



# CLASSPOINT APPLICATION AS A DIGITAL TRANSFORMATION IN MATHEMATICS EDUCATION

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**Abstract:** The transformation to a digital platform allows the utilization of interactive tools that can create fun learning and motivate students to follow the learning process. Another tool is needed to support the learning process in understanding the material. This study aims to create learning that can motivate students through the ClassPoint application. This research is quantitative descriptive research with the research subjects of 31 first-semester students of the Informatics Engineering study program in one of the universities in East Java. The instruments used in this research are activeness set in ClassPoint, assessment results from student assignments, and response questionnaires. The data analysis technique was carried out by classifying student activeness according to the criteria, while the task results were analyzed based on the scores obtained by students. The data analysis results indicate that students are highly engaged in mathematics learning through the ClassPoint application because 74% were active and 26% were very active. It effectively helps them master mathematics materials since 90,3% of students got 80 or above as their assignment score. Students' responses to mathematics learning are positive.

**Keywords:** ClassPoint application; mathematics learning; students' engagement

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## Introduction

Mathematics is essential for engineering students, particularly in Informatics Engineering, which focuses on computer operations. As technology advances, the role of mathematics in computer operations becomes increasingly crucial (van der Wal et al., 2019). Beginning mathematics courses provide valuable insights into students' future academic trajectories, especially in professions such as engineering (Wilkins et al., 2021). Engineering students often undervalue mathematics despite its importance, posing a continuous challenge for mathematics educators (Tossavainen et al., 2021). Moreover, proficiency in introductory mathematics courses is crucial for success in advanced engineering subjects in later university studies. First-year engineering students often face difficulties with fundamental courses, which may result in poor academic performance and career goals (Zakariya et al., 2022).

Digital technologies are anticipated to change significantly how mathematics courses are designed and taught, providing new ways to involve students and enhance educational results (Quinn & Aarão, 2020). Transformation to digital platforms allows for the utilization of interactive tools and improves students' comprehension and recognition of mathematical topics. Educators can help students in



introductory mathematics courses by adopting technological advancements, which can lead to success in the informatics engineering discipline.

The informatics engineering students in this study are from Generation Z. This generation possesses distinct traits compared to the preceding generation. They have been exposed to digital technology since a young age. They are comfortable using technology in their social interactions to communicate (Gabriellova & Buchko, 2021). Educational technology must be adjusted and enhanced to serve them effectively (Sanmugam et al., 2017). Implementing game-based learning through digital tools aligns with the primary professional objectives. It caters to the psychological characteristics of Generation Z, a contemporary cohort familiar with regularly utilizing gaming strategies and electronic resources (Dubinina et al., 2023).

However, based on observations, many lecturers of mathematics courses have not yet integrated learning with digital technologies. They still use old teaching techniques, such as manually giving assignments and conducting exams without using digital tools. As a result, students are less motivated to study in class and tend to be inactive in answering questions given by lecturers.

To overcome such problems, innovative learning is necessary to motivate students to engage in the learning process actively. Lecturers can use a variety of tools to facilitate learning. One of the technologies that can be utilized is ClassPoint Application. This educational software is a complete application that can be easily integrated into Microsoft PowerPoint. Its goal is to make it easier for lecturers to deliver presentations more efficiently by removing the necessity of switching between various applications and increasing their teaching with PowerPoint. ClassPoint enhances PowerPoint presentations by including advanced annotation and presentation capabilities, interactive audience inquiry features, and a gamified reward system that does not rely on student devices. This results in more engaging and captivating lectures (Wanasek, 2024).

This tool enables instructors to enhance their PowerPoint lectures by incorporating interactive features like real-time question-and-answer sessions and quick feedback. Instructors can integrate this ClassPoint content with additional games or quizzes to motivate students to participate actively in the educational experience. Utilizing ClassPoint technology in education helps enhance student engagement, motivation, and satisfaction with their learning experience (Abdelrady & Akram, 2022).

This study aims to evaluate how students of informatics engineering learn mathematics using the ClassPoint app and examine their perceptions of the application.

## **Methods**

### **Research Design**

This is descriptive quantitative research on using ClassPoint media in mathematics courses. It focused on thirty-one first-year informatics engineering students as the subject of this research. Quantitative descriptive is a research method used to describe or explain the characteristics of a population or phenomenon being studied. It aims to identify and explain existing phenomena based on the data collected (Lefringhausen et al., 2019).

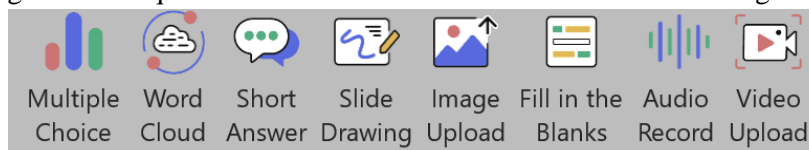
### **Research Subject**

The subjects in this study were thirty-one first-semester students in the Informatics Engineering study program at one of the universities in East Java. The subject taught was mathematics.

### **Data Collection**

Three main instruments are used to collect data: students' activeness engagement, student responses, and assignment scores. The first instrument is the gamified feature in ClassPoint that gives stars to the students who actively engage and answer correctly for the activity student. The levels are

calculated from the number of stars earned during the learning process. While studying mathematics, they can also be given some quizzes that can be in the format shown below in Figure 1.



**Figure 1.** The forms of quizzes that can be conducted in the ClassPoint application

The second is assignment scores used to evaluate learning effectiveness through the ClassPoint application. The third is a response questionnaire to get responses on various aspects of learning, classroom atmosphere, subject matter, or other aspects of the student learning experience. If many students get low scores, parts of the material may need to be retaught or teaching methods adjusted according to student learning needs.

### Data Analysis Technique

In this research, the data analysis techniques include quantitative and qualitative methods to understand the phenomenon under study comprehensively. Student activeness in participating in the learning process can be determined through the achievement of level categories that refer to the research of Wijaya et al. (2021). The activity level categories are shown in Table 1.

**Table 1.** Level of Activity

Level	Stars Range	Activity
1	0 – 4	less Active
2	5 – 9	
3	10 – 19	
4	20 – 29	Active
5	30 – 39	
6	40 – 49	
7	50 – 59	Very Active
8	60 – 79	
9	80 – 100	
10	100	

Source: Adapted from Wijaya et al. (2021)

If the percentage of active and very active students is less than sixty percent, then students in mathematics class were not engaged in the ClassPoint application. If the percentage is between sixty and eighty, then students in mathematics class were engaged in the ClassPoint application. If the percentage is between eighty and a hundred, then students in mathematics class are engaged in the ClassPoint application. The category of student engagement is shown below in Table 2.

**Table 2.** Category of Student Engagement in Learning Mathematics using ClassPoint

Percentage of Active and Very Active	Engagement
80 – 100	highly engage
60 – 79	engage
0 – 59	not engage

Source: Adapted from Wijaya et al. (2021)

To assess the effectiveness of using the ClassPoint application can help students master mathematics materials is inferred from student assignment results. It is effective if more than 75% of students have task scores equal to or greater than 80. Conversely, if less than 75% of students have task scores equal to or greater than 80, it is ineffective.

Students were given a satisfaction questionnaire using the ClassPoint application to gather their responses to the learning experience. The students were required to answer the Likert Four-Point statements using the options 4-strongly agree, 3-agree, 2-disagree, or 1-strongly disagree (Nee & Yunus, 2020). The Likert Four-Point scale range of the result interpretation is shown in Table 3. Students also

answered two open-ended questions about impressions with the ClassPoint application and critiques or suggestions for further learning.

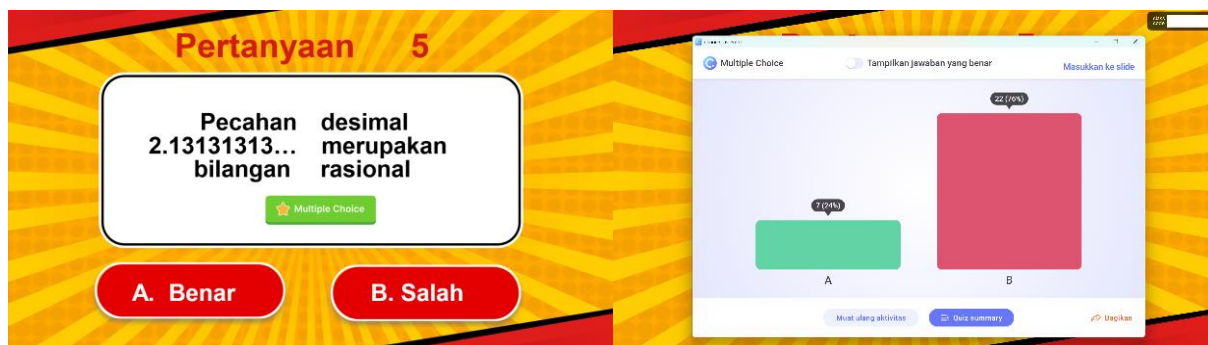
**Table 3.** Likert Four-Point Scale Range Interpretation

Point	Scale Range	Explanation
4	3.01 – 4.00	strongly agree
3	2.01 – 3.00	agree
2	1.01 – 2.00	disagree
1	0.01 – 1.00	strongly disagree

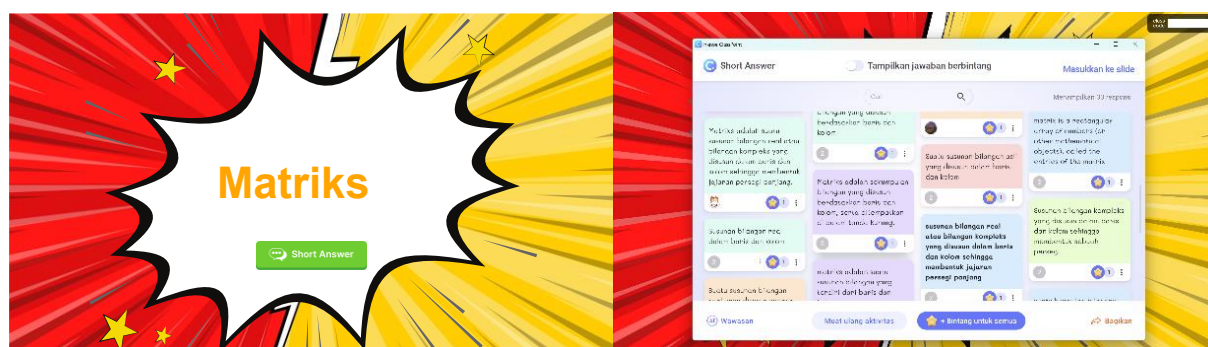
Source: adapted from Nee & Yunus (2020)

### Result and Discussion

This research begins with learning math using the ClassPoint application. Teachers use PowerPoint with the ClassPoint application during the learning process to attract students' attention and make the class more interactive. Thirty-one informatics engineering students studied mathematics in the classroom in four weeks and received many stars through ClassPoint. Below are some samples of the quizzes given to the students while learning mathematics.



**Figure 2.** Sample of multiple-question quiz and graph of students' answers



**Figure 3.** Sample of short-answer quiz and some students' answers

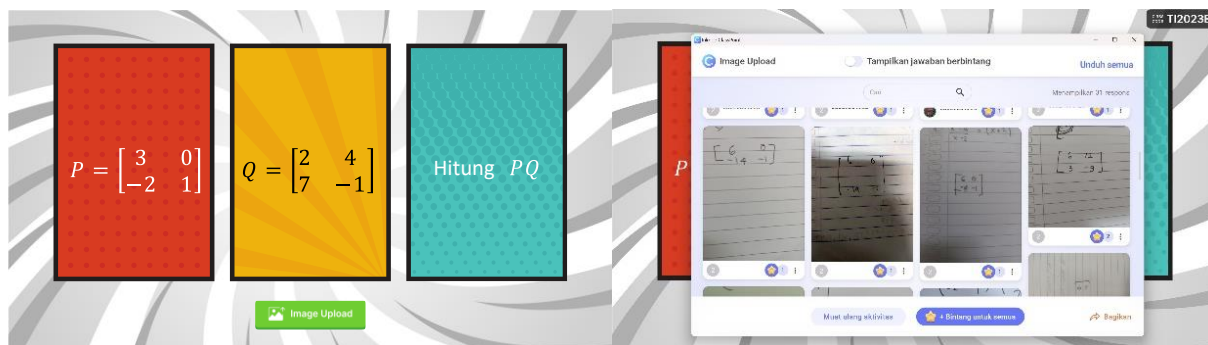


Figure 4. Sample of image-upload answer quiz and some students' answers

Figures 2, 3, and 4 show that the students earned stars and were at several levels in ClassPoint. Based on the star results collected by the students, no single one was less active, twenty-three students were active, and eight were very active. Table 3 shows the number and percentage of students at each level criteria.

Table 4. Result and Percentage of Student' Stars Level

Level	Criteria	Students	Percentage (%)
1 – 3	Less Active	0	0
4 – 6	Active	23	74
7 – 10	Very Active	8	26

The results show that no student was less active, and the sum of the active and very active percentages is 100%. Based on the results and categories in Table 2, students are highly engaged with mathematics learning using ClassPoint. The results align with previous results by Querido (2023), who found that ClassPoint effectively enhances student engagement. Using the ClassPoint application, students can actively engage with interactive media and receive immediate feedback (Wahyuningsih et al., 2023).

Table 3 proves that the selection and use of appropriate learning strategies impact student learning activeness (Ramli et al., 2020). Learning that motivates and is fun can affect learning activeness (Rondina & Roble, 2019). One of the advantages of applying ClassPoint media in learning is the creation of learning conditions with fun activities. Fun learning is a condition that must be created by the teacher so that students feel comfortable and do not feel burdened during the learning process (Anwar et al., 2020). Fun learning can be applied by inserting interesting quizzes, providing educational games, and motivating students.

Figure 5 shows the results of student assignments. Three students scored below 80. Twenty-eight students, or 90,3%, received an 80 or above. From that, it can be concluded that mathematics learning using ClassPoint effectively helps students master mathematics materials. With ClassPoint application, they can focus and motivate themselves to learn in a pleasant atmosphere so as to make students make learning efforts, which results in increasing their learning outcomes (Sundari et al., 2021).

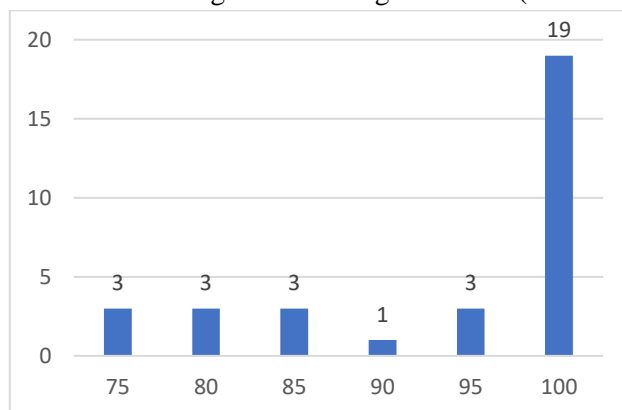


Figure 5. Result of Students' Assignment

After the implementation of learning, students were given a response questionnaire to get feedback from students regarding using the ClassPoint application during the learning process. The results of the response questionnaire are shown in Table 5.

**Table 5.** Result of Students' Response

Statements	Number of Responses				Mean Score
	strongly agree	agree	disagree	strongly disagree	
Learning with ClassPoint is exciting.	24	6	1	0	3,74
The ClassPoint application helps me better understand the material.	18	13	0	0	3,58
Learning with ClassPoint does not make me stressed.	11	19	1	0	3,32
The ClassPoint application does not get me bored.	16	15	0	0	3,52
ClassPoint application is easy to understand.	13	18	0	0	3,42
For the next lesson, I would like to keep using ClassPoint.	14	15	2	0	3,39

From Table 4. students strongly agreed that learning with ClassPoint with ClassPoint is exciting. When students were asked about their impressions, most said their learning was fun, interesting, and exciting. Mazlan et al. (2023) also found that participants showed positive emotion when completing the task in the ClassPoint application.

They strongly agreed that the ClassPoint application helped them better understand the material. One student said the material presented was interesting and unique, so he/she understood more quickly. Another said that the learning was interactive; materials and quizzes made him/her more understanding. Some also said that it is fascinating and that the material is easy to understand. Arshad et al. (2023) also found that the ClassPoint application enhances clarity in content delivery.

They also strongly agreed that learning with ClassPoint did not make them stressed. Though some said it was thrilling and competitive, this did not stress them. One student said learning with ClassPoint can ease math stress because it is very exciting and entertaining, especially with the star feature, which makes students compete. This is consistent with the conclusion obtained by Akram and Abdelrady (2023) that integrating ClassPoint tool activities into the learning environment significantly reduced students' anxiety.

The ClassPoint application also did not bore students. They strongly agreed about it. Some students wrote that the learning atmosphere was not dull. Interactive game-based learning in the ClassPoint application helps reduce students' boredom (Abdelrady & Akram, 2022). Students and instructors enjoyed using ClassPoint as it brought out the lively dynamic of the class (Bong & Chatterjee, 2022). They laughed a lot, which happened during the lesson and was written as an impression by one of them.

Students are from the Z generation and have no difficulty using new technology. Moreover, they are informatics engineering students who are directly related to the development of digital technology. They strongly agreed that the ClassPoint application is easy to understand. For the next lesson, they strongly agreed that they would like to keep using ClassPoint. Some students said they were happy with this kind of learning, and others also said it encouraged them to learn mathematics. This is similar to that yielded by Ritonga et al. (2023), which stated that students strongly agreed to learn with ClassPoint. This is because this application has a feature that allows students to conduct questions and answers with



various attractive displays, including multiple-choice, word cloud, short answer, slide image, image upload, and whiteboard background.

Another finding was that students felt the learning time with ClassPoint with quizzes was insufficient. They wanted more time to explore the material and do quizzes in the lesson. Overall, students' responses to learning using ClassPoint were positive. The positive response to the ClassPoint application is due to several interesting features that support its function as an interactive learning media, so this application is suitable for use in learning activities (Wao et al., 2022).

### Conclusions

From these results, it can be concluded that students are highly engaged in mathematics learning through the ClassPoint application because 74% were active and 26% were very active. It effectively helps them master mathematics materials since 90,3% of students got 80 or above as their assignment score. Students' responses to mathematics learning are positive. Based on these conclusions, it is recommended that the learning process in the classroom be integrated with technology, such as the use of interactive applications that can motivate students to be actively involved in learning.

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