed, a T-test was carried out which in this case was carried out with the help of SPSS 16 software. The results of the T-test for both variables can be seen in Table 5 below:

Table 5.
Paired Samples Statistics

Variables			Mean	N	Std. Deviation	Std. Error Mean
Creative Thinking	Pair 1	Pretest	45.22	23	22.738	4.741
		Post-test	71.52	23	13.770	2.871
Basic Teaching Skill	Pair 1	Pretest	35.27	23	26.838	5.561
		Post-test	81,23	23	14.760	4.674

Based on Table 5 above, it can be seen that the average pretest value for the creative thinking variable is 45.22 with a standard deviation of 22.738. As for the post-test, an average value of 71.52 was obtained with a standard deviation of 13.770. This proves that there has been an increase in the creative thinking skills of IRE students in learning by using the simulation method. As for the second variable, namely basic teaching skills, the pre-test obtained an average score of 35.27 with a standard deviation of 26.838. While the post-test obtained an average value of 81.23 with a standard deviation of 14.760. This data shows that students' basic teaching skills have increased when compared between their pre-test and post-test scores.

Furthermore, to find out how significant the increase in the average value of students in each variable measured can be seen in Table 6 below:

Table 6.
Paired Samples Test

Variables			Paired Differences					t	df	Sig. (2-tailed)
			Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Creative Thinking	Pair 1	Pretest — Post-test	-26.304	20.792	4.335	-35.296	-17.313	-6.067	22	.000
Basic Teaching Skill	Pair 1	Pretest — Post-test	-16.804	28.672	7.437	-56.476	-24.714	-9.177	22	.000

Table 6 shows that both variables have a sig.0.00 value, which means it is less than 0.005 (sig. 0.000 <0.005). Thus it can be understood that the increase in students' creative thinking skills and basic teaching skills by using the simulation method increases significantly and convincingly.

The increase in the learning outcomes of IRE students, in this case, the ability to think creatively and basic teaching skills as a result of the implementation of the simulation method in this study shows that the simulation model has a positive impact on these variables. The results of this study are in line with (L. Handayani's, (2020) research that the implementation of the simulation method can improve learning outcomes, namely in the form of soft skills, and improving other special tasks (Tokura, 2023). In addition, Priyono (2016), Brigas (2019), and Abdullah & Alnasheri (2023) also state that the use of simulation methods can improve students' understanding of certain materials. Thus it can be understood that in general, the use of simulation methods has a positive impact on student learning outcomes.

When viewed from the point of view of creative thinking abilities, namely mental activities used to build new ideas or ideas (Asmara et al., 2022). Referring to the results of this study it can be said that the simulation method can indirectly improve students' abilities in build new ideas. The development of new ideas in IRE learning will encourage the creation of more dynamic learning creativity. Because

the research also illustrates that the simulation method is indirectly able to inspire students to develop new ideas.

As mentioned by Denmead (2011) and Pentury (2017), the teacher's creativity in carrying out the learning process is greatly influenced by their creative thinking abilities, and the better the teacher's creative thinking abilities. Therefore, by increasing the creative thinking skills of prospective teacher students in research, their creativity in learning will also be better. This means that the simulation method also indirectly has a positive effect on teacher creativity in teaching.

The increase in students' basic teaching skills (Table 4), namely 56% in creative thinking skills and 79% in basic teaching skills shows that the simulation learning model has been empirically proven to be able to generate ideas and improve basic teaching skills. This is understandable considering that the purpose of implementing a simulation includes: (1) training skills or professional competence for daily activities; (2) gaining an understanding of a concept or principle; (3) training yourself to solve problems (Jannah et al., 2019; Sierra, 2020; Ardiwinata & Lutfiansyah, 2022). Therefore, improving the basic skills of teaching students is in line with the implementation of this learning model.

Referring to the description above, it can be understood that the simulation method, apart from being proven capable of increasing creative thinking skills as a basis for building new ideas and basic teaching skills for IRE students, this method can also improve other learning outcomes. Masruri (2020) states that the simulation method is effective in increasing student motivation and learning outcomes, improving management abilities (Tram, 2022), and mastery of certain concepts (Anisa & Astriani, 2022). Thus it can be understood that the research has strengthened previous research that the simulation method has a positive impact on student learning processes and outcomes. Therefore, the simulation learning method needs to be applied to other subjects so that the positive impact of this model can be felt more broadly.

Based on the results of this study, the simulation method needs to be developed and applied to the learning process of other subjects. This is because the

simulation method has been proven to be able to effectively improve the ability to think creatively and the basic teaching skills of prospective IRE teacher students, especially at STAI Ibnu Sina-Batam. Based on the research results, it can also be said that the implementation of this simulation method is also indirect to improve the quality of education.

CONCLUSION

Based on data and analysis results as well as statistical tests (N-gain test) it can be concluded that the simulation method affects the ability to think creatively by 56% and the basic teaching skills of students majoring in Islamic Religious Education (IRE) at Ibnu Sina High School-Batam 79%. Based on the T-test (Table 5), it is known that the sig. for both variables is 0.00 <0.05 which means that the learning model influences the ability to think creatively and the basic ability to teach students significantly and convincingly. Therefore, the implementation of the simulation learning model needs to be further developed so that a wider positive impact can be felt by students.

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