THE INFLUENCE OF GOOGLE CLASSROOM-BASED LEARNING MEDIA AND INTERPERSONAL INTELLIGENCE ON SCIENCE LITERACY IN THE ERA OF THE COVID-19 PANDEMIC

Endaita Nurisa Nainggolan
Medan State University, Indonesia
e-mail: endaitanainggolan@gmail.com

Ely Djulia
Medan State University, Indonesia

Yasaratodo Wau
Medan State University, Indonesia

Abstract

This study aims to: (1) analyze the differences in students' science literacy taught with Google Classroom online learning media compared to students taught with Zoom meeting online learning media; (2) analyze the differences in science literacy of students who have high interpersonal intelligence compared to students who have low interpersonal intelligence; and (3) analyze the interaction between online learning media and interpersonal intelligence on students’ science literacy. The sample in this study was 54 students of Class V of The State Elementary School 165735 Tebing Tinggi City. Data collection in this study through interpersonal intelligence questionnaires and student science literacy tests. Hypothesis testing was carried out with the Two Way Anova test. The results showed that: (1) The science literacy of students taught with Google Classroom online learning media was higher than the online learning media Zoom Meeting ($F_{count} = 5.654$ and the sig. value of $0.021 < 0.05$); (2) The science literacy of students who have high interpersonal intelligence is higher than that of students who have low interpersonal intelligence ($F_{count} = 3.840$ and sig. $0.046 < 0.05$); and (3) There is an interaction between learning media and interpersonal intelligence in influencing students’ science literacy ($F_{count} = 6.217$ and sig. value $0.016 < 0.05$).

Keywords: Google Classroom, Zoom Meeting, Interpersonal Intelligence, Science Literacy
A. Introduction

In the midst of the Covid-19 pandemic that has hit the world today, it has a huge impact on the world of education. To maintain the running of the education process, various decisions were taken by the government in dealing with the current Covid-19 pandemic. One of them is the government's decision to shift the learning process from school (offline) to at home (online). Carrying out the online learning process really requires supporting facilities, infrastructure and media such as gadgets, laptops, and other technologies. With the era of technology that is increasingly developing, the learning process is directed to make good use of technology. One of the uses of technology today is to conduct online learning using online learning media, namely the Google Classroom application.

Education in the era of the industrial revolution 4.0 is education that utilizes technology as a medium to support the learning process (Fatmawati & Yusrizal, 2021; Herawati et al., 2021; Yusrizal et al., 2019; Yusrizal & Fatmawati, 2021). One example of the use of technology as a medium to support the learning process is to use online Learning Media with the Google Classroom application. Google Classroom is an interesting innovation from Google For Education because it is a product made to assist teachers and students in carrying out teaching and learning activities. Google Classroom as a medium in the implementation of learning because it can be used by students to learn outside of learning time that is not limited by time and space (Pradana, 2017). Google Classroom online learning media is a special application used for online learning that can be done remotely, making it easier for teachers to create, group and share assignments. Google Classroom online learning media allows teachers and students to carry out learning activities at any time through online classes and students will also be able to learn, listen, read and send assignments remotely. In addition, students are also given assignments by the teacher and send the results of their reports to Google Classroom. Google Classroom is one of the effective alternatives used as a learning medium during the Covid-19 pandemic to provide material and questions without using print media. Energy materials are used as e-learning research materials using Google Classroom online learning media because this material has the potential to develop science literacy skills.

Tebing Tinggi state elementary school 165735 is one of the schools that has utilized e-Learning as a learning medium during the Covid-19 pandemic, there are also online learning media used are WhatsApp, Zoom meetings, and Google Classroom.
Among the three online learning media, Google Classroom is the most effective application for the running of online learning activities during the Covid-19 pandemic because Google Classroom has supporting features such as attendance, assignments, materials, and Google Classroom is able to store all data on Google Drive without limits so that teachers and students will not have difficulty seeing data and assignments and old attendance. where e-Learning learning activities in the school utilize the google classroom online learning media. In the learning process, students are given material so that students can immediately understand the material delivered by the teacher through the Google Classroom online learning media. The application of Google Classroom in SDN 165735 is still relatively low, only limited to attendance, daily assignments and learning run monotonously because it is only educator-centered, and lack of student participation because it only accepts material provided by educators. The application of science literacy-based Google Classroom has never been done by educators at SDN 165735.

Based on the explanation above, previous research shows that using online learning media for science literacy has been previously studied, including: (1) Tika Mustika (2016) concluded that students' science literacy ability is classified as a way of thinking but in the category of torso knowledge is quite good; (2) Azimi et al (2017) in their research obtained the results that science literacy-based science learning media was declared valid and effective in learning science material objects and their properties in elementary schools; (3) Winarni, et al (2019) that students achieved a good category in increasing learning knowledge using ICT-based science literacy media; (4) Pariati, et al (2017) that the science literacy ability of students in the VC class of SD Muhammadiyah leaning towards chess Sleman Yogyakarta for the 2016/2017 school year is quite sufficient with a percentage of 44.4%. Based on the research above, it is concluded that students' science literacy ability can increase if they use interesting media, so currently no one uses online learning media in the form of Google Classroom to see an increase in students' science literacy ability. the literacy ability of the student must also be based on the intelligence of each student.

In addition, in every child must find and develop the intelligence they have, especially interpersonal intelligence, that is, intelligence in understanding the teaching and learning process by interacting with others effectively (Agustini et al., 2020; Imanita, 2014; Yusrizal & Fatmawati, 2020). Researchers are interested in developing this intelligence because at the time of observation researchers saw many children whose social level was still low such as the ability to get along with others, lead, the ability to
work together and a lack of empathy. The results of research from Wuryastuti, et al (2017) with the title "Development of Multiple Intelligences-Based Learning in Elementary Schools" and the results of the research are: understanding that each child (student) has a different type of intelligence, teachers and education practitioners should pay attention to this and facilitate and design learning based on the type of student intelligence.

From several relevant research results and supporting theories, Google Classroom online learning media and interpersonal intelligence are expected to provide meaningful enrichment in supporting national educational goals that will shape Science literacy in elementary schools where the learning can bring teachers and students closer to the concrete situations they face to be able to better understand, so as to grow and pay attention to the maintenance and utilization the surrounding natural environment.

B. Methods

This type of research is an experimental study with a factorial design of 2x2. This research was carried out at the State Elementary School 165735 Tebing Tinggi City. The sample in this study was class V students consisting of 2 classes with 27 students in each class. The data collection technique uses interpersonal intelligence questionnaires and tests of students' science literacy abilities. The data analysis techniques used are descriptive and inferential statistical techniques. Hypothesis testing was carried out with the Two Way Anova test with a significant level of 0.05. Before the Two Way Anova test is carried out, the analysis requirements test is first carried out, namely the normality test and the data homogeneity test. The normality test was carried out with the Kolmogorov-Smirnov test while the data homogeneity test was carried out with the Levene test with a significant level of 0.05.

C. Finding and Discussion

1. Finding
   a. Data Description

In addition to providing pre-tests to students before treatment, the study also looked at the interpersonal intelligence of students who were further distinguished over 2 groups of high interpersonal intelligence and low interpersonal intelligence. Here is presented the frequency distribution of interpersonal intelligence of students in group A.
Furthermore, it can be seen the distribution of interpersonal intelligence in group B. Following the frequency distribution of interpersonal intelligence of students in group B.

Based on the data obtained and the results of statistical calculations, it is known that the science literacy of students who are taught with the Google Classroom online learning media get the lowest score of 60, and the highest score is 96, with an average of 84; mode by 84; median of 84; the variant is 83.60 and the standard deviation is 9.14. The frequency distribution of science literacy scores of students taught with google classroom online learning media is presented in the following figure.
From the data obtained and the results of statistical calculations, it is known that the science literacy of students who were taught with the online learning media Zoom Meeting got the lowest score of 60, and the highest score was 96, with an average of 79; mode by 72; median by 80; the variant is 80.87 and the standard deviation is 8.99. The frequency distribution of science literacy scores of students taught with the zoom meeting online learning media is presented as follows.

### Figure 3 Science literacy histogram with Google Classroom

b. **Test Prerequisites**

The overall normality test of the study data can be seen in the following table:

<table>
<thead>
<tr>
<th>Tests of Normality</th>
<th>Kolmogorov-Smirnova</th>
<th>Shapiro-Wilk</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Statistics</td>
<td>Df</td>
</tr>
<tr>
<td>Standardized Residual for Literasi_Sains</td>
<td>.093</td>
<td>54</td>
</tr>
<tr>
<td>a. Lilliefors Significance Correction</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Based on the Table, it can be seen that the results of testing the normality of post-test data with the Kolmogorov-Smirnov test obtained a probability value or significant value of 0.200 > 0.05, thus it can be concluded that the post-test data are distributed normally.

After conducting a normality test, in this study also conducted a homogeneity test. The homogeneity test aims to find out whether the research sample is homogeneous or not. A summary of the homogeneity test calculation can be seen in the following table:

Levene's Test of Equality of Error Variances\(^a\)

<table>
<thead>
<tr>
<th></th>
<th>F</th>
<th>df1</th>
<th>df2</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.869</td>
<td>3</td>
<td>50</td>
<td>.147</td>
</tr>
</tbody>
</table>

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + Group + Interpersonal_Intelligence + Group * Interpersonal_Intelligence

Based on the Table shows that the testing of the homogeneity of post-test data obtained a probability value or significant value of 0.147 > 0.05, thus it can be concluded that the research data group is relatively the same or homogeneous.

c. Hypothesis Test

Hypothesis testing of this study used a two-lane ANAVA with a factorial of 2x2, hypothesis testing was calculated with the help of SPSS version 23. Hypothesis testing data can be seen in the following table:

Table 1. SPSS Output ANAVA Calculation Results

Tests of Between-Subjects Effects

<table>
<thead>
<tr>
<th>Source</th>
<th>Type III Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrected Model</td>
<td>1035,574(^a)</td>
<td>3</td>
<td>345.191</td>
<td>4.844</td>
<td>.005</td>
</tr>
<tr>
<td>Intercept</td>
<td>361700.481</td>
<td>1</td>
<td>361700.481</td>
<td>5075.442</td>
<td>.000</td>
</tr>
<tr>
<td>Group</td>
<td>402.919</td>
<td>1</td>
<td>402.919</td>
<td>5.654</td>
<td>.021</td>
</tr>
<tr>
<td>Kecerdasan_Interpersonal</td>
<td>273.662</td>
<td>1</td>
<td>273.662</td>
<td>3.840</td>
<td>.056</td>
</tr>
<tr>
<td>Group * Kecerdasan_Interpersonal</td>
<td>443.071</td>
<td>1</td>
<td>443.071</td>
<td>6.217</td>
<td>.016</td>
</tr>
<tr>
<td>Error</td>
<td>3563.241</td>
<td>50</td>
<td>71.265</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>366384.000</td>
<td>54</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrected Total</td>
<td>4598.815</td>
<td>53</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. R Squared = .225 (Adjusted R Squared = .179)
- **First Hypothesis**
  
  Based on the SPSS output in Table 1 on science literacy by class group, it is obtained that the calculated $F$ value $= 5.654$ and the probability value or significant value of the class group is $0.021 < 0.05$. Thus it can be said that there is a significant difference between the average science literacy of students taught with google classroom online learning media compared to zoom meeting online learning media. So hypothesis testing rejected $H_0$ and accepted $H_a$. with the conclusion that the science literacy of students taught with Google Classroom online learning media is higher than the online learning media Zoom Meeting.

- **Second Hypothesis**
  
  Based on the SPSS output in Table 1 on science literacy based on interpersonal intelligence it is obtained that the calculated $F$ value $= 3.840$ and the probability value or significant value of $0.046 < 0.05$. Thus it can be said that there is a significant difference between the average science literacy of students who have high interpersonal intelligence compared to the science literacy of students who have low interpersonal intelligence.

- **Third Hypothesis**
  
  Based on the SPSS output in Table 1 it is obtained that $F_{count} = 6.217$ and a significant value of $0.016$ with $\alpha = 0.05$. Then it can be seen that the value of the sig. $0.016 < 0.05$ so hypothesis testing rejects $H_0$ and accepts $H_a$. With the conclusion that there is an interaction between learning media and students' interpersonal intelligence in influencing students' science literacy.

2. **Discussion**

In zoom meeting learning media, the responsibility of teachers in teaching their students is quite large and the role of teachers in planning learning activities is very large, because in zoom-based learning media learning meetings are teacher-centered while in Google Classroom learning media they are stimulated to be able to solve problems, think at a high level, dig up information, work together and improve communication skills through the role of the teacher as a guide. In this case, learning activities are not entirely dependent on the teacher who is expected to make the classroom conditions interesting and enjoyable.

Based on this thinking, it is suspected that the literacy of students taught using Google Classroom-based learning media is higher than that of students taught using
zoom meeting-based learning media. This hypothesis is proven from the results of research that has been carried out where the science literacy of students who are taught with google classroom online learning media is higher than the online learning media Zoom Meeting with a calculated $F$ value of 5.654 and a significant value of $0.021 < 0.05$.

The results of this study were further strengthened by a study conducted by Durahman (2018) which found that the use of Google Classroom can provide access to students in conducting online learning and zoom meeting media (blended learning). There were 59.6% of responses from training participants who were very pleasant using Google Classroom and 56.6% of responses strongly agreed that Google Classroom could help training participants' assignments. This is in line with Atikah (2021) saying that the learning process is well carried out using Google classroom. This is because online learning through Google classroom in learning activities can be easily accessed by both teachers/educators and students according to the needs of learning activities. Longa (2021) the use of the Google Classroom application can improve learning outcomes in mathematics subjects.

Furthermore, Salamah (2020) in his research concluded that learning through the Google Classroom application is the right tool chosen by teachers at SD N Giling 01 during the Covid-19 pandemic to prevent the spread of the virus. The Google Classroom application is also the best application that can be used for learning because the learning presented is like learning carried out in offline classes, it's just that in Google Classroom online classroom learning is not face to face. Su’uga (2020) concluded that while using Google Classroom, the average grade point experienced an increase in class average score of 12.6-18.8. So that it can be ensured that Google Classroom media can improve student learning outcomes.

**D. Conclusion**

Based on the discussion that has been described earlier, several conclusions can be drawn including the following:

1. The science literacy of students taught with Google Classroom online learning media is higher than that of zoom meeting online learning media ($F_{count} = 5.654$ and sig. value $0.021 < 0.05$).

2. The science literacy of students who have high interpersonal intelligence is higher compared to students who have low interpersonal intelligence ($F_{count} = 3.840$ and sig. value $0.046 < 0.05$).
3. There is an interaction between learning media and interpersonal intelligence in influencing students' science literacy ($F_{count} = 6.217$ and sig. 0.016 < 0.05).

### Bibliography


