The Influence Of Medicinal Plant Literacy Through Youtube Media On Ecological Intelligence Via The PBL Model In Social Studies Subjects (Quasi-Experiment At Mts Miftahul Huda Majalengka)

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ABSTRACT

Ecological intelligence will be closely related to the environment in which humans live. Nowadays, ecological intelligence is very necessary in various aspects of human life, this is because many people in human life today pay little attention to the state of the environment. The school not only creates smart students, but also tries to create students who have the character as stated in the 2013 curriculum, especially regarding students' concern for the environment. Human interaction with the environment causes a lot of damage to the environment itself. This research aims to determine the picture of medicinal plant literacy in the school environment on students' ecological intelligence in social studies subjects and to find out how much influence medicinal plant literacy in the school environment has on students' ecological intelligence in social studies subjects. This research is quasi-experimental research, using quantitative data analysis. The sample in this study was 281. The results of this research are that literacy of medicinal plants in the school environment as a learning resource can increase students' ecological intelligence in social studies subjects. Previously, the majority of students had a moderate level of ecological intelligence, but after being given treatment, there was a significant increase, especially in the level of ecological intelligence which became higher and literacy of medicinal plants in the school environment as a learning resource had a significant effect on increasing students' ecological intelligence in social studies subjects.

KEYWORDS
Literacy, Medicine, Environment, Ecology, Social Studies

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INTRODUCTION

Ecological intelligence is intelligence about human attitudes and concern for the environment. Goleman (2010, p. 9) introduced the concept of ecological intelligence as a combination of cognitive skills and empathy for all forms of life. These cognitive skills include an individual's ability to know the impact of various human behaviors on the environment, while empathy is a sense of individual concern for the environment in which they live, which allows individuals to position themselves as victims or objects of environmental damage.

Ecological intelligence is closely related to the environment in which humans live. Currently, ecological intelligence is needed in various aspects of human life, considering that many humans pay little attention to the state of the environment. According to Wilujeng (2011, p. 6), much environmental damage is caused by a technocratic attitude that views the environment as an object of mastery of human needs.

The importance of developing ecological intelligence in humans is so that humans can maintain and care for the natural environment so that environmental damage can be minimized or even completely overcome. One solution is through environmentally sound education. Education has a great opportunity to instill ecological intelligence in students. Suwandi et al (2015) explained that instilling an attitude of environmental love can be pursued through education. Lickona (2013, p. 7) adds that education has two basic goals, namely guiding learners to become intelligent and virtuous.

Environmentally sound education can be used to address environmental issues. Umar Tirtarahardja and La Sulo (2005, pp. 34-35) state that education is a process of personal formation, citizen preparation, and labor preparation. Education that is organized comprehensively will be able to accommodate all citizens to become fully human. Based on Permendikbud No. 22 of 2016, the learning process must be organized in an interactive, inspiring, fun, challenging, motivating students to actively participate, and provide sufficient space for initiative, creativity, and independence in accordance with the talents, interests, and physical and psychological development of students.

Social studies subjects have competencies that are relevant to ecological intelligence. Maryani and Samsudin (2009) explains that social studies education is tasked with developing the potential of students to be sensitive to social problems in society, have a positive attitude for the improvement of inequality, and skillfully deal with problems in everyday life. The 2013 curriculum states that the purpose of social studies learning is to produce citizens who have knowledge and understanding of society and the nation, religious, honest, democratic, creative, critical, analytical, love to read, have the ability to learn, curiosity, care about the social and physical environment, contribute to the development of social and cultural life, and communicate and be productive.

Developing students' literacy about medicinal plants in the school environment can be an interesting educational journey. Students can start by understanding the ecology of their school, identifying different types of plants and the chemical compounds produced, and understanding the relevance of medicinal plants in
ecology and public health. Student literacy also includes aspects of conservation of endangered plants, as well as the social and economic impact of knowledge about medicinal plants.

In the process of understanding medicinal plant literacy, students develop analysis and evaluation skills, which enable them to make wise decisions regarding the environment and health. This is one of the traits of ecological intelligence, where individuals are able to consider the impact of their actions on the ecosystem and society.

Various methods are used to develop learners' character, especially ecological intelligence. The school environment as a learning resource is one way that is widely used. Permendikbud No. 22 of 2016 states that learning must shift from the teacher as the only source of learning to learning based on various learning resources. This is intended so that students better understand the state of the surrounding environment, not only learning theory, but also seeing and feeling directly the state of the environment. Therefore, the researcher raised the title "The Effect of Medicinal Plant Literacy Through Youtube Media on Ecological Intelligence Through the PBL Model in Social Studies Subjects (Quasi experiment at MTs Miftahul Huda Majalengka)".

This research aims to understand the literacy of medicinal plants through YouTube media and its effect on students' ecological intelligence in project-based learning (PBL) models in social studies subjects. The formulation of the problem includes a description of medicinal plant literacy through YouTube media and how much influence it has on students' ecological intelligence. This research is expected to provide theoretical benefits by developing knowledge about the use of learning resources by teachers to improve ecological intelligence. Practically, this research is expected to help teachers understand the use of YouTube media as a learning resource and its effect on students, as well as increase researchers' knowledge about YouTube media as a learning resource for ecological intelligence and become material for further research.

Previous research related to research variables is First, research by Purwono and Jannah evaluated the effect of environmental programs and naturalist intelligence on the environmental care attitudes of MI Dwi Dasa Warsa students, showing a positive correlation between environmental programs and naturalist intelligence with students' environmental care attitudes. Second, research by Hafida et al. examined the impact of green literature on the ecological awareness of students of SD Muhammadiyah Special Program Bayat, Klaten, finding that green literature increases students' ecological awareness. Third, research by Fattah and Suhirman explored the influence of science literacy, Quran-Hadith comprehension, and naturalist intelligence on environmental care attitudes of madrasah tsanawiyah students in Mataram, concluding that the three variables significantly influenced environmental care attitudes. Finally, research by Rahmadhani examined the relationship between emotional intelligence and digital literacy with social studies learning outcomes for students of SDN Diponegoro, Randublatung, finding a positive and significant correlation between emotional intelligence and digital literacy with students' social studies learning outcomes.
The hypotheses used in this study are as follows: Ha states that there is an effect of medicinal plant literacy in the school environment on students' ecological intelligence. Conversely, Ho states that there is no effect of medicinal plant literacy in the school environment on students' ecological intelligence. These hypotheses are temporary answers to the formulation of the problems posed (Sugiyono, 2018 p. 389).

RESEARCH METHOD

This research is a quasi-experimental study that uses quantitative data analysis. Experimental research, as explained by Yatim Riyanto (1996) and Sugiyono (2018), involves experimenting with experimental groups under controllable conditions to find the effect of certain treatments. In this research, quantitative methods are used to test hypotheses that have been determined by collecting data through research instruments.

The object of this study consists of independent variables in the form of medicinal plant literacy and dependent variables in the form of ecological intelligence. The research was conducted on students of SMP Negeri 3 Majalengka. The research design involved a pre-test, medicinal plant literacy intervention, and post-test to measure changes in the experimental group before and after the intervention.

The study population was all grade 7 students in public junior high schools in Majalengka District, with a total of 950 students. The research sample was drawn using a multi-stage sample stratification sampling model, resulting in 281 samples based on the Slovin formula.

The operational definition of variables includes medicinal plant literacy through YouTube media and ecological intelligence in social studies subjects. Research indicators include understanding, application, and development of knowledge related to medicinal plants, as well as aspects of environmental care, environmental awareness, participation, and student initiative to protect the environment.

The research instrument in the form of a questionnaire was used to measure students' ecological intelligence before and after the intervention. The validity and reliability of the instrument were tested using the product-moment correlation formula and Cronbach's Alpha. Data collection techniques were carried out through questionnaires or closed questionnaires.

Data processing involved tabulation using the SPSS program and data analysis was performed with paired sample T-test for normally distributed data, and Wilcoxon signed rank test for non-normal data. Hypotheses were tested with a significance level of 5%, to see the effect of medicinal plant literacy through YouTube media on students' ecological intelligence.

RESULT AND DISCUSSION

Overview of Medicinal Plant Literacy through Youtube Media on Students' Ecological Intelligence in Social Studies Subjects
The presence of medicinal plants in the school environment is not only aesthetic, but also creates learning opportunities that are rich in ecological value. In sustainable learning, knowledge of the surrounding environment and concern for ecology through Youtube media are key aspects that are inseparable. Students' ecological intelligence in social studies subjects in this study was obtained through the results of pretest and posttest data through questionnaire responses that had been given to students.

1. Pretest Data Results

Table 1. Overview of Students’ Ecological Intelligence in Social Studies Subjects Before Intervention

<table>
<thead>
<tr>
<th>PreTest</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td>Low</td>
<td>77</td>
<td>27.4</td>
<td>27.4</td>
</tr>
<tr>
<td></td>
<td>Medium</td>
<td>115</td>
<td>40.9</td>
<td>68.3</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>89</td>
<td>31.7</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>281</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Source: Data Processed (2023)

Table 1 shows that most students have moderate ecological intelligence of 40.9%, followed by high ecological intelligence of 31.7% and low ecological intelligence of 27.4%. Thus, it can be seen that before the intervention of medicinal plant literacy through Youtube media as a learning resource most students have ecological intelligence in social studies subjects which is classified as moderate.

2. Posttest Data Results

Table 2. Overview of Students’ Ecological Intelligence in Social Studies Subjects After Intervention

<table>
<thead>
<tr>
<th>PostTest</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td>Low</td>
<td>47</td>
<td>16.7</td>
<td>16.7</td>
</tr>
<tr>
<td></td>
<td>Medium</td>
<td>71</td>
<td>25.3</td>
<td>42.0</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>163</td>
<td>58.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>281</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Source: Data Processed (2023)

Based on Table 2 shows that most students have high ecological intelligence of 58.0%, followed by moderate ecological intelligence of 25.3% and low ecological intelligence of 16.7%. Thus, it can be seen that after the intervention of medicinal plant literacy through Youtube media as a learning resource, most students have high ecological intelligence in social studies subjects.

Research Instrument Test Results
1. Validity Test Results

The validity of a research result is very important to be determined by the measuring instrument used, the measurement tool is a questionnaire. To test the validity, two kinds of tests are needed, namely, validity test and reliability test. The research instrument is declared valid if the calculation results have a value above 0.3. The following are the results of the validity test which are assisted by using the SPSS v25 software program:

Table 3. Pretest Validity Test Results

<table>
<thead>
<tr>
<th>Question Item</th>
<th>rcount</th>
<th>rtabel</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0,834</td>
<td>0,3</td>
<td>Valid</td>
</tr>
<tr>
<td>2</td>
<td>0,873</td>
<td>0,3</td>
<td>Valid</td>
</tr>
<tr>
<td>3</td>
<td>0,924</td>
<td>0,3</td>
<td>Valid</td>
</tr>
<tr>
<td>4</td>
<td>0,889</td>
<td>0,3</td>
<td>Valid</td>
</tr>
<tr>
<td>5</td>
<td>0,906</td>
<td>0,3</td>
<td>Valid</td>
</tr>
<tr>
<td>6</td>
<td>0,830</td>
<td>0,3</td>
<td>Valid</td>
</tr>
<tr>
<td>7</td>
<td>0,853</td>
<td>0,3</td>
<td>Valid</td>
</tr>
<tr>
<td>8</td>
<td>0,834</td>
<td>0,3</td>
<td>Valid</td>
</tr>
</tbody>
</table>

Source: Data Processed (2023)

Based on Table 3 shows that the questionnaire used for the pretest consisting of 8 statement items all declared valid, each correlation coefficient owned by each item is greater than 0.3, this indicates that the overall statement given to students is appropriate to measure student responses related to students' ecological intelligence in social studies subjects before and after the intervention of medicinal plant literacy through Youtube media as a learning resource.

Table 4. Posttest Validity Test Results

<table>
<thead>
<tr>
<th>Question Item</th>
<th>rcount</th>
<th>rtabel</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0,684</td>
<td>0,3</td>
<td>Valid</td>
</tr>
<tr>
<td>2</td>
<td>0,732</td>
<td>0,3</td>
<td>Valid</td>
</tr>
<tr>
<td>3</td>
<td>0,722</td>
<td>0,3</td>
<td>Valid</td>
</tr>
<tr>
<td>4</td>
<td>0,752</td>
<td>0,3</td>
<td>Valid</td>
</tr>
<tr>
<td>5</td>
<td>0,712</td>
<td>0,3</td>
<td>Valid</td>
</tr>
<tr>
<td>6</td>
<td>0,711</td>
<td>0,3</td>
<td>Valid</td>
</tr>
<tr>
<td>7</td>
<td>0,748</td>
<td>0,3</td>
<td>Valid</td>
</tr>
<tr>
<td>8</td>
<td>0,730</td>
<td>0,3</td>
<td>Valid</td>
</tr>
</tbody>
</table>

Source: Data Processed (2023)

Based on Table 4 shows that the questionnaire used for the posttest consisting of 8 statement items is entirely declared valid, each correlation coefficient owned by each item is greater than 0.3, this indicates that all statements given to students are appropriate to measure student responses related to students' ecological intelligence in social studies subjects before and after the intervention of medicinal plant literacy through Youtube media as a learning resource.
2. Reliability Test Results

The instrument reliability analysis is intended to see the consistency of the answers to the statement items given. The following are the results of the reliability test which are assisted by using the SPSS v25 software program:

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Alpha</th>
<th>rcritical</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest</td>
<td>0.953</td>
<td>0.6</td>
<td>Reliable</td>
</tr>
<tr>
<td>Posttest</td>
<td>0.870</td>
<td>0.6</td>
<td>Reliable</td>
</tr>
</tbody>
</table>

Source: Data Processed (2023)

The reliability test results show that all statement items in both instruments have an alpha value above 0.6 so that it can be seen that the questionnaire used as an instrument in this study is reliable. Based on the results of the validity test and reliability test, it is declared valid and reliable, so the instrument in this study is declared suitable for use.

Data Analysis Results

1. Normality Test Results

This study uses the results data in the form of a questionnaire. So before doing the analysis, a normality test is needed first to find out whether the data is normally distributed or not. The following are the results of the normality test using the SPSS v25 software program:

<table>
<thead>
<tr>
<th>Tests of Normality</th>
<th>PreTest</th>
<th>Kolmogorov-Smirnov(^a)</th>
<th>Shapiro-Wilk</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Statistic</td>
<td>df</td>
<td>Sig.</td>
</tr>
<tr>
<td>PostTest</td>
<td>Low</td>
<td>.354</td>
<td>77</td>
</tr>
<tr>
<td></td>
<td>Medium</td>
<td>.406</td>
<td>89</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>.326</td>
<td>115</td>
</tr>
</tbody>
</table>

\(^a\) Lilliefors Significance Correction
Source: Data Processed (2023)

Based on Table 6 shows that the significance value obtained is less than sig 0.05. In accordance with the provisions if the sig value <0.05, it means that the data is not normally distributed.

2. Hypothesis Test Results

Based on the results of the normality test, it was found that the data was not normally distributed, therefore hypothesis testing in this study used the Wilcoxon test. The following are the results of the Wilcoxon test which is assisted by using the SPSS v25 software program:

| Table 7. Hypothesis Test Results |
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Test Statistics\textsuperscript{a}

<table>
<thead>
<tr>
<th></th>
<th>PostTest - PreTest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z</td>
<td>-3.833\textsuperscript{b}</td>
</tr>
<tr>
<td>Asymp. Sig. (2-tailed)</td>
<td>.000</td>
</tr>
</tbody>
</table>

\textsuperscript{a} Wilcoxon Signed Ranks Test
\textsuperscript{b} Based on negative ranks.

Source: Data Processed (2023)

Based on Table 7 shows the results of a significant value of 0.000. This value will be compared with the criteria for taking the Wilcoxon test, if the value is significant (<0.05) then $H_0$ is rejected and $H_a$ is accepted and vice versa. In accordance with the criteria for testing the hypothesis that $H_a$ is accepted and $H_0$ is rejected because the significant value of 0.000 <0.05, which means that there is an effect of medicinal plant literacy through Youtube media as a learning resource on students' ecological intelligence.

Discussion

Based on the analysis of the results of this study, it can be seen that medicinal plant literacy through Youtube media has a significant impact on students' ecological intelligence in social studies subjects. The results of pretest data show a picture of students' ecological intelligence before the intervention of medicinal plant literacy. The results showed that before the intervention, most students had ecological intelligence classified as moderate (40.9%), followed by high (31.7%) and low (27.4%) levels of ecological intelligence in social studies subjects. Thus, before the intervention, the majority of students had moderate ecological intelligence.

The results of the posttest data showed significant changes, with most students experiencing an increase in high ecological intelligence (58.0%) after the intervention. In addition, the moderate level of ecological intelligence also increased (25.3%), while the low level of ecological intelligence decreased to 16.7%. Thus, after the intervention, the majority of students showed significant improvement in ecological intelligence, most of which were classified as high in social studies.

Thus, it can be understood that the intervention of medicinal plant literacy through Youtube media makes a significant positive contribution to increasing students' ecological intelligence in social studies learning. This indicates that the integration of medicinal plant literacy as part of Youtube media has great potential in increasing students' understanding and awareness of ecological aspects in social studies subjects.

This is evidenced by the results of hypothesis testing which shows a significant effect of medicinal plant literacy through Youtube media on students' ecological intelligence in social studies subjects. The results of hypothesis testing using the Wilcoxon Signed Ranks Test show a significance value of 0.000, which is smaller than the previously determined significance level of 0.05.

Based on the hypothesis testing criteria, when the significance value (p-value) of the statistical test is smaller than the specified significance level, in this case
0.000 < 0.05, the alternative hypothesis (Ha) is accepted, while the null hypothesis (H0) is rejected. This means that there is strong enough evidence to state that medicinal plant literacy through Youtube media has a significant effect on increasing students' ecological intelligence in social studies subjects.

Thus, these findings indicate that the intervention of medicinal plant literacy as part of the learning environment has had a positive and significant impact on improving students' ecological intelligence. This confirms the importance of integrating aspects of the learning environment that focus on medicinal plant literacy in improving students' understanding and awareness of ecology in social studies subjects.

The results of this study are in line with the results of research from Purwono and Jannah (2020) which state that there is a positive correlation between the implementation of environmental programs and naturalist intelligence with students' environmental care attitudes. These results also support the findings from the research of Hafida et al. (2020) which states that environmentally friendly literature has a positive influence on students' ecological awareness.

**CONCLUSION**

Based on the results and discussion related to research on the effect of medicinal plant literacy through Youtube media on ecological intelligence through PBL models in social studies subjects, the following conclusions can be drawn: 1. Literacy of medicinal plants through Youtube media as a learning resource can increase students' ecological intelligence in social studies subjects. Previously, the majority of students had a moderate level of ecological intelligence, but after being given treatment, there was a significant increase, especially in the level of ecological intelligence to be higher. 2. Literacy of medicinal plants through Youtube media as a learning resource has a significant effect on increasing students' ecological intelligence in social studies subjects.

Based on the findings of this study, there are several recommendations that can be conveyed, namely: 1. It is expected that teachers at MTs Miftahul Huda Majalengka can expand and enrich the use of medicinal plant literacy in the social studies curriculum with a focus on environmental and ecological aspects. 2. Learning the types of medicinal plants from various sources such as exploration from various sources, including social media, parents, and teachers, to understand the various types of medicinal plants. 3. It is hoped that future researchers can conduct further research with a control group to strengthen the results of research related to the effect of medicinal plant literacy on students' ecological intelligence.

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