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The Impact of Team Quiz Method on Students' Ability to Solve Higher Order Thinking-based Questions in Social Studies Learning

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ABSTRAK

Kurang tepatnya penerapan metode pembelajaran menyebabkan rendahnya kemampuan siswa dalam menyelesaikan soal-soal IPS berbasis Higher Order Thinking Skills (HOTS). Oleh karena itu, diperlukan metode pembelajaran yang tepat sebagai solusi mengatasi masalah tersebut. Tujuan penelitian adalah untuk menguji pengaruh penerapan metode Team Quiz terhadap kemampuan siswa menyelesaikan soal-soal IPS berbasis HOTS materi ASEAN. Penelitian ini menggunakan metode quasi exsperimental dengan pretest-posttest nonequivalent control group design. Sampel penelitian berjumlah 36 siswa yang terdistribusi ke dalam 2 kelas. Teknik pengumpulan data melalui tes. Teknik analisis data dengan statistik parametrik melalui uji normalitas, uji homogenitas, dan uji hipotesis. Hasil penelitian menunjukkan bahwa uji normalitas Shapiro-Wilk > 0.05 dan uji homogenitas dengan nilai signifikan (Sig.) > 0.05. Ini berarti bahwa data penelitian berdistribusi normal dan kedua kelompok tersebut memiliki tingkat varians yang sama. Hasil uji hipotesis (Independent Sample T-Test) dengan nilai sig. (2-tailed) 0.000 < 0.05. Nilai rata-rata N-Gain score pada kelas eksperimen sebesar 63.99% dengan score minimal 53.33 dan score maksimal 80.00, termasuk dalam kategori cukup efektif. Di sisi lain, nilai rata-rata N-Gain score pada kelas kontrol hanya sebesar 23.37% dengan score minimal 15.38 dan score maksimal 38.46, termasuk dalam kategori tidak efektif. Dengan demikian, dapat disimpulkan bahwa terdapat pengaruh yang signifikan penerapan metode Team Quiz terhadap kemampuan siswa menyelesaikan soal-soal IPS berbasis HOTS materi ASEAN.

ABSTRACT

The lack of precise application of learning methods causes students' low ability to solve Social Sciences questions based on higher-order thinking Skills (HOTS). Therefore, appropriate learning methods are needed as a solution to overcome this problem. The research aimed to test the effect of applying the Team Quiz method on students' ability to solve HOTS-based social studies questions on ASEAN material. This research uses a quasi-experimental method with a pretest-posttest nonequivalent control group design. The research sample consisted of 36 students distributed into 2 classes. Data collection techniques through tests. Data analysis techniques using parametric statistics through normality tests, homogeneity tests, and hypothesis tests. The results showed that the Shapiro-Wilk normality test was > 0.05 and the homogeneity test had a significant value (Sig.) > 0.05. This means that the research data is normally distributed and the two groups have the same level of variance. Hypothesis test results (Independent Sample T-Test) with a sig value. (2-tailed) 0.000 < 0.05. The average N-Gain score in the experimental class was 63.99% with a minimum score of 53.33 and a maximum score of 80.00, included in the quite effective category. On the other hand, the average N-Gain score in the control class was only 23.37% with a minimum score of 15.38 and a maximum score of 38.46, included in the ineffective category. Thus, it can be concluded that there is a significant influence of the application of the Team Quiz method on students' ability to solve HOTS-based social studies questions on ASEAN material.

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1. INTRODUCTION

In the 21st century era which is characterized by rapid change and high complexity, the quality of graduates is a crucial factor in preparing individuals to succeed in this challenging world. High-level thinking abilities, including critical and creative thinking skills, are very necessary to face the complexity and dynamics of the 21st-century world (Hainora Hamzah et al., 2022; Vari & Bramastia, 2022). Preparing the younger generation with the ability to think critically, creatively, and be adept at making decisions to overcome various problems is an important thing that needs attention (Al Asadullah & Nurhalin, 2021; Asyifa, 2020). The more superior the human resources are, the more the people's welfare will improve, the country will advance, and create many job opportunities, as well as reduce the unemployment rate (Abdillah & Ramadhan, 2023; Mardhiyah et al., 2021; Putera et al., 2022). This means that it is necessary to focus on developing broader and deeper thinking abilities in the younger generation so that they can succeed and develop in today's dynamic and challenging environment.

Social Sciences, commonly referred to as IPS (Ilmu Pengetahuan Sosial) in Indonesia, is an interdisciplinary subject that integrates knowledge from various scientific disciplines such as geography, sociology, history, and economics. By combining these fields, Social Sciences simplifies complex concepts from different domains into a cohesive framework, making it easier for students to grasp and apply in their daily lives. This interdisciplinary nature allows students to develop a broad understanding of how society functions, from geographical factors that shape civilizations to the economic systems that drive progress (Fitria et al., 2021; Morrar et al., 2017). The primary goal of Social Sciences is to equip students with fundamental knowledge and skills that are essential for navigating and understanding the complexities of modern life. By learning about societal structures, historical events, and economic principles, students are better prepared to face real-world challenges (Ekaprasetya et al., 2022; Lestari et al., 2022). This knowledge is not only valuable in an academic context but also serves as a foundation for practical decision-making and problem-solving in everyday situations.

In addition to providing factual knowledge, Social Sciences plays a vital role in developing students' critical thinking abilities. Through the analysis of social phenomena, historical trends, and economic systems, students learn to evaluate information, consider different perspectives, and make informed decisions. These skills are essential for personal growth and success, as they enable individuals to respond effectively to societal changes and contribute positively to their communities (Prachanant, 2012; Sellars, 2012). Furthermore, Social Sciences fosters the development of essential life skills that go beyond academic success. By encouraging students to think critically and reflect on social issues, this subject helps cultivate empathy, ethical reasoning, and responsible citizenship (Kamil et al., 2019; Polizzi, 2020). As students acquire these skills, they are better equipped to contribute to societal well-being and prosperity, ultimately supporting their own success and the betterment of the community as a whole.

The Revised Bloom's Taxonomy states that the ability to think at a higher level involves skills in analyzing, evaluating, and creating (Anderson & Krathwohl, 2011; Aziz & Rawian, 2022; Indriyana & Kuswandono, 2019). The use of higher-order thinking (HOTS) questions is highly recommended in various types of evaluation in class and in school exams (Aprilia, 2018; Widana, 2017). The characteristics of HOTS questions include measuring high-level thinking abilities and being based on contextual problems (Gunartha, 2024; Widana, 2017). Solving higher-order thinking Skills (HOTS) questions requires more in-depth and analytical thinking compared to ordinary questions. This illustrates the importance of using higher-order thinking Skills (HOTS) questions in the evaluation process because it can help improve students' critical and analytical thinking skills.

Currently, in many schools, higher-order thinking skills (HOTS) in Social Sciences subjects have still not reached optimal levels. This can be seen from the students' ability to answer HOTS-based social studies questions which is still relatively low (Ambar et al., 2023; Hariani et al., 2023). Based on observations in class VI of Panjak 16 State Elementary School, it is known that students' ability to solve HOTS-based social studies questions on ASEAN material is still relatively low. Students have difficulty answering questions that require analysis, evaluation, and creation during tests. The average student test score is only 51.11.

The low ability of students to solve HOTS-based social studies questions is due to the fact that learning in social studies subjects still does not fully support the development of students' HOTS abilities, so efforts are needed to overcome this problem. One effort to overcome this problem is to apply appropriate learning methods. The Team Quiz method can be a solution. The Team Quiz method is a learning method that encourages students to improve and develop critical thinking patterns (Parappilly et al., 2021; Putra & Edora, 2021). Through this method, students have greater opportunities to train and improve HOTS skills.

According to research, implementing the team quiz method can improve students' critical thinking abilities (Asy'ari et al., 2023; Vinet & Zhedanov, 2011). Through the application of the Team Quiz method, students can not only develop social skills such as communication, cooperation and leadership, but can also enrich their understanding, hone their ability to analyze situations, evaluate evidence, make the right decisions and understand the logic behind the correct answers. Based on this idea, this research aims to test the effect of the Team Quiz method on students' ability to solve HOTS-based social studies questions on ASEAN material. This research introduces a novel approach by exploring the Team Quiz method as an instructional strategy specifically applied to enhancing students' ability to solve Higher Order Thinking Skills (HOTS)-based questions in social studies learning. While existing studies have investigated various collaborative learning techniques, limited attention has been given to the Team Quiz method in the context of developing HOTS, particularly in social studies.

2. METHOD

This study uses a quantitative approach. The type of research used is quasi-experimental. Quasi-experimental is a research method that involves providing treatment, measuring impacts, and experimental units. However, the researcher does not have complete control over the independent variables as in a true experiment. The research design used in this research is a pretest-posttest nonequivalent control group design. This research was carried out at Panjak 16 Public Elementary School, Sahan Village, Selebar District, Bengkayang Regency, West Kalimantan Province. The sampling technique is saturated sampling where all members of the population are included as samples (Sugiyono, 2018). The total sample in this study was 36 students distributed into two classes, namely class VI-A as the control group and class VI-B as the experimental group. Each group consists of 18 students.

The data collection technique uses the test method. The test method was carried out twice, namely the initial test (pretest) and the final test (posttest). This research used 3 experts (expert judgment) to test the instrument. The validity of the instrument was evaluated using the Content Validity Index (CVI) method. Testing the validity of instruments using the CVI approach is carried out by calculating two types of values, namely the content validity of each individual item (i-CVI) and the content validity of the whole (s-CVI). The measurement scale for the expert validation sheet uses an ordinal scale from 1 to 4. The predicates used are: 1 = not relevant, 2 = less relevant, 3 = somewhat relevant, and 4 = very relevant. Then the ordinal scale was converted into dichotomous values 0 and 1 to allow analysis with the CVI approach. Scales 1 and 2 fall into dichotomy 0, which means not feasible, while scales 3 and 4 fall into dichotomy 1, which means feasible (Cabatan et al., 2020; Polit & Beck, 2006). Reliability testing in this research was measured using the internal consistency method because the instrument was tested only once. Next, the data obtained is analyzed using certain techniques. Measuring the reliability of the instrument uses Cronbach's Alpha coefficient. All tests were carried out with an acceptable error rate of 5%. The HOTS question instrument grid for ASEAN material is presented in Table 1.

Table 1. HOTS Question Instrument Grid for ASEAN Material

Basic Competencies	Indicator	Question Number	Question Form	Cognitive Stages
Identify geographical characteristics and socio-cultural, economic and political life in the ASEAN region	Relate the iconic image of an ASEAN country to the geographical characteristics of the country.	1	Multiple choice	C-4
	Analyzing the territorial boundaries of an ASEAN country.	11, 12, 13	Multiple choice	C-4
	Relate a map image of an ASEAN country with the name of its capital city.	9	Multiple choice	C-4
	Concluding how to overcome the geographical problems of an ASEAN country.	19	Multiple choice	C-5
	Relate the nickname of an ASEAN country to the name of the icon that that country has.	20	Multiple choice	C-4
	Linking the iconic characteristics of an ASEAN country with the name of the icon.	21	Multiple choice	C-4
	Analyzing the icon location of an ASEAN country.	2	Multiple choice	C-4

Basic Competencies	Indicator	Question Number	Question Form	Cognitive Stages
	Relate the iconic image of an ASEAN country to the religion of the majority of the country's population.	3	Multiple choice	C-5
	Assessing environmental problems caused by human actions that often occur in ASEAN countries.	4	Multiple choice	C-5
	Selecting ethnic groups from a country.	6	Multiple choice	C-4
	Selecting countries where the majority of the population is Buddhist.	7	Multiple choice	C-4
	Relate the map image of an ASEAN country to the language generally used by the population of that country.	8	Multiple choice	C-4
	Connect the description of the icon of an ASEAN country with the name of the icon.	18	Multiple choice	C-6
	Explain the story behind the dance.	25	Multiple choice	C-6
	Connecting a map image of an ASEAN country with the country's superior resources.	10	Multiple choice	C-6
	Relate an image of an ASEAN country's currency to the founding figure of ASEAN from that country.	14	Multiple choice	C-4
	Linking the name of a country's capital to its currency.	16	Multiple choice	C-4
	Selecting countries led by a king as head of state.	5	Multiple choice	C-4
	Linking an image of an ASEAN country's currency to the head of government of that country	15	Multiple choice	C-4
	Connecting historical events from an ASEAN country with the nickname that country bears.	17	Multiple choice	C-6
	Associate the name of an ASEAN country's currency with the image of its country's flag.	22	Multiple choice	C-4
	Relate the flag image of an ASEAN country to its government system.	23	Multiple choice	C-4
	Analyzing the country of origin of ASEAN's founding figures.	24	Multiple choice	C-4

Data were analyzed with parametric statistics through the normality test (Shapiro-Wilk), homogeneity test (Levene statistic), and hypothesis test (Independent Sample T-Test) with a significance level of 0.05. Next, an N-Gain test was carried out to measure how effective the Team Quiz method was on students' ability to solve HOTS-based social studies questions on ASEAN material. This research uses the interpretation category of N-Gain effectiveness in percent. The N-Gain score categories used are N-Gain < 40 = not effective, N-Gain 40 – 55 = less effective, N-Gain 56–75 = quite effective, and N-Gain > 76 = effective. This data analysis process uses the help of IBM SPSS Statistics 21 software.

3. RESULT AND DISCUSSION

Result

The results of the instrument validity test from 3 expert judgments for questions 1 to 25 are in the scale range 3 and 4 with the predicate quite relevant and very relevant. Instrument validity test data is presented in Figure 1.

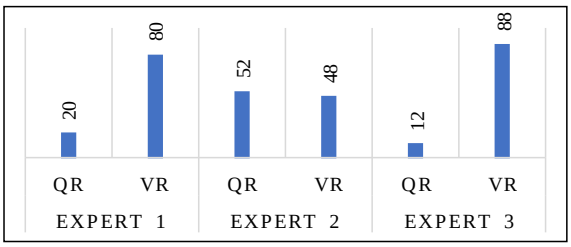

Figure 1. Instrument Validation Results Data (%)

Base on Figure 1, there were 25 multiple-choice questions tested on 8 students. The results of the instrument trial showed that the Cronbach's Alpha value was 0.90. Pretest and posttest data on the ability to solve HOTS-based social studies questions on ASEAN material for 36 students. Class VI-A as the control group and class VI-B as the experimental group each consisted of 18 students. The data is presented in Figure 2.

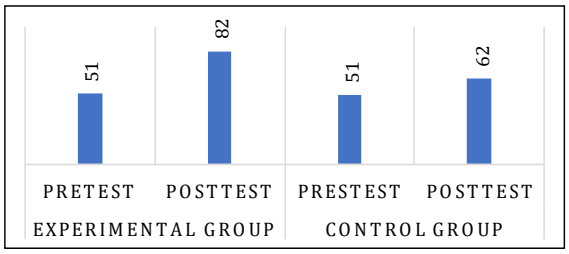

Figure 2. Pretest and Posttest Average Score Data

Testing the normality of pretest and posttest data in the experimental class and control class in this study used Shapiro-Wilk. The results of the normality test show that the significance value for the pretest and posttest data for the experimental class is 0.118 and 0.364. Meanwhile, the significance value for the control class pretest and posttest data was 0.257 and 0.331. The homogeneity test is carried out to determine whether the two populations have the same variance. Testing the homogeneity of posttest data processing in the experimental class and control class in this study used Levene's test statistics. The results of data analysis show that the significance value of Levene's statistical test is 0.832.

After calculating the normality test and homogeneity test, data analysis was carried out to test the hypothesis that had been proposed. This hypothesis test was carried out using the Independent Simple T-Test test formula. The results of the Independent Simple T-Test processing show that equal variance assumed at a significance value (2-tailed) 0.000 < 0.05, then H_o is rejected and H_a is accepted.

To determine the effectiveness of the Team Quiz method on students' ability to solve HOTS-based social studies questions on ASEAN material, an N-Gain test was carried out. This research uses the N-Gain Score test in percent form. The results of the N-Gain Score test processing are presented in Figure 3.

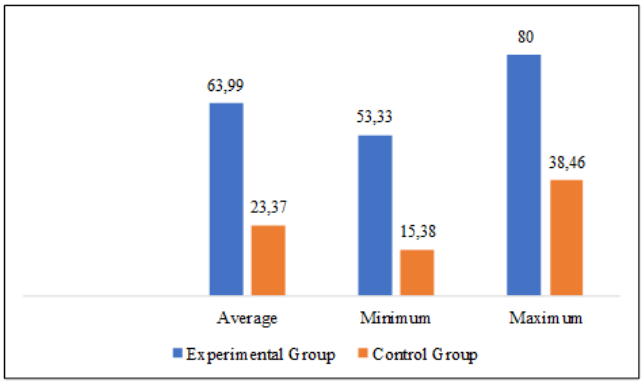

Figure 3. N-Gain score test calculation results (%)

Discussion

Referring to the opinions of 3 expert judgments, an i-CVI value of 1 was obtained for questions 1 to 25. Likewise, the s-CVI value is 1. Very high validity is achieved if the i-CVI value is in the range of 0.80

to 1.00. If the number of material experts is 3 to 6 then the acceptable CVI value must be 1 (Polit et al., 2007; Polit & Beck, 2006). Thus, it can be interpreted that questions 1 to 25 are feasible or relevant with a very high level of validity of the questions. Test instruments that are prepared appropriately reflect learning material related to ASEAN and can measure students' high-level thinking skills well.

The results of the reliability test showed that the Cronbach's Alpha value was 0.90. Cronbach's Alpha value ranges from 0 to 1 where a higher value indicates a higher level of consistency between items. Instruments that have a high level of reliability will produce consistent results when measured again at different times using the same scale. The research instrument is considered reliable if the Cronbach's Alpha value exceeds 0.6 (Jain & Jain, 2022; Taber, 2018). This research uses a value exceeding 0.6 as the standard reliability coefficient. Thus, it can be interpreted that the items in the instrument consistently measure students' ability to solve HOTS-based social studies questions on ASEAN material.

The pretest and posttest data for the experimental class and control class in the Shapiro-Wilk normality test were more than 0.05. Decisions can be taken based on probability (Asymptotic Significance) where if the probability is > 0.05, the population distribution is considered normal. Conversely, if the probability is <0.05, the population is considered not to have a normal distribution (Anggraini et al., 2020; Sugianto, 2022). Thus, it can be interpreted that the data on students' abilities in solving HOTS-based social studies questions on ASEAN material is normally distributed.

The results of posttest data processing in the experimental class and control class using Levene's test statistics have a significance value of 0.832 > 0.05. The basis or criteria for decision-making in the homogeneity test, namely: (a) if the significant value (Sig.) < 0.05 then it can be concluded that the variances of two or more groups of population data are not the same (not homogeneous); (b) if the significant value (Sig.) > 0.05, then it can be concluded that the variance of two or more groups of population data is the same (homogeneous) (Anakin & McDowell, 2021; Hamdi & Bahrudin, 2014). Thus, it can be interpreted that the variance of the experimental class and control class data is homogeneous. This means that both groups have the same level of variance.

Hypothesis testing (Independent Sample T-Test) at the significance level (2-tailed) with alpha 0.05 is 0.000 less than the alpha value of 0.05 (0.000 < 0.05). It can be said that Ho is rejected and Ha is accepted. Thus, it can be interpreted that there is a difference in the average ability to solve HOTbased social studies questions on ASEAN material between the group of students taught using the Team Quiz method and the group of students taught using the lecture method. Meanwhile, the average N-Gain score in the experimental class was 63.99% with a minimum score of 53.33 and a maximum score of 80.00, which was included in the quite effective category. This shows that the majority of students experienced significant improvements in understanding ASEAN material. On the other hand, the average N-Gain score in the control class was only 23.37% with a minimum score of 15.38 and a maximum score of 38.46, which was included in the ineffective category.

This shows that the learning method used in the control class did not provide a significant increase in students' ability to solve HOTS-based social studies questions on ASEAN material. Thus, this research proves that the Team Quiz method has a positive impact in improving students' ability to solve HOTS-based social studies questions on ASEAN material compared to the lecture method used in the control class. This research is supported by research results where the application of the Team Quiz method contributes positively to mathematical problem-solving abilities (Marian & Lestari, 2024; Maulidiawati et al., 2022; Sari et al., 2022). The Team Quiz method allows students to hone their critical, analytical, and evaluative thinking skills when collaborating with team members in answering quiz questions. The discussion and reflection process that occurs during Team Quiz activities also helps students to deepen their understanding of the subject matter and develop confidence in their own thinking abilities. Thus, through this method, students have a greater opportunity to train and improve HOTS abilities.

4. CONCLUSION

This research aims to test the effect of the Team Quiz method on students' ability to solve HOTS-based social studies questions on ASEAN material. Using a quasi-experimental design with two groups, namely the experimental group which applied the Team Quiz method and the control group which applied the lecture method, data was obtained through pre-test and post-test. The results of the analysis show that the data is normally distributed and the variance between groups is homogeneous. The results of the t test show that there is a significant influence of the application of the Team Quiz method on students' ability to solve HOTS-based social studies questions on ASEAN material. Apart from that, the N-Gain calculation shows a significant increase in students' ability to solve HOTS-based social studies questions on ASEAN material in the experimental group with the quite effective category.

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