THE ANALYSIS OF NEARPOD USE IN MATHEMATICS ONLINE LEARNING AT VOCATIONAL SCHOOL

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Abstract
Online learning has been carried out by most schools to support government policies on physical distancing during the Covid-19 pandemic. The complexity of mathematics material is one of the causes of the lack of interaction during online learning result learning is less meaningful. There are various ways the teachers use information technology, one of them is the use of Nearpod. This study analyzes Nearpod's use in mathematics online learning in terms of its easiness and performance in supporting interactive learning. The method used is a descriptive method by distributing questionnaires to 114 students in SMK Santa Maria Jakarta. The findings in this study were that 88.8% agreed that Nearpod was very easy to use and 85.75% agreed that Nearpod could support interactive learning.

Keywords: Mathematics, Nearpod, Online Learning


Background
Through the use of digital media, the Industrial Revolution 4.0 enables distance learning, or the ability to learn at any time and from anywhere without physically meeting. Online learning is the process of learning via online resources.
Due to inadequate facilities and internet networks, relatively little online learning was first used in Indonesia. The application of online learning to stop the spread of the coronavirus is accelerated by the Covid-19 pandemic and its physical separation measures.

This rapid change process even makes it difficult for teachers and students to adapt. Several challenges were found during the distance learning process, one of which was that the teacher had to use limited time (shortened) during online learning due to intervention from parents (Rusmiati et al. 2020). This means that the teacher must make sure that the necessary instruction of materials, objectives, and assessments can occur during a virtual meeting. Without a doubt, this is a difficult job, especially for a teacher who has not been trained in the use of information technology for learning.

Rusmiati et al. (2020) state that another challenge in distance learning is related to the participation or activity of students during the virtual learning process. This may be due to several circumstances, including poor internet quality or online learning that does not encourage student participation.

Because of the complicated information, formulas, and problem-solving involved with mathematics, it is frequently regarded as a challenging topic for students. The conditions of online or virtual learning, along with all the issues, make studying mathematics became more difficult. This idea is consistent with the study by Tasdik & Amelia (2021), who discovered that the lack of interaction in online mathematics learning makes it ineffective for students who struggle to understand the course materials. Therefore, to boost students' understanding of mathematics, it takes a skilled instructor to make use of applications that support interaction. One tool that can be utilized is Nearpod, which is accessible via the website https://www.nearpod.com/ or via an application that can be downloaded on a smartphone running Android or iOS.

Based on the description above, researchers are interested in conducting research with the title "The Analysis of Nearpod Use in Mathematics Online Learning at Vocational School". This research was conducted at SMK Santa Maria Jakarta.

Research Method

This research uses a descriptive approach, which involves doing research without adjusting research variables by describing and analyzing items based solely on their presence (Hermawan, 2019). Descriptive research aims to accurately, objectively, and methodically describe what transpired in various settings (Rukajat, 2018).

This study analyzes students' responses to mathematics learning using the Nearpod application. The research subjects were students of grades XI Multimedia, XII Culinary, XII Hospitality, and XII Fashion, totaling 114 students. The instrument used is a questionnaire in the form of a Google Form and distributed via WhatsApp Group.

There are 2 (two) indicators to measure student responses to the Nearpod application: (1) student acceptance of the Nearpod facility, and (2) Nearpod performance in interactive learning. If the average of each indication is greater than or equal to 70% on the "agree" option, then students' answers to learning from utilizing Nearpod are considered to be positive. The description of the indicators can be seen in the following table.
Table 1: Student Response Indicators

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Statements</th>
<th>Response Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student acceptance of the Nearpod facility</td>
<td>1. Nearpod is easily accessible via online web or mobile app</td>
<td>A. Agree</td>
</tr>
<tr>
<td></td>
<td>2. Nearpod activities (Draw it, Quiz, Polling, Time to Climb, etc.) are very easy to do</td>
<td>B. Disagree</td>
</tr>
<tr>
<td></td>
<td>3. Nearpod interface display caught my attention in learning Math</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. If the teacher uses Nearpod to conduct the lesson, I'm happy with that</td>
<td></td>
</tr>
<tr>
<td>Nearpod performance in interactive learning</td>
<td>5. Learning with Nearpod helps me understand the Math material being taught</td>
<td>A. Agree</td>
</tr>
<tr>
<td></td>
<td>6. I like the interactive activities on Nearpod (Draw it, Quiz, Polling, Time to Climb, etc.)</td>
<td>B. Disagree</td>
</tr>
<tr>
<td></td>
<td>7. Learning with Nearpod motivates me to interact in learning</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8. Learning with Nearpod is effectively applied during Mathematics distance learning</td>
<td></td>
</tr>
</tbody>
</table>

Results and Discussion

Definition of Online Learning

Online learning, according to Mustofa, Chodzirin, Sayekti, and Fauzan (2019), is the use of internet and intranet networks for instruction, interaction, and accompaniment by other supports such as online learning channels. There are also supporting applications that facilitate learning from virtual meetings, namely Google Meet, Zoom, and Microsoft TEAMS, as well as educational technology-based applications such as Ruang Guru, Nearpod, Quizizz, Kahoot, and PearDeck.

Male et al. (2020) define online learning as learning that takes place utilizing technology like computers and has an impact on both the behavior of students and teachers. The conduct of pupils participating less in class is one of those that are impacted. Learners tend to be more passive than when learning face-to-face physically (Rusmiati et al., 2020; Utami, Alan, & Cahyono, 2020).

According to the description given above, online learning is a learning environment where students engage using information technology, which may have an impact on their behavior. Most of the time, during online learning, especially during virtual meetings, students lose interest (Rusmiati et al., 2020; Utami et al., 2020).

Problems in Mathematics Online Learning

Online learning is still thought to have shortcomings in terms of delivering educational content, even without taking into account technical barriers such as the lack of equipment and the internet. Due to the disruption of direct connection and human touch, the lack of participation in interactive conversations, and the students' reduced capacity for independent study, online learning makes communication between students and teachers more difficult.
Learning Mathematics online also has its own obstacles. Mathematics is an abstract learning and requires deep understanding to understand it. Reys, Lindquist, Lambdin, & Smith (2009) suggested that the mathematics learning process should be presented in a fun and engaging way that challenges children's thinking and allows them to add new concepts and skills to existing ones. Meanwhile, Fauzy & Nurfauziah (2021) discovered that one of the real-world variables influencing students' difficulty in learning mathematics online is the limited space for teacher-student interaction, which prevents students from developing a mathematical knowledge of the subjects being studied. Students that are actively involved in their education are more likely to understand what they are doing and, as a result, have a better understanding of mathematics. As a result, students will find it challenging to accept mathematics lessons delivered online due to the weaknesses of online learning.

**Nearpod and Interactive Learning**

Burton (2019) claims that Nearpod is a learning platform or cloud-based program that allows students and audience members to attend classes via smart devices or any computer with an internet connection. Through the Nearpod application, teachers can prepare presentation slides by adding interactive features in it.

Sanmugam, Selvarajoo, Ramayah, & Lee (2019) describe 2 (two) ways to create presentations with Nearpod. First, a completely new presentation can be started from scratch with a function called new presentation. Creating slides in Nearpod is similar to those created using Powerpoint. Second, existing PowerPoint presentation slides can be imported into Nearpod. The teacher can add a video clip to the topic so that the clip's content can be used for discussion. Once the presentation slides are ready, formative assessment activities can be added. The activities available in Nearpod are quizzes, polls, draw-it functions, Time to Climb games, and open-ended questions that can be used as formative assessments.

Due to the interactive features of Nearpod, it is anticipated that student participation will increase. Additionally, especially at the vocational level of online learning mathematics, it is desired that students would develop a thorough knowledge of the information presented by teachers.

**The Analysis of Nearpod Usage**

The questionnaire of this study was given to 114 students 32 male students and 82 female students. Questionnaires are given after students participate in online learning mathematics using Nearpod. The summary of student responses can be seen in the following table.

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Statements</th>
<th>Agree</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student acceptance of the Nearpod facility</td>
<td>1. Nearpod is easily accessible via online web or mobile app</td>
<td>94,7%</td>
<td>5,3%</td>
</tr>
<tr>
<td></td>
<td>2. Nearpod activities (Draw it, Quiz, Polling, Time to Climb, etc.) are very easy to do</td>
<td>91,2%</td>
<td>8,8%</td>
</tr>
<tr>
<td></td>
<td>3. Nearpod interface display caught my attention in learning Math</td>
<td>83,3%</td>
<td>16,7%</td>
</tr>
<tr>
<td></td>
<td>4. If the teacher uses Nearpod to conduct the lesson, I'm happy with that</td>
<td>86%</td>
<td>14%</td>
</tr>
<tr>
<td>Averages</td>
<td>88,8%</td>
<td>11,2%</td>
<td></td>
</tr>
</tbody>
</table>
According to Table 2 above, the first indicator received an average of 88.8 percent agreeing responses and 11.2 percent disagree responses from students. This finding indicates that Nearpod is simple for students to use when learning mathematics online. Meanwhile, students responded with 85.75 percent agreeing and 14.25 percent disagree with the question about Nearpod performance in interactive learning. This shows that Nearpod can support interactive online learning of mathematics.

According to the above findings, using Nearpod can be an excellent choice to boost student engagement in online mathematics learning, particularly at the vocational school level. Based on its ease of use, Nearpod is accepted by students. This easiness helps students to interact more freely with the teacher.

In terms of Nearpod performance in interactive learning, it was found that the use of Nearpod can support interactive learning, especially in learning mathematics. Students have the freedom to express themselves, respond to inquiries, and engage in instructional games on Nearpod. Using Nearpod to control learning activities helps engage all students in the class and control the learning materials that are presented to them. This result is in line with Hakami's (2020) research, which shows that even in large classes, instructors may employ Nearpod to boost student engagement in active learning.

The use of technology is crucial in this Covid-19 pandemic situation to maximize online learning as a bridge to transfer information and skills (Fitriyani, Fauzi, & Sari, 2020). Nearpod may be a solution for math teachers to increase student participation in this limited online learning environment. The findings of Trocky & Buckley's (2016) study provide support to the idea that an interactive learning environment in the classroom can enhance student learning while also enhancing learning outcomes.

**Kesimpulan dan Saran**

The Covid-19 epidemic makes it challenging for teachers to carry out interactive math learning online. The tendency that occurs is that student participation is very low due to the complexity of mathematical material if delivered online, and also differences in student behavior when doing online learning compared to face-to-face learning physically. The use of Nearpod is an alternative to increase real-time interaction in online learning mathematics. From the results of the analysis, it was found that students agreed that it was very easy to use Nearpod and also use Nearpod to support interactive learning, especially in mathematics online learning.
So, it is highly recommended to use Nearpod as an alternative to support online learning. It is proposed that school administrators offer training sessions on Nearpod's Steps to Prepare Learning, particularly to boost involvement in online instruction during the Covid-19 pandemic.

Reference


