The Influence Of Inquiry-Based Contextual Approach (CTL) On Student Learning Outcomes

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Abstract: The purpose of this study was to determine the effect of using an inquiry-based contextual approach (CTL) on student learning outcomes in Integrated Science learning (Biology) in class VII students of MTs NW Tebaban in the 2022 academic year. This type of research is a quasi-experimental. The population in this study were students of class VII MTs NW Tebaban. By using the random sampling technique, two classes were obtained as the sample class, the experimental group was class VIIB and the control group was class VIIA. Data collection techniques use learning achievement tests, and student observation sheets. Based on the results of research and discussion that the average value of the experimental class was 79.24 while the control class was 69.5. So it can be concluded that the learning outcomes of the experimental class group are higher than the learning outcomes of the control class group. Meanwhile, based on the results of the normality and homogeneity tests of the two groups, the data were normally distributed and homogeneous, and had relatively the same initial conditions, so a two-party t-test was used to test the hypothesis. From the calculation results, obtained tcount = 4.06 while the value of ttable = 1.68. therefore tcount > ttable, so Ho is rejected and Ha is accepted. So that it can be concluded that there is an influence of Inquiry-Based Contextual Approach (CTL) on Learning Outcomes of Grade VII MTS NW Students in Integrated Science Subjects


Introduction

Humans need education in their lives. With this education, humans can develop their potential so that they become quality human beings or in other words become human beings who have quality resources. Quality human resources play an important role in determining success in every sector of development, especially in the world of education (Tien, Ngoc, & Anh, 2021).

Education is a process of intentional activity or student input to cause a desired result according to the goals set as a deliberate process, so education must be evaluated to see whether the results achieved are in accordance with the desired goals and whether the process
done effectively to achieve the desired results (Alawamleh, Al-Twait, & Al-Saht, 2020). Education comes from the Greek "pedagogy" which is formed from the word "pais" which means child and "again" which means to guide (Khaldi & Erradi, 2021; Mansir & Wadham, 2021; Ramaekers, 2018). From the meaning of the word, it can be defined lexically that education is guidance or help given to children by adults on purpose so that children grow up. Education can be limited in its narrow and broad sense (Harrison & Waller, 2018). In a narrow sense, education is a conscious and planned effort to help students become mature (Chen, 2017). Education in this sense is carried out by formal school institutions. In schools, material is prepared in the form of a curriculum, strategies are organized and evaluations are held to measure mastery of the material planned and delivered using this strategy (Caird & Hallett, 2019). In a broad sense, all environmental manipulation aimed at changing children's behavior is education (Fahrurozi, Utomo, & Ratnasari, 2016; Renaud & Zimmermann, 2018). All positive personality changes that are not due to maturity are the result of the educational process. In this sense education is not limited to the maturing efforts undertaken by schools but also by families and society (Domitrovich, Durlak, Staley, & Weissberg, 2017; Fahrurrozi & Mohzana, 2022; Fahrurrozi, Riswanto, & Oktafiani, 2022; Tabroni, Irpani, Ahmadiah, Agusta, & Girivirya, 2022). In order to achieve the national education goals, the national development goals in the education sector are divided into several educational goals, starting from national goals to goals at the teaching level. The national goal of education is the ideals of the state for citizens after attending education (Hillman, Rensfeldt, & Ivarsson, 2020; Imsen, Blossing, & Moos, 2017).

National education goals are educational goals to be achieved at the national level(Latief, Sari, Yusuf, Armila, & Hidayat, 2021; Rieckmann, 2017). The results of the achievement will be in the form of: citizens who have national personality and fear of God Almighty, who are responsible for the welfare of society, nation and homeland (Santoso, 2021).

The results of preliminary observations revealed that the subject that was considered the most difficult was Integrated Science because it required high reasoning and thinking power so that it had to use varied and effective learning methods so that children were not bored and kept motivated to always learn, besides that students were still less enthusiastic, lack of motivation, less effective and complete learning has not been achieved. Learning at MTS NW Tebaban Class VII students are also still not good because they still use conventional methods with teacher-based learning and use more lecture and assignment methods, so that children feel bored and are not motivated to develop knowledge and ultimately achievement or learning outcomes and activities students decreased. This can be seen from the science scores of class VII students in semester 1 of the 2022 academic year with an average score of 55. The average student learning outcomes of MTs NW Tebaban still have not reached the Minimum Completeness Criteria (KKM) for science subjects, namely 70 and a A class is said to have completed learning if it has achieved 85% classical completeness. Such natural science learning conditions occur due to problems that arise in learning caused by the lack of existing infrastructure at the school, the ineffectiveness of the methods used by subject teachers. In the Integrated Science lesson in class VII, the researcher found a point of difficulty for students, namely a lack of understanding of the material being taught, especially on Pollution and Environmental Damage.
Based on these conditions, researchers are required to develop learning using various effective and efficient approaches. One way to overcome this problem is that researchers will apply an effective approach, namely by using an inquiry-based contextual approach. In essence, contextual learning (Contextual Teaching and Learning) is a concept that helps teachers relate the material being taught to real-world situations and encourages students to make connections between the knowledge they have and its application in their lives as members of the family and society. Contextual learning is an educational procedure that aims to help students understand the meaning of the subject matter they are studying by relating it to the context of their own lives in the social and cultural environment of society. There are 7 components of contextual learning namely constructivism, finding (inquiry), asking (questioning), learning community (learning community), modeling (modelling), reflection (reflection), and authentic assessment (authentic assessment). incorporated in the contextual approach the researcher hopes that students will be stimulated to think creatively and independently so that it will increase understanding of environmental pollution and damage and ultimately be able to improve biology learning outcomes, especially in material about pollution and environmental damage (Obaideen et al., 2022).

Research Method

This research is a quasi experimental research (pseudo-research). In this pattern there is an experimental group and a control group whose data collection is done randomly. Based on the pattern above, the documentation data for the experimental class and control class will be compared to confirm that the two samples are homogeneous and normal, while the test results for the experimental class and control class are compared to see the effect and treatment given. For the distribution of questions given to the experimental class and control class to see student learning outcomes again the treatment.

<table>
<thead>
<tr>
<th>Group</th>
<th>The Teaching</th>
<th>Post-Testing</th>
</tr>
</thead>
<tbody>
<tr>
<td>K</td>
<td>VIIa</td>
<td>O1</td>
</tr>
<tr>
<td>E</td>
<td>VIIb</td>
<td>O1</td>
</tr>
</tbody>
</table>

Information:

E : Experimental Group
K : Control Group
VIIIB : Inquiry-based Contest Approach (CTL) Learning
VIIA : Learning by lecture method
O1 : Post-test scores for the experimental group
O1 : Post-test scores for the control group

In addition, the population is defined as the entire research subject (Arikunto, 2021). Related to this research, the population in this study were all class VII MTs NW Tebaban. The following table presents the state of the class VII MTs student population. NW. In this study, the determination of the sample was carried out by simple random sampling. Sampling by simple random sampling was done because of the limited number of classes.

The data collection technique used in this study is a test, where the test is the ability to complete questions both taught by the inquiry-based contextual learning method and by the
lecture method, and the form of the test used is an objective test (multiple choice) with four choices, namely: a, b, c, and d. Where this test is used to collect data on student learning outcomes.

Result and Discussion

Data Description

Based on the research results obtained from the beginning of research on the material Pollution and Environmental Damage and Their Effects on Human Activities, which was carried out from April 13 to May 13, 2022. Meanwhile, the evaluation of learning outcomes was carried out on May 18, 2022. This research used two samples in data collection, namely class VIIA and class VIIB. Where VIIA class is taught using the Conventional method (lecture method) and VIIB class is taught using the Inquiry-based Contextual approach learning method. The total sample used was 50 students, namely 25 students in class VIIA and 25 students in class VIIB. The achievement of student learning outcomes in this study was measured by a multiple choice test with a total of 23 valid questions out of 30 items.

Data Analysis

1. Prerequisite Test
   Normality test

This data normality test was carried out on student learning outcomes data which was taught using the inquiry-based contextual learning model (CTL) and learning achievement data using conventional or lecture methods. To determine the normality of the data distribution, the chi-square statistic (X²) was used at a significance level of 5% with the criteria for testing the data as normal if X²count < X²table. The summary of the results of the data distribution normality.

<table>
<thead>
<tr>
<th>No</th>
<th>Class Description</th>
<th>Db</th>
<th>Significance level</th>
<th>X²count</th>
<th>X²table</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Students are taught using inquiry-based contextual learning (CTL).</td>
<td>5</td>
<td>5%</td>
<td>0.67</td>
<td>11.07</td>
</tr>
<tr>
<td>2</td>
<td>Students who are taught using conventional methods (lectures)</td>
<td>5</td>
<td>5%</td>
<td>2.20</td>
<td>11.07</td>
</tr>
</tbody>
</table>

From table 2, above it can be seen that the value of X²count < X²table, so it can be concluded that the distribution of student learning outcomes data uses inquiry-based contextual learning (CTL) and normal conventional methods.

b. Homogeneity Test

The homogeneity test aims to determine whether the two sample groups or more come from the same sample (homogeneous). The data used to determine whether the two groups are homogeneous or not is taken from the results of the final test for each group. Summary of F test results on learning achievement data students taught with contextual learning (CTL) and conventional methods are presented in table 3. below.
Based on the calculation results obtained $F_{\text{count}} = 1.11$ and $F_{\text{table}} (24/24) = 1.98$. Because the value of $F_{\text{count}} < F_{\text{table}}$, the data can be said to be homogeneous.

c. Hypothesis testing

After fulfilling the requirements of the analysis, it can be carried out to test the hypothesis that has been proposed to be accepted or rejected. The formula used to test the hypothesis is the t-test between the control class and the experimental class with t-table at a significant level of 5%. The research hypothesis is as follows:

H0: There is no influence of the inquiry-based contextual approach (CTL) on the learning outcomes of class VII MTs students. NW Estimates on integrated science subjects.

Ha: There is an influence of the inquiry-based contextual approach (CTL) on the learning outcomes of class VII MTs students. NW Estimates on integrated science subjects

On learning outcomes Using the t test for samples with normal and homogeneous distribution, it was found that $t_{\text{count}} = 4.06$ while the price for $t_{\text{table}} = 1.68$ (result of linear interpolation) for $df = 48$ and $\alpha = 5\%$. The summary of the results of the calculation of achievement data on student learning outcomes for groups taught using inquiry-based contextual learning (CTL) and groups taught using conventional methods is shown in table 3. below.

<table>
<thead>
<tr>
<th>No</th>
<th>Class</th>
<th>Average ($\bar{X}$)</th>
<th>Varians ($S^2$)</th>
<th>$T_{\text{count}}$</th>
<th>$T_{\text{table}}(df=48)$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Students taught with inquiry-based contextual learning (CTL).</td>
<td>79.24</td>
<td>77.66</td>
<td>4.06</td>
<td>1.68</td>
</tr>
<tr>
<td>2</td>
<td>Students are taught by conventional methods</td>
<td>69.5</td>
<td>69.88</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

From table 3. it can be seen that the value of $t_{\text{count}} > t_{\text{table}}(df=48, \alpha = 5\%)$ (4.06 > 1.68), so it can be concluded that there is an influence of the inquiry-based contextual approach (CTL) on student learning outcomes in class VII MTs. NW Estimates in the subject of Integrated Science

Student learning outcomes are measured by using multiple choice tests which are given at the end of the meeting. The value of the post-test results for the Experimental and Control groups will be described as follows.

Frequency distribution of experimental class student learning outcomes data In the experimental class or class taught using the inquiry-based contextual approach (CTL) learning method, the highest score was 96 and the lowest score was 57, the average score for learning outcomes using inquiry-based contextual learning approach was 79.24, with a
standard deviation 8.28. For more details, the results of the evaluation of the experimental class can be seen in table 4 below.

<table>
<thead>
<tr>
<th>No.</th>
<th>Value Intervals</th>
<th>Frequency</th>
<th>Middle value ((X_c))</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>57-63</td>
<td>1</td>
<td>60</td>
</tr>
<tr>
<td>2</td>
<td>64-70</td>
<td>3</td>
<td>67</td>
</tr>
<tr>
<td>3</td>
<td>71-77</td>
<td>6</td>
<td>74</td>
</tr>
<tr>
<td>4</td>
<td>78-84</td>
<td>9</td>
<td>81</td>
</tr>
<tr>
<td>5</td>
<td>85-91</td>
<td>5</td>
<td>88</td>
</tr>
<tr>
<td>6</td>
<td>92-98</td>
<td>1</td>
<td>95</td>
</tr>
<tr>
<td></td>
<td><strong>Amount</strong></td>
<td><strong>25</strong></td>
<td><strong>465</strong></td>
</tr>
</tbody>
</table>

Based on table 4. above, it is known that the experimental class group's understanding of pollution and environmental damage to human activities is included in the high category. The greatest frequency lies in the 78-84 interval of 9 students. While the graph of the frequency of experimental class learning outcomes is shown in Figure 1 below.

**Figure 1. Graph Of The Frequency Of Experimental Class Learning Outcomes**

Frequency distribution of control class student learning outcomes data In this study the class taught using conventional methods was class VIIA with a total of 25 students. From the data collected, it was obtained that the learning outcomes of students taught by conventional methods ranged from 48-87. The average value of learning outcomes using conventional methods is 69.5 with a standard deviation of 8.78. The frequency distribution of data showing the learning outcomes achieved by students taught using conventional methods is shown in table 5. below.

<table>
<thead>
<tr>
<th>No</th>
<th>Value Intervals</th>
<th>Frequency</th>
<th>Middle value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>48 – 54</td>
<td>1</td>
<td>51</td>
</tr>
<tr>
<td>2</td>
<td>55 – 61</td>
<td>4</td>
<td>58</td>
</tr>
<tr>
<td>3</td>
<td>62 – 68</td>
<td>5</td>
<td>65</td>
</tr>
<tr>
<td>4</td>
<td>69 – 75</td>
<td>10</td>
<td>72</td>
</tr>
</tbody>
</table>

**Table 5. Lists The Control Class Frequencies**
Based on table 5. above, it is known that the greatest frequency lies in the 69-75 interval of 10 students. To clarify the frequency distribution of conventional class post-test value data is presented in graphical form in Figure 2, below.

![Figure 2. Graph of The Frequency of Control Class Learning Outcomes.](image)

The results of giving tests to each group in a concise form are presented in table 6 below.

<table>
<thead>
<tr>
<th>Class</th>
<th>Maximum Value</th>
<th>Minimum Value</th>
<th>Mean (X)</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experiment</td>
<td>96</td>
<td>57</td>
<td>79.24</td>
<td>8.28</td>
</tr>
<tr>
<td>Control</td>
<td>87</td>
<td>48</td>
<td>69.5</td>
<td>8.78</td>
</tr>
</tbody>
</table>

Based on the results of the research, it was shown that in general there had been an increase in conceptual understanding of pollution and environmental damage and their effects on human activities, which were achieved by students after learning took place. Based on table 4.8 above, the average value of learning outcomes achieved by students in the experimental group is 79.24 with a maximum score of 96 and a minimum score of 57, and has a standard deviation value of 8.28. Meanwhile, the control class has an average value of 69.5 with a maximum value of 87 and a minimum value of 48 and has a standard deviation value of 8.78.

Inquiry-based contextual approach learning is given to class VIIB by following the steps according to the lesson plan that has been prepared previously. The initial step taken was the teacher giving apperception and motivation by asking students "what comes to your mind when you hear about a polluted environment? The teacher gives an overview to students about a polluted environment by giving an example of student A littering while..."
student B disposes of trash in its place. The teacher explains what will happen if student A continuously litters. The teacher conveys the topic of environmental pollution and the causes of its occurrence and problems are written on the board. The teacher guides students to form heterogeneous discussion groups consisting of 6-7 people with different intelligences, and each group member has their own role. The teacher gives worksheets about environmental pollution and its causes. The teacher asks students to look for various information or solutions about existing problems through observation or observations in the environment around the school. The teacher asks students to record their observations or observations on the LKS that has been distributed. The teacher asks each group to explain the answers to the results of the discussion. And the teacher gives a score from each group answer.

Based on testing the data analysis of Student Learning Outcomes with the normality test and homogeneity test then proceed with the t-test, the value of tcount = 4.06 is obtained, while the value of ttable = 1.68. Because the value of tcount > ttable is 4.06 > 1.68, the alternative hypothesis (Ha) is accepted, namely that there is an influence of inquiry-based contextual approach (CTL) on student learning outcomes in class VII MTs. NW Estimates on Integrated Science subjects

The inquiry-based contextual approach (CTL) can bring students into a fun and meaningful learning atmosphere because students can actively work together with their groups in an effort to find information and improve communication skills to increase understanding or mastery of concepts in the subject matter being studied. That is one of the characteristics of inquiry-based contextual learning (CTL).

The advantages of working in groups include being able to motivate each other in group assignments through work on LKS and being able to develop social skills through the role of students as members of class groups, as well as real thinking skills through direct interaction with group members. In addition, it can also provide a more conducive atmosphere for discussion, full of concentration because it is not noisy and more effective in absorbing material. Thus through this inquiry-based contextual approach (CTL) not only did students gain concrete experience, but students also gained experience of social interaction through group discussions, where students produced products in the form of reports which were presented as a form of competition in being accountable for the results of their respective group discussions. respectively. Besides one of these characteristics, the inquiry-based contextual approach (CTL) also begins with the teacher asking questions that are socially considered important and personally meaningful to students. However, the questions have been determined with certainty so that in the discussion students review the subjects studied and can also be viewed from everyday life.

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Conclusion

Based on the results of the research and discussion described in the previous chapter, it can be concluded that: There is an influence of the inquiry-based contextual approach (CTL) on student learning outcomes in class VII MTs. NW Estimates in the Integrated Science subject, this can be seen from the average value of students and from the results of the learning outcomes hypothesis test obtained t\text{count} is equal to 4.06 and t\text{table} is equal to 1.68.
For MTS NW Tebaban teachers, especially Integrated Science teachers, it is hoped that this will improve the quality of student learning to obtain the expected educational outcomes.

It is hoped that education managers at MTS NW Tebaban can improve the procurement of learning facilities and infrastructure, as well as optimize the use of existing facilities so that learning can be carried out effectively. For other researchers, it is hoped that they will carry out further research by preparing sufficient time and careful planning and exploring in depth the things that have not been revealed in this research.

References