

Evaluating the Effectiveness of ClassPoint in Supporting Tutorial and Revision Activities for Network Routing Course

Nur Idawati Md Enzai*

Faculty of Electrical Engineering, Universiti Teknologi MARA Cawangan Terengganu Kampus Dungun, Dungun Terengganu, Malaysia

*Corresponding Author

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ABSTRACT

Universiti Teknologi MARA (UiTM) offers an elective course for final-year students of the Diploma in Electrical Engineering, including those from the Terengganu branch. One of the choices for elective is Network Routing Fundamentals course for students who want to specialize in computing. The course consists of six chapters, which involve two hours of lecture and two hours of laboratory per week. The largest weightage of assessment comes from two written tests. Compared to practical-based assessment, the students encounter difficulty in preparing for the written tests. The conventional method of tutorial and revision activities causes students to lose focus easily, and it is more prone to involve only some active students. Therefore, a learning platform called ClassPoint is employed to facilitate tutorial and revision sessions, as it can be integrated with PowerPoint presentation slides. To study the effectiveness of this implementation, an online survey, which consisted of questions related to engagement and participation, understanding of concepts, learning effectiveness, usability and overall perception, was administered to 10 students. The obtained feedback indicates their ability to focus and participate better through ClassPoint implementation. The results of written tests are also promising, with an average of 80%, which far surpasses the Key Performance Indicator (KPI) of 50%.

Keywords: ClassPoint, Student Performance, Educational Technology, Tutorial

INTRODUCTION

Network Routing Fundamentals (Course Code: ECE356) is an elective subject offered to computer-majoring final-year students of Electrical Engineering Diploma in University Teknologi MARA (UiTM) Terengganu Branch. 50% of the assessment is through two written tests. The students thrive during practical sessions but have difficulty memorizing all the concepts and commands for written tests. Tutorial or revision sessions are usually dull and mundane, with students answering questions. Usually, only the same students will participate while others remain quiet. Kahoot, ZEP, and Wayground have been used to make the session more interesting. Even though it makes the class fun and interactive, the students hardly remember the content.

LITERATURE REVIEW

Many digital and online platforms have been used in learning and teaching activities to increase students' engagement and attention. Such platforms are Kahoot, Wayground, ZEP and ClassPoint. Instead of relying solely on a web or mobile app, ClassPoint is embedded in Microsoft PowerPoint, making it easily integrated with existing teaching slides, and has become a popular choice for many educators.

ClassPoint was incorporated in the teaching sessions for Computer and Information Processing subject to enhance engagement with the theoretical parts. Among the ClassPoint features used are Word Cloud, Short Answer, Upload Image, and Multiple Choice. 26 students answered a survey about their perceptions, and the overall findings show that the students are happy with the implementation as they could participate more, and they suggested ClassPoint to be used in the future and in other subjects (Enzai et al., 2025).

ClassPoint features such as Word Cloud, Short Answer, Slide Drawing, Image Upload, and Quiz Areas have also been used to teach an Electrical Engineering course. The students solve problems, review concepts and conduct discussions through ClassPoint implementation. As a result, the students' engagement and understanding are notably enhanced. The positive impact is also apparent for formative assessment, as real-time data obtained could contribute to outlining personalized learning experiences (Ghazalia & Yusofa, 2025). ClassPoint activities were also applied in teaching Islamic Education to increase students' attention and engagement through gamification elements. Activities that require their focus and direct feedback make them pay attention more. The real-time quiz feature gives a sense of competitiveness among the students (Hamidah, 2025).

In addition to increase engagement of students, the performance of students at a private school in Cebu for Advanced Algebra course was evaluated by comparing performance before and after implementation of ClassPoint. Pre-test and post-test assessments were conducted with control and experimental groups to measure the impact of ClassPoint. Validated researcher questionnaires were given to the students to obtain their feedback. Understandably, both control and experimental groups underperformed on pretests. However, on posttests, the experimental group significantly improved, with average achievement. The control group also showed improvement even though they still underperformed compared to the experimental group. The findings indicate the benefits and importance of applying ClassPoint in teaching and learning (Potot, 2025).

Similar to (Potot, 2025), the performance of students before and after ClassPoint implementation was evaluated by (Yusi, 2023). The study was conducted for Business Mathematics of Grade 11 ABM2 students of Mataas Na Paaralang Neptali A. Gonzales. The students' performance level increased, and the average performance is also higher after using ClassPoint in teaching and learning. This signifies the positive effect incurred by ClassPoint on the students' achievement.

Due to its proven advantage as highlighted by the literature, ClassPoint tool is utilized in tutorial and revision sessions for the ECE356 course. This paper explains the implementation of ClassPoint features during tutorial and revision sessions for ECE356 course and presents findings of survey responses related to students' perceptions about the activities. The perceptions mainly consist of engagement, understanding, and learning impact. The students' feedback is crucial for future improvement.

METHODOLOGY

An online survey was conducted using the Google Form platform among ten students of the Diploma in Electrical Engineering (Electronics), UiTM Terengganu, who took the Network Routing Fundamentals course during the October 2025 – March 2026 semester. The survey questions were initially generated with the assistance of ChatGPT. The prompt used is: *"create survey questions to obtain perception of students on the effect of using ClassPoint for tutorial and revision for network routing subject"*. The questions were further refined in accordance with the nature of the Network Routing Fundamentals course. The number of participants is small because ECE356 is an elective subject for final-year students. All students participated in the survey and provided their feedback. Table 1 shows the questions asked.

Table 1 Survey questions

	Category and Question	Option of Answers
1	Background: Gender	Male Female
2	Engagement and Participation: ClassPoint makes the tutorial sessions more interactive. I feel more motivated to participate in tutorials using ClassPoint. I am more actively involved in class when ClassPoint is used.	Strongly agree Agree Neutral Disagree Strongly disagree
3	Understanding of Network Routing Concepts: The immediate feedback from ClassPoint improves my understanding of mistakes. ClassPoint helps me identify my weak areas in network routing.	Strongly agree Agree Neutral Disagree

	Using ClassPoint improves my confidence in answering routing-related questions.	Strongly disagree
4	Learning Effectiveness: ClassPoint makes revision sessions more effective. I can remember routing concepts better after using ClassPoint. ClassPoint helps me prepare for quizzes/tests/exams. The competitive elements (leaderboard, points, etc.) encourage me to learn. Overall, ClassPoint improves my learning performance in this subject.	Strongly agree Agree Neutral Disagree Strongly disagree
5	Usability and Overall Perception: ClassPoint is easy to use. I do not face significant technical problems when using ClassPoint. I would recommend continuing the use of ClassPoint for Network Routing tutorials. ClassPoint should be used in other computing-related subjects.	Strongly agree Agree Neutral Disagree Strongly disagree
6	What do you like most about using ClassPoint in this subject? What improvements would you suggest for using ClassPoint in future tutorials?	Open-ended

The Network Routing Fundamentals subject consists of six chapters. Test 1 covers chapters one, two, and three. Meanwhile, Test 2 encompasses the remaining chapters.

The questions for the Engagement and Participant category aim to understand their ability and motivation to participate. Meanwhile, the category Understanding of Network Routing Concepts is essential to study how ClassPoint impacts their cognitive skills. Learning Effectiveness category gauges their perceptions of how ClassPoint influences their preparation for assessment. Usability and Overall Perception category as well as open-ended questions obtain the students' experience in using ClassPoint and provide an opportunity for them to give their opinions and suggestions.

For ClassPoint implementation, only the Short Answer feature is used because it allows students to answer in paragraph and point form, similar to the format of written tests. All who answered are given stars. The fastest and most correct answer is given an extra star. The correct answers are selected, compiled, and given to students. The questions are based on past tests as well as exercises prepared and compiled by the instructor.

ClassPoint group with class code ECE25 is created in advance by the instructor. The students are asked to give their nicknames to be entered in the group. Nicknames are selected instead of full names to give the students a familiar and comfortable experience. The students can join the ClassPoint activity either by entering the class code or scanning the generated QR code.

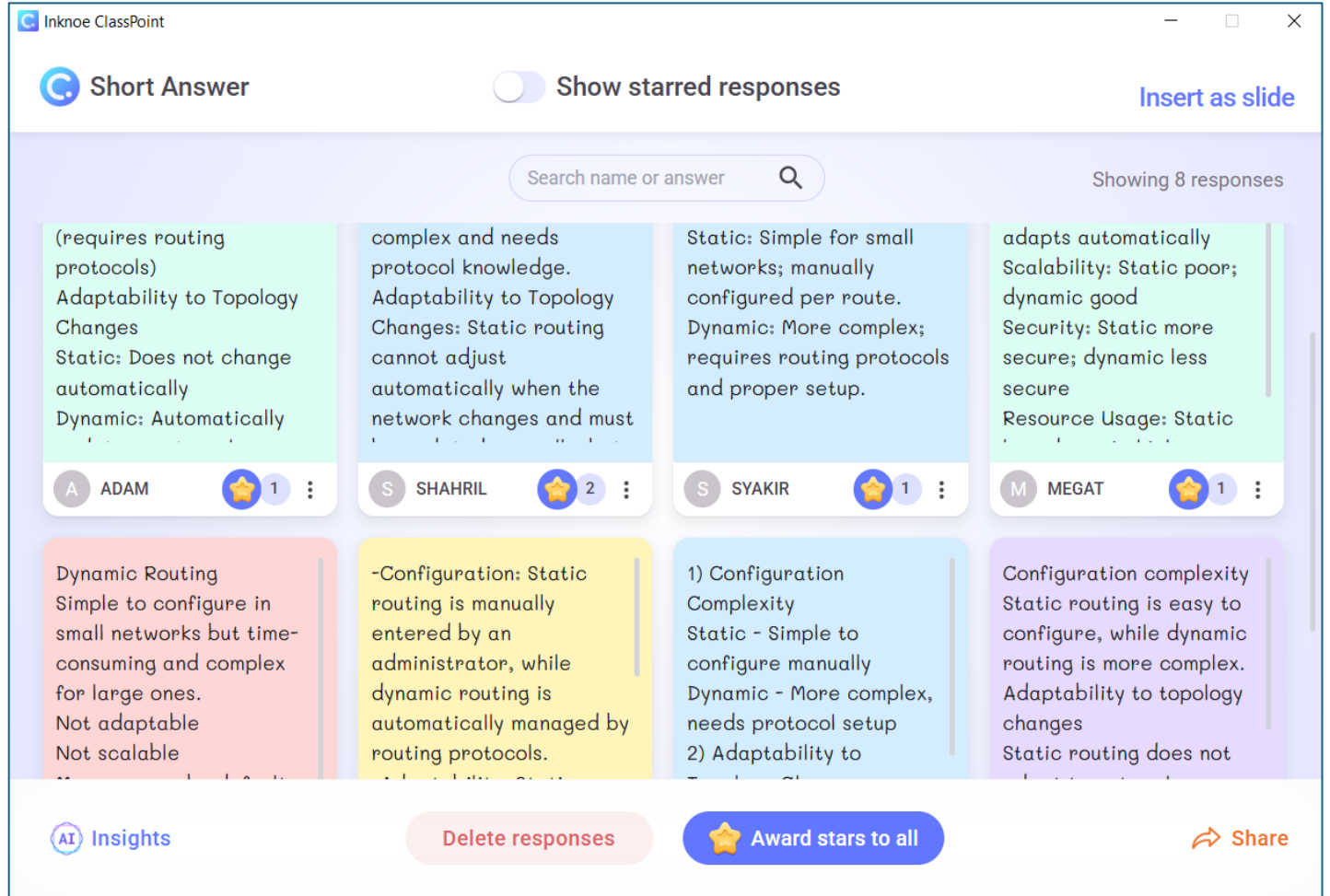
Figure 1 shows one of the tutorial questions and Figure 2 shows some of the students' answers.

Compare the differences between dynamic and static routing. Contrast any FIVE (5) of the following features:

- Configuration complexity
- Adaptability to topology changes
- Scalability
- Security
- Resource Usage / Processing
- Path Finding



Figure 1 Tutorial question using Short Answer feature



Short Answer ☐ Show starred responses [Insert as slide](#)

Search name or answer  Showing 8 responses

(requires routing protocols) Adaptability to Topology Changes Static: Does not change automatically Dynamic: Automatically A ADAM  1	complex and needs protocol knowledge. Adaptability to Topology Changes: Static routing cannot adjust automatically when the network changes and must S SHAHRIL  2	Static: Simple for small networks; manually configured per route. Dynamic: More complex; requires routing protocols and proper setup. S SYAKIR  1	adapts automatically Scalability: Static poor; dynamic good Security: Static more secure; dynamic less secure Resource Usage: Static M MEGAT  1
Dynamic Routing Simple to configure in small networks but time-consuming and complex for large ones. Not adaptable Not scalable	-Configuration: Static routing is manually entered by an administrator, while dynamic routing is automatically managed by routing protocols.	1) Configuration Complexity Static - Simple to configure manually Dynamic - More complex, needs protocol setup 2) Adaptability to	Configuration complexity Static routing is easy to configure, while dynamic routing is more complex. Adaptability to topology changes Static routing does not

 [Insights](#) [Delete responses](#) [Award stars to all](#) [Share](#)

Figure 2 Interface of students' responses



 **Short Answer submission from SHAHRIL**

“

- Configuration Complexity: Static routing is easy to set up, especially for small networks, while dynamic routing is more complex and needs protocol knowledge.
- Adaptability to Topology Changes: Static routing cannot adjust automatically when the network changes and must be updated manually, but dynamic routing adjusts automatically.
- Scalability: Static routing is not good for large networks because management is hard, while dynamic routing works well in large networks.
- Resource Usage / Processing: Static routing uses fewer system resources, while dynamic routing uses more CPU, memory, and bandwidth.
- Path Finding: Static routing uses fixed paths set by the administrator, while dynamic routing finds the best path automatically.

Figure 3 Selected answer for students' reference

Figure 3 shows one of the selected correct answers. As shown in Figure 2, stars can be awarded to specific or all respondents. The stars for each student are accumulated, and their achievement is announced in leaderboard form as shown in Figure 4. To further motivate them, the top three scorers are rewarded with special gifts.

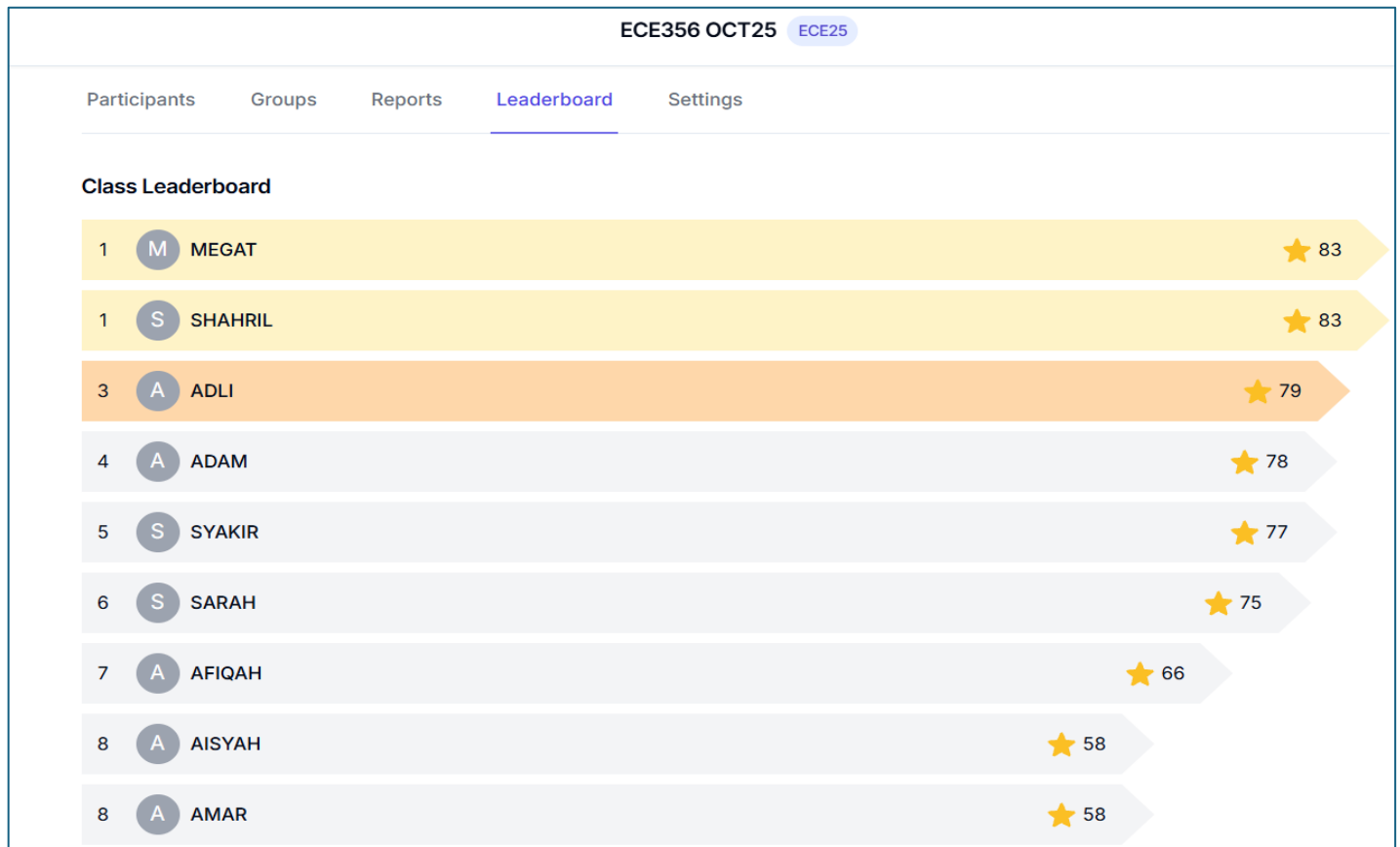


Figure 4 ClassPoint leaderboard

FINDINGS AND DISCUSSION

This section presents the survey responses and the students' performance in written tests. Figure 5 indicates the gender of students. 70% of students are male, and 30% are female.

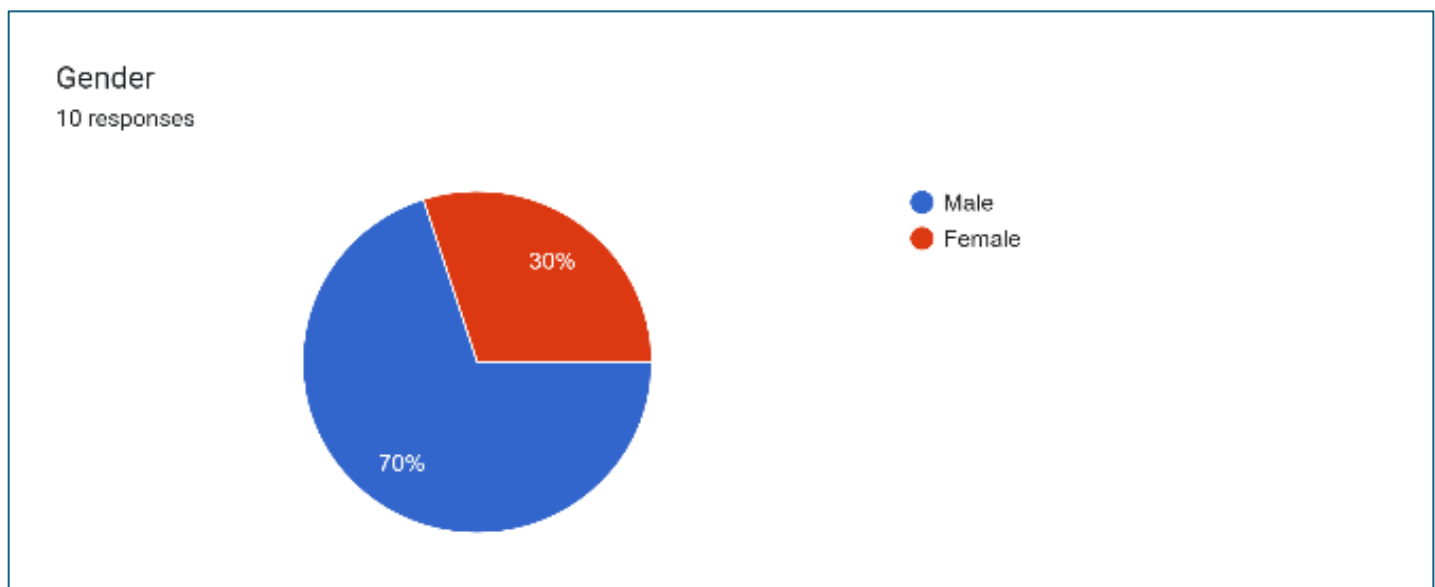


Figure 5 Responses to: Gender

Engagement and Participation

Figure 6, Figure 7, and Figure 8 display the responses to questions related to engagement and participation. All three figures signify 80% strongly agree, and 20% of students agree with the ability to get involved and actively participate.

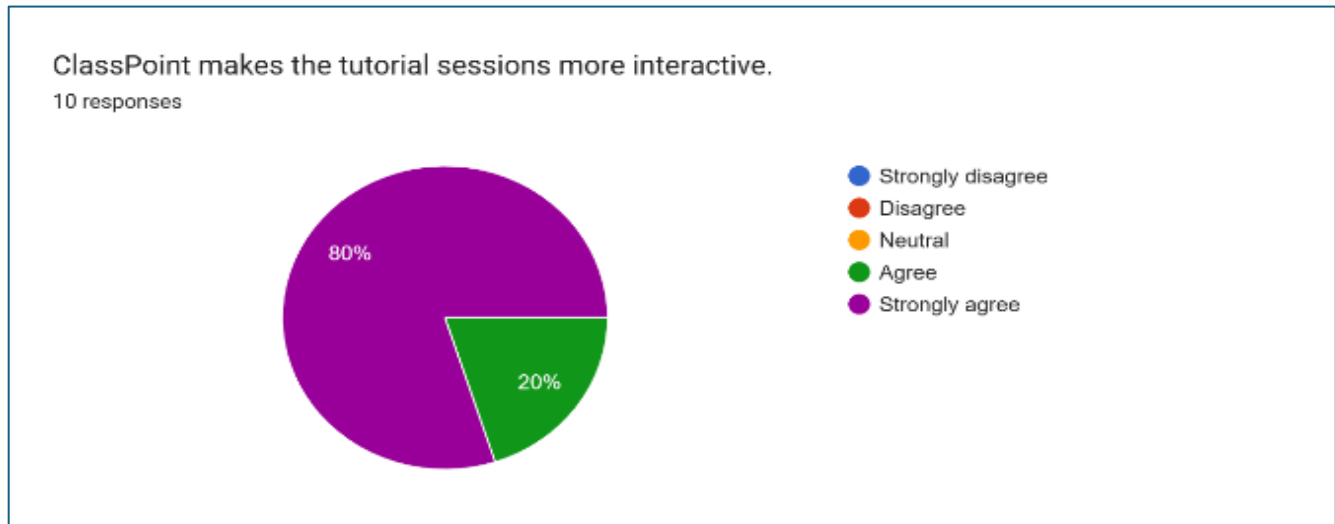


Figure 6 Responses to: ClassPoint makes the tutorial sessions more interactive.

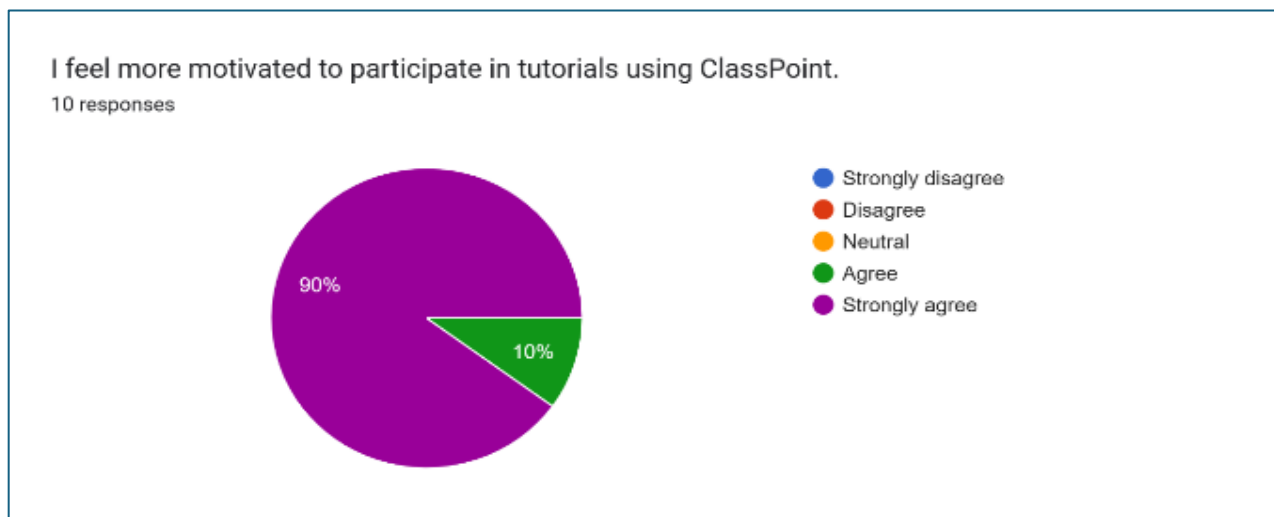


Figure 7 Responses to: I feel more motivated to participate in tutorials using ClassPoint.

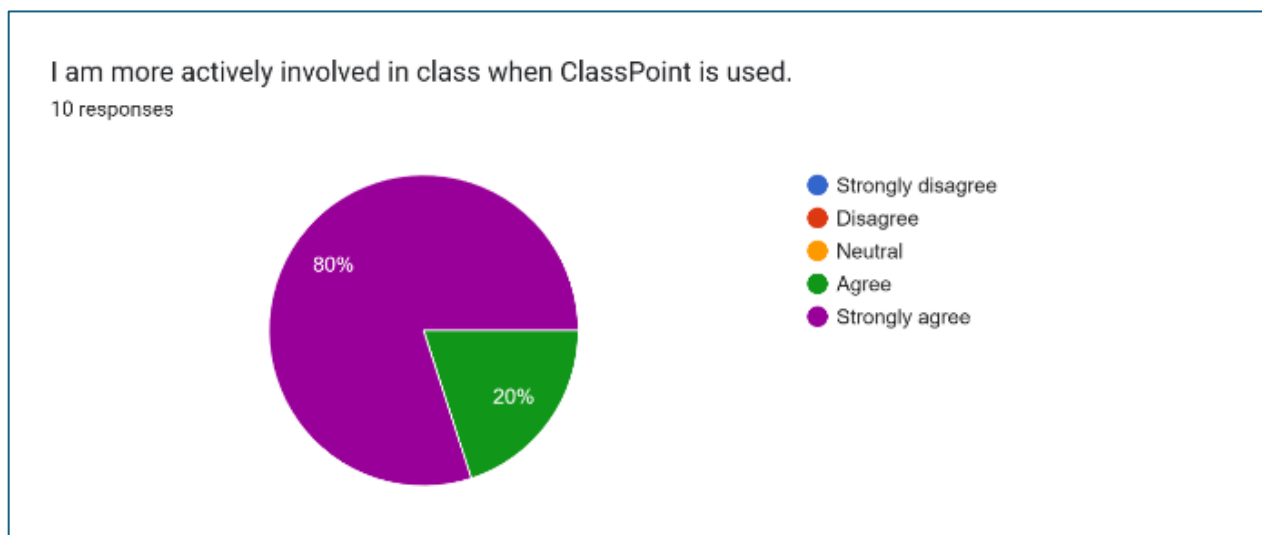


Figure 8 Responses to: I am more actively involved when ClassPoint is used.

Understanding of Network Routing Concepts

Figure 9, Figure 10, and Figure 11 display the responses to questions related to understanding of network routing concepts.

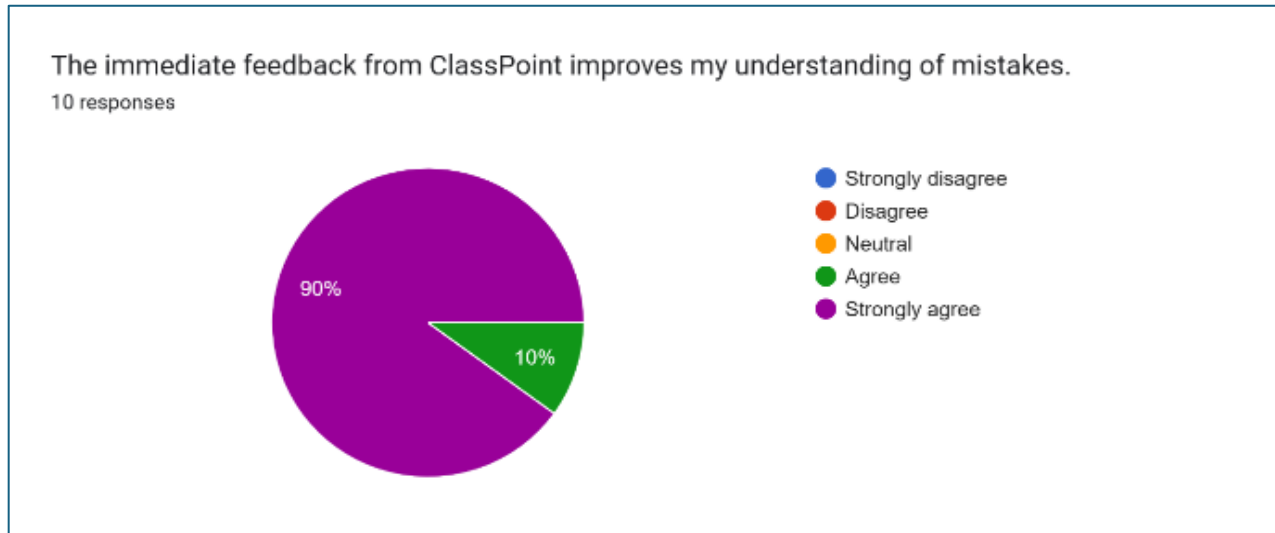


Figure 9 Responses to: The immediate feedback from ClassPoint improves my understanding of mistakes.

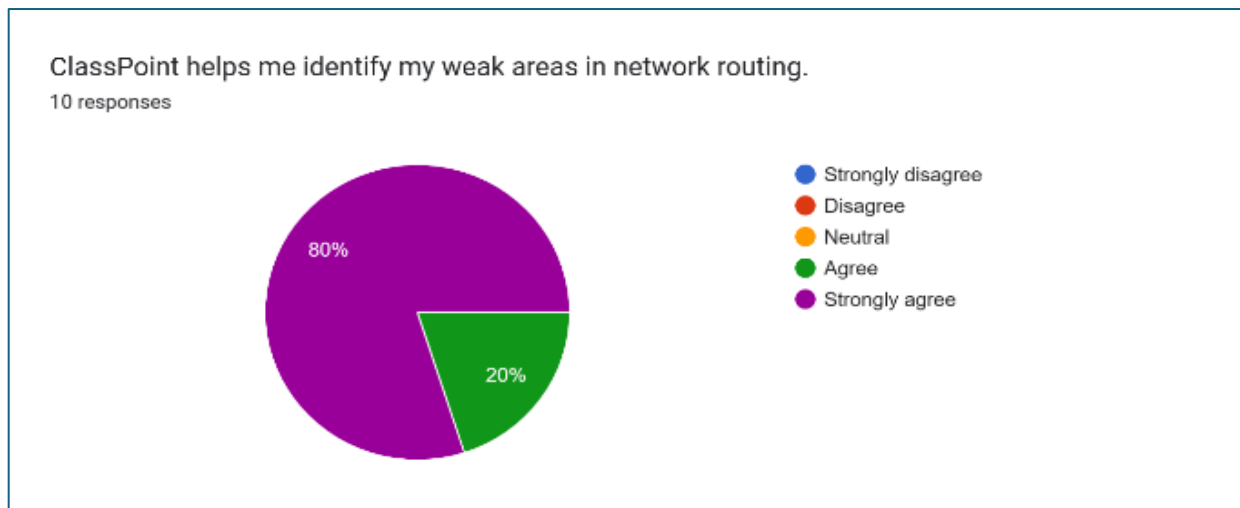


Figure 10 Responses to: ClassPoint helps me identify weak areas in network routing.

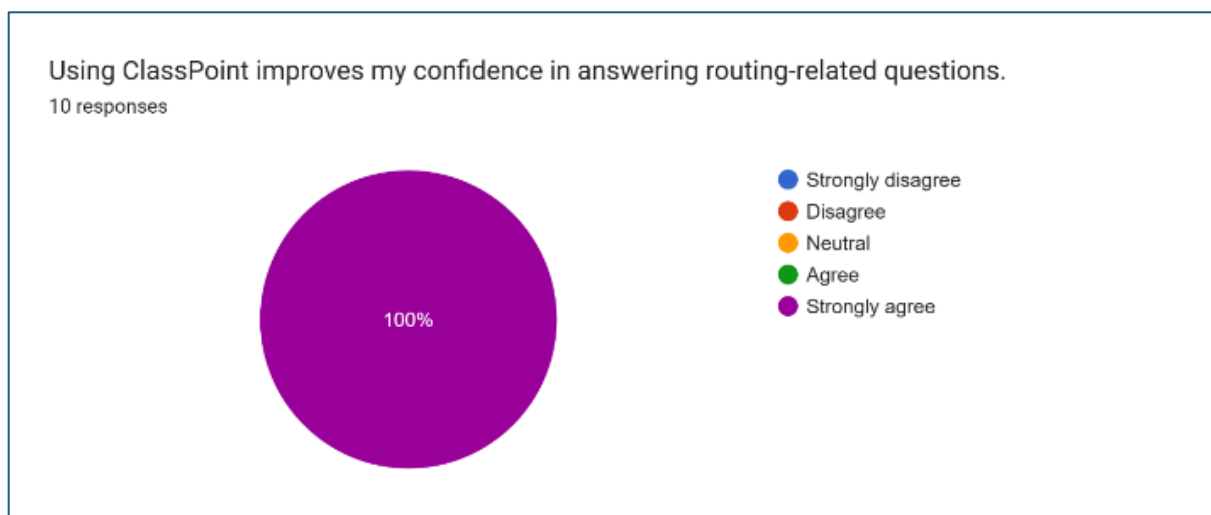


Figure 11 Responses to: Using ClassPoint improves my confidence in answering routing-related questions.

The responses to all questions reflect the students' ability to understand the concepts of network routing better. The students also managed to identify the areas that require extra revision and boost their confidence.

Learning Effectiveness

Figure 12, Figure 13, Figure 14, Figure 15, and Figure 16 display the responses to questions related to learning effectiveness.

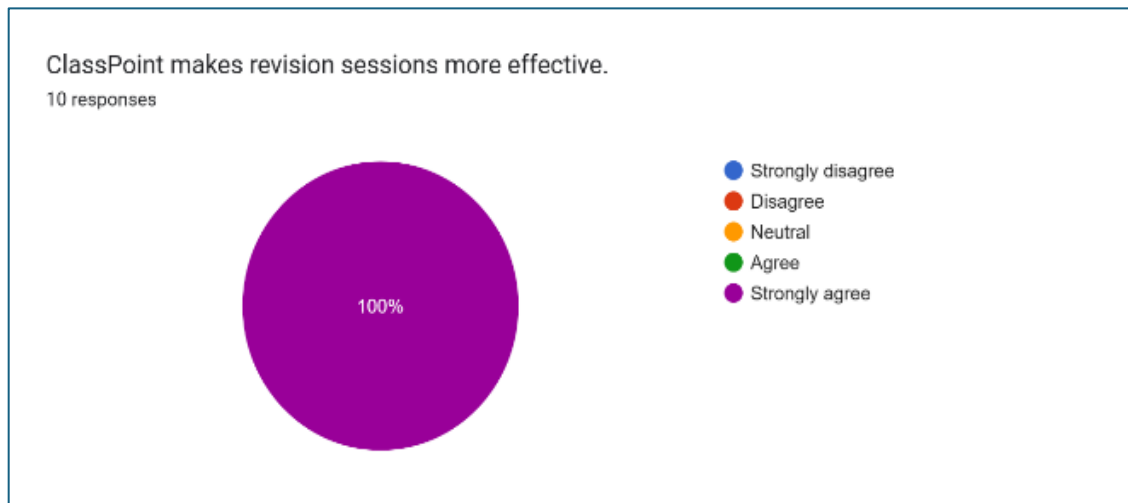


Figure 12 Responses to: ClassPoint makes revision sessions more effective.

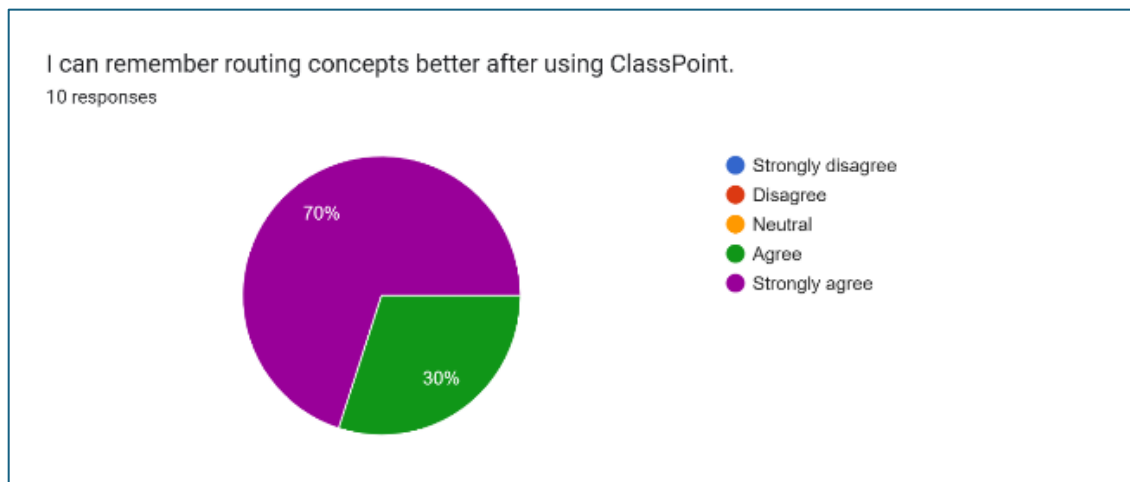


Figure 13 Responses to: I can remember routing concepts better after using ClassPoint.

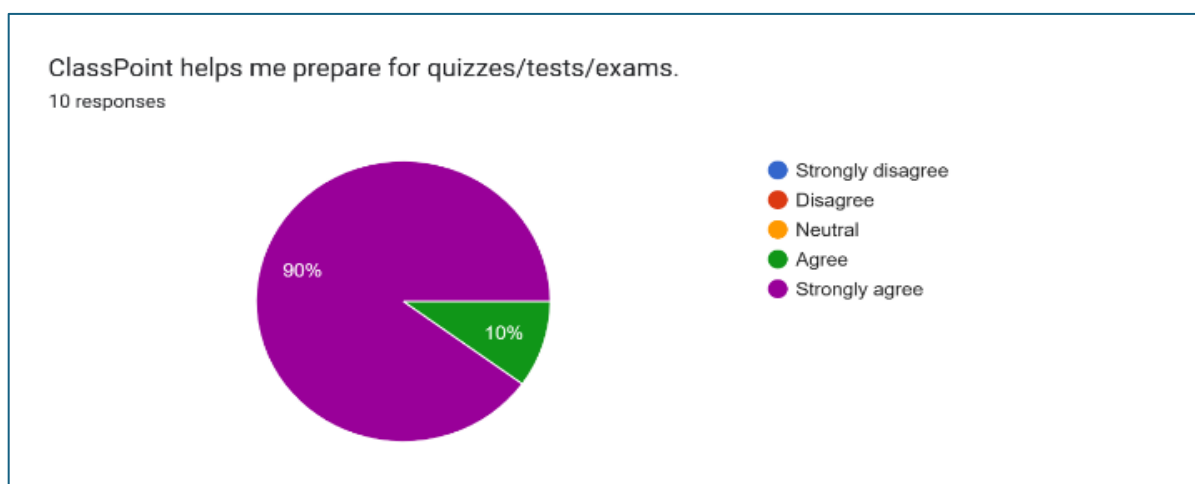


Figure 14 Responses to: ClassPoint helps me prepare for quizzes/tests/exams.

The competitive elements (leaderboard, points, etc.) encourage me to learn.

10 responses

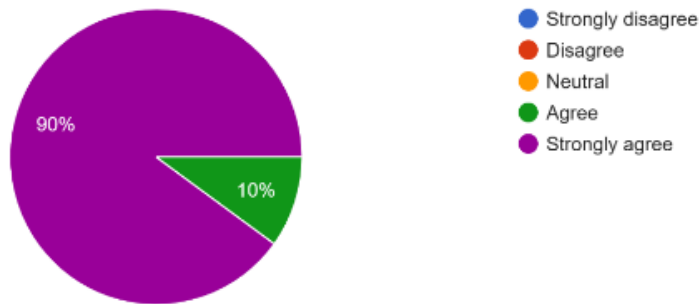


Figure 15 Responses to: The competitive elements (leaderboard, points, etc.) encourage me to learn.

Overall, ClassPoint improves my learning performance in this subject.

10 responses

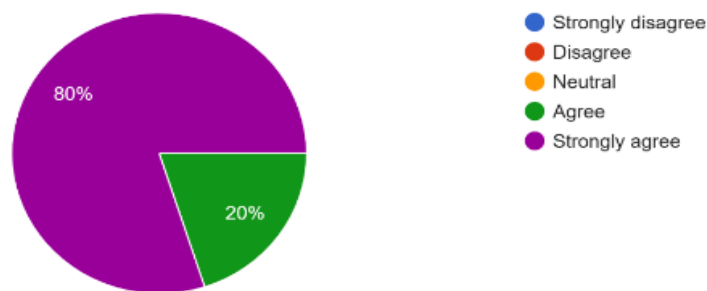


Figure 16 Responses to: Overall, ClassPoint improves my learning performance in this subject.

Similar to the questions of other category, 80% answer Strongly Agree, and 20% answer Agree with regards to learning effectiveness as a result of using ClassPoint.

Usability and Overall Perception

Figure 17, Figure 18, Figure 19, and Figure 20 show the responses to questions related to usability and overall perception.

ClassPoint is easy to use.

10 responses

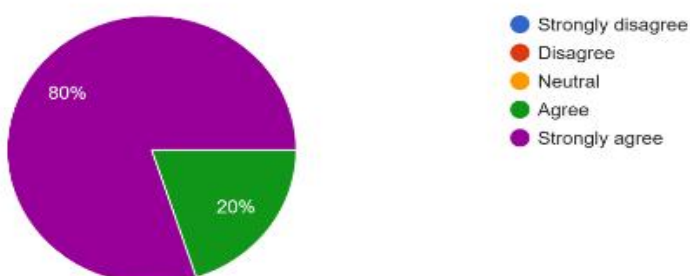


Figure 17 Responses to: ClassPoint is easy to use.

I do not face significant technical problems when using ClassPoint.

10 responses

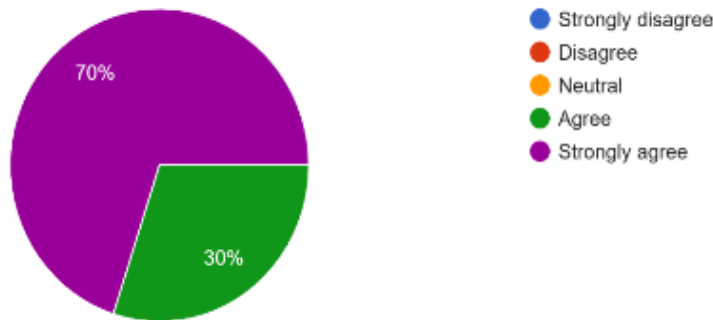


Figure 18 Responses to: I do not face significant technical problems when using ClassPoint.

I would recommend continuing the use of ClassPoint for Network Routing tutorials.

10 responses



Figure 19 Responses to: I would recommend continuing the use of ClassPoint for Network Routing tutorials.

ClassPoint should be used in other computing-related subjects.

10 responses



Figure 20 Responses to: ClassPoint should be used in other computing-related subjects.

The responses for this category are also similar to previous categories, where all students answered strongly agree and agree. This indicates their satisfaction in using ClassPoint with ease and willingness to further experience such a learning environment.

Open-Ended

Table 2 summarizes the answers to open-ended questions and their suggestions.

Table 2 Answers to open-ended questions

	Question	Summary of Answers
1	What do you like most about using ClassPoint in this subject?	Fun and easy to use. Competitive feeling. Leaderboard feature.
2	What improvements would you suggest for using ClassPoint in future tutorials?	More questions. After ClassPoint activities, ask students to answer face to face too.

Most students choose the leaderboard star award as the most interesting feature of ClassPoint. The feature motivates them to compete and try to answer correctly. Interestingly, one student suggested corroborating ClassPoint activities with the conventional tutorial method as well.

Students' Performance

Table 3 shows the students' performance in both written tests.

Table 3 Students' results

	Test 1	Test 2
Average achievement (%)	83.9	75.8
Overall average achievement (%)	79.9	

Although performance declines for the second test, the average remains above 75%. This could be due to more challenging questions on Test 2 and to students being busier towards the end of the semester with other assessments. However, overall, the average performance is 79.9%, which is close to 80%, far surpassing the KPI of 50%.

CONCLUSION

ClassPoint tool has been integrated into tutorial and revision sessions for Network Routing Fundamentals course taken by Diploma in Electrical Engineering students of UiTM Terengganu during October 2025 – March 2026 semester. As the integration focuses on tutorials and revision to prepare for the written test assessment, only the Short Answer ClassPoint feature is used. An online survey was carried out to obtain their views on engagement and participation, understanding of network routing concepts, learning effectiveness, usability, overall perception, and suggestions. The responses indicate that all students strongly agree and agree that ClassPoint implementation makes them actively involved, understand the subject content better, and feel comfortable. Students' performance also aligns with their responses, as they achieved an average of 80% on written tests. The students' performance serves as complementary data that corresponds to their positive perceptions. As suggested by the students, ClassPoint will be implemented for the upcoming semesters, and further study can be conducted by comparing the effect of ClassPoint on other learning domain areas such as affective skills.

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