
Utilization of ClassPoint Interactive Media on Organic Chemistry Course

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Abstract. This research focuses on utilizing ClassPoint interactive media in learning organic chemistry courses. Interactive media can potentially increase student engagement and understanding of complex material. Organic chemistry is often considered difficult, and students rely on lecturers to understand it. However, the lack of student involvement in the learning process is a problem that needs to be addressed. This research aims to describe student perspectives on the use of ClassPoint in learning organic chemistry, evaluate the effectiveness of ClassPoint in increasing student engagement, and identify the interactive features that students are most interested in. The research involved 53 participants of the Tanjungpura University FKIP Chemistry Education Study Program students who had taken the organic chemistry course. The research results show that the perspective of Chemistry Education students regarding the use of ClassPoint Interactive media is in the strongly agree category with a percentage of 91.55%. The strongly agree category is viewed from 3 aspects, namely the motivation and interest in learning aspect; knowledge and skills aspects; as well as the feature usability aspect, each of which received the strongly agree category. This indicates that ClassPoint interactive media is liked and wants to continue to be used in learning in organic chemistry courses. By utilizing ClassPoint, students become more involved in the learning process, increase understanding, and increase motivation and interest in learning. This research is an important step in optimizing interactive learning media to support more effective and interesting learning of organic chemistry.

Keywords: ClassPoint, Organic Chemistry, Utilization

Introduction

The use of interactive media in learning has become increasingly common in today's educational context. Interactive media technology allows users to engage in a learning process that is more active and more interesting compared to traditional learning methods. Interactive media is a type of media that allows users to be actively involved in the learning process or digital experience. Interactive media can be computer programs, applications, videos, animations, or multimedia presentations that allow users to interact and respond directly to the content of the media. Interactive media can be used in various learning contexts, such as distance learning, web-based learning, blended learning, and face-to-face learning. Examples of interactive media that are often used in learning are educational games, simulations, animated videos, and multimedia presentations.

The main advantage of interactive media is that it can increase user interaction and involvement in the learning process or digital experience. Studies have shown that immersion in a digital environment can enhance education, by allowing multiple perspectives, situated learning, and transfer (Dede, 2009). For example, in a learning context, interactive media can allow students to actively participate in the learning process by choosing answers in online exams, playing simulations, or participating in discussions. This can help strengthen understanding of concepts and increase student engagement and motivation levels. In addition, interactive media can also help visualize complex concepts and ideas in a way that is easier for users to understand and remember. Multimedia can also make leaning can be more effective (Subaidi & Aziz, 2020). Some features that are often found in interactive media are animation, video, graphics, and audio, which can help users visualize concepts and ideas better. Overall, interactive media can increase the effectiveness of digital learning and experiences by allowing users to actively engage and respond directly to the content of the media.

One of the courses that allows for the use of interactive media in learning is the organic chemistry course. The organic chemistry course must be taken by students of the FKIP Tanjungpura University Chemistry Education Study Program in organic chemistry for several semesters. The group of organic chemistry courses in the Chemistry Education Study Program is presented in 4 mandatory courses, namely the organic chemistry of monofunctional compounds (KOSMO) course, the polyfunctional and macromolecule organic chemistry course (KOPMA), the reactions and organic reaction mechanisms course (REMRO), and natural products organic chemistry (KOBAN) course (Lestari, 2021).

Organic chemistry has been found to be famously troublesome for students (Nartey & Hanson, 2021; Nedungadi & Shenoy, 2023). Students perceive organic chemistry as a challenging subject for them to memorize and master, which comes about in a high disappointment rate (Cardellini, 2012; Rosly et al., 2021). It is because the characteristics of the organic chemistry study material at the tertiary level are quite complex, especially because there are many concepts that must be understood, and the relationships between concepts, and students must have good reasoning and understanding skills (Lestari & Erlina, 2020; Lestari & Erlina, 2021). Apart from that, several other factors that can make organic chemistry difficult to understand are first, the complexity of molecular structure: organic compounds often have very complex molecular structures and consist of many atoms, which can be difficult to understand for people who do not have a chemistry background. the strong one. Second, lack of understanding of the reactivity of organic compounds: Organic compounds can have very diverse reactivity depending on their molecular structure. If poorly understood, this can make it difficult to predict the behavior of organic compounds in chemical reactions. Third, the technical language used often uses many technical terms and abbreviations which can be confusing for people who are not familiar with these terms. The lack of proper visualization of several concepts in organic chemistry also adds to the difficulty of studying organic chemistry. For example, understanding the concepts of isomerism or stereochemistry often requires three-dimensional visualization of molecules. However, although organic chemistry material can be difficult to understand, with the right approach, sufficient motivation, and regular practice, the ability to understand and master organic chemistry concepts can be improved. The learning activities carried out should provide the ability to connect phenomena at the macroscopic level to the microscopic and symbolic level. Learning

activities are expected to develop students' understanding of chemical phenomena and organic chemistry concepts (Mekwong & Chamrat, 2021).

The difficulty of studying the material in the organic chemistry course makes students tend to depend on lecturers to explain directly to students (Fitriana, 2023), so they sometimes ignore student involvement in organic chemistry learning activities. Besides that, students very rarely ask questions during the learning process, so lecturers are less able to know students' difficulties in participating in the learning process (Darwis & Mustikasari, 2012). Based on research by Lestari & Erlina (2020) regarding the learning sources and media that are most widely used by students, they still refer to handouts given by lecturers, in the form of power points as the main source for learning.

Interactive learning is a learning method or technique that can be used in a two-way communication system between teachers (lecturers) and students. When teachers use an interactive learning approach, they participate more actively in creating conditions and scenarios that make lessons interesting and educational. Interaction between lecturers and students as well as between students and other students and with learning material sources differentiates them and helps achieve learning objectives in ongoing lectures (Setiyanto, 2023). Teacher (Lecturer) accept that technology-incorporated educating helps them in improving their directions hones viably, making the learning handle energizing and intuitive, and keeping learners motivated (Akram et al., 2022).

ClassPoint is a type of learning media that can be used in learning organic chemistry. ClassPoint is an application that is integrated with PowerPoint presentation and is an all-in-one teaching tool that is seamlessly integrated with PowerPoint. Powerpoint is a media that is easy to use and allows to easily change content and themes (Wirawan et al., 2022). ClassPoint is designed to help educators teach more efficiently without switching between many different applications. ClassPoint allows teachers to annotate their slides using ink, text boxes, and shapes, add unlimited whiteboards, create random quizzes, and more. ClassPoint also has gamified interactive tools that can help in providing student motivation with the integration of all gamified features in the PowerPoint presentation toolkit (<https://www.ClassPoint.io/about>). In this way, ClassPoint can be used by lecturers to enrich students' learning experiences. This media has interactive features that can help students understand the basic concepts and principles of organic chemistry better.

Some research on the use of ClassPoint in learning. One empirical study found that using ClassPoint tools can engage students at all levels of education and across all learning styles (Abdelrady & Akram, 2022; Lee, 2014). Other research shows that using ClassPoint as an interactive quiz tool increases student engagement and mastery of the material (Lugatoc, 2022). ClassPoint makes learning fun, easy, and interactive and keeps students excited, competitive, and engaged. Research by Setiyanto (2023) and Wao, et al. (2022) regarding the use of ClassPoint interactive media also provided positive student responses to the courses presented. Survey results conducted by Bong & Chatterjee, (2022) showed that more than 80% of student participants felt that ClassPoint was an effective platform for encouraging student engagement and participation in class. All instructor participants agreed that students tended to respond more frequently to interactive quizzes delivered through ClassPoint than to answer verbally in class. In summary, research studies show that ClassPoint can be an effective tool in increasing student engagement, subject mastery, and satisfaction with learning. Other research by Querido (2023) also shows that using Interactive Classroom Tool or ClassPoint as instructional materials can increase student participation and performance.

Utilization of ClassPoint in learning organic chemistry at universities has never been researched before. Students' perspectives on the use of ClassPoint in learning organic chemistry are needed to decide whether the use of ClassPoint as a learning medium in

organic chemistry courses is needed at the university level. Conceptual understanding of organic chemistry concepts is very complex and innovation is needed by educators so that students can have direct involvement in learning, so it is hoped that students' understanding of concepts and psychomotor abilities will be better.

Methods

This research aims to describe the perspectives of Chemistry Education Study Program students regarding the usefulness of the ClassPoint version 2 interactive media used in learning organic chemistry. Thus, the research approach used is a quantitative descriptive approach. Quantitative descriptive is a type of research used to analyze data by describing or illustrating the data that has been collected. The type of research carried out is survey research where data is collected using a questionnaire then data analysis is carried out and then data interpretation is carried out. Chemistry Education students will be participants in this research. Research participants have the same characteristics, namely having taken the organic chemistry course. The students who participated were Class of 2022 students taking polyfunctional organic and macromolecular chemistry courses.

The data collection technique used in this research is an indirect communication technique. This technique is used to explore student perspectives on the use of ClassPoint in learning organic chemistry, student perspectives on the effectiveness of ClassPoint on student involvement in learning organic chemistry, and describe the most popular interactive features that can increase student involvement in learning organic chemistry. This indirect communication is carried out by distributing questionnaires to students. The data collection technique is carried out by giving a set of questions or written statements to student participants to answer (Sugiyono, 2019). Data analysis carried out in this research was by using quantitative analysis techniques and using a Likert scale and quantitative analysis.

Table 1. Perspective Questionnaire Score Percentage Criteria

Interval (%)	Criteria
$80.99 \leq x \leq 100$	Strongly agree
$59.99 \leq x \leq 80.00$	Agree
$25.99 \leq x \leq 59.98$	Disagree
≤ 25.00	Strongly disagree

Results and Discussion

Participants in this research consisted of 53 students consisting of A1 and A2 Class of 2022.

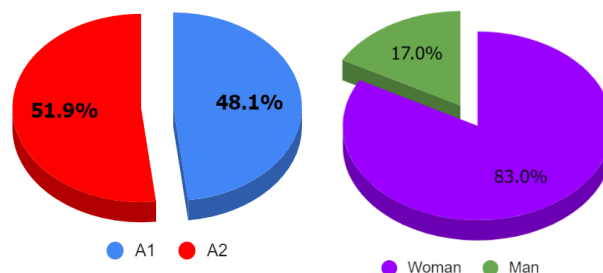


Figure 1. Class Distribution and Gender Participants

A student perspective questionnaire regarding the usefulness of ClassPoint in learning was created. A Likert scale questionnaire consisting of 24 statement items containing 3 aspect dimensions, name:

- 1) Motivation and Interest in Learning
- 2) Knowledge and Skills
- 3) Usability Features

The three aspect dimensions mentioned above are relevant to this study, as they are related to research conducted by Handoko et al.,(2023) and Bong & Chatterjee (2022) that states that the use of learning media when teaching has been found to enhance learning activities, draw students' interest, and even have an emotional effect on them.

Table 2. Statement Items on Motivation and Learning Interest Aspects

No	Statement Items
1.	I am enthusiastic about solving the questions given using ClassPoint media
2.	I feel challenged to quickly answer questions given using ClassPoint
3.	Learning using ClassPoint media motivates me to learn more than before
4.	ClassPoint media can increase my interest in learning difficult chemistry concepts
5.	Evaluation using ClassPoint media increases my competitive spirit to compete healthily with other colleagues
6.	Using ClassPoint media motivates me to get high grades
8.	Using ClassPoint interactive media can increase student involvement in learning
9.	The use of ClassPoint interactive media increases the effectiveness of my learning in class
10.	Learning using ClassPoint media is less monotonous and more fun
11.	The instructions given by the lecturer can be easily understood by students regarding the use of ClassPoint media
12.	The questions given in ClassPoint in learning are varied and not boring

Table 3. Statement Items on Knowledge and Skills Aspects

No	Statement Items
14.	The questions given with ClassPoint Media can hone problem-solving skills
15.	Using ClassPoint media in learning can increase my knowledge regarding the lecture material being studied
16.	Learning evaluation using ClassPoint media can help me recall the material that has been studied
17.	Questions given using ClassPoint media can hone my psychomotor skills

Table 4. Statement Items on Feature Usability Aspects

No	Statement Items
7.	Using ClassPoint interactive media can simplify the learning process
13.	The questions given in ClassPoint in learning are appropriate to the lecture topic
18.	I find ClassPoint easy to use because there is no need to download an application, just use the class code that I have joined in the online class

19. I feel that annotation features such as laser pointers, digital pens, and highlighters can increase my focus on understanding lecturers' explanations when teaching.
20. I feel that the use of the Pick a Name feature in dividing groups or appointing students to answer questions is very appropriate and can give all students the same opportunity to learn.
21. I feel that using the Word Cloud feature helps me to express my thoughts and understanding creatively. Learning becomes more interactive, more exciting, and fun
22. I feel that the Short Answer quiz feature makes it easier for me to answer questions briefly and clearly which helps me understand the learning material
23. I feel that the Image Upload feature allows me to send images that are relevant to learning, making learning more exciting, interesting, and enjoyable.
24. Multiple choice quizzes can help measure my understanding of the learning material

The results of the analysis of student's perspectives on the usefulness of ClassPoint media in learning organic chemistry show that the average is in the strongly agree category with a percentage of 91.55%. This shows that ClassPoint is a media that is considered interactive and fun by students (Wao et al., 2022). The perspectives of 53 participants in utilizing ClassPoint media in learning organic chemistry can be seen in Figure 2

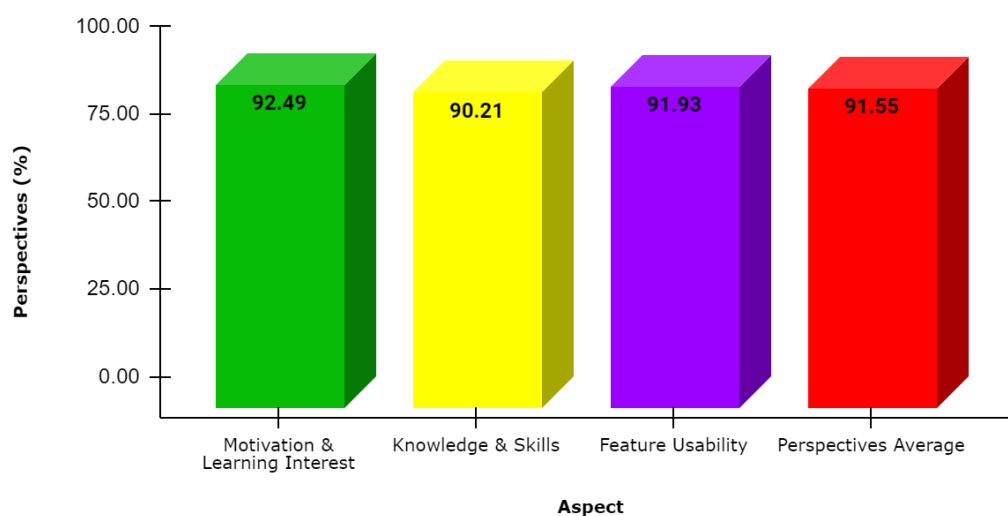


Figure 2. Perspectives on the Use of ClassPoint Interactive Media in Learning Organic Chemistry

These results can be interpreted as meaning that students provide a very positive response to the usefulness of ClassPoint interactive media in learning, especially in learning organic chemistry. Based on Figure 2, the use of ClassPoint interactive media can be viewed from every aspect that gives the strongly agree category, namely from the aspects of motivation and learning interest, knowledge and skills, and feature usability.

Aspects of Motivation and Interest in Learning

The use of ClassPoint interactive media in learning organic chemistry can increase students' motivation and interest in learning. This is shown in the analysis of students'

perspectives on the usefulness of ClassPoint media in learning organic chemistry in the aspects of motivation and interest in learning which shows an average with a strongly agree category with a percentage of 92.49%. The percentage results of motivation and interest in learning aspects can be viewed from several statements which can be seen in Figure 3.

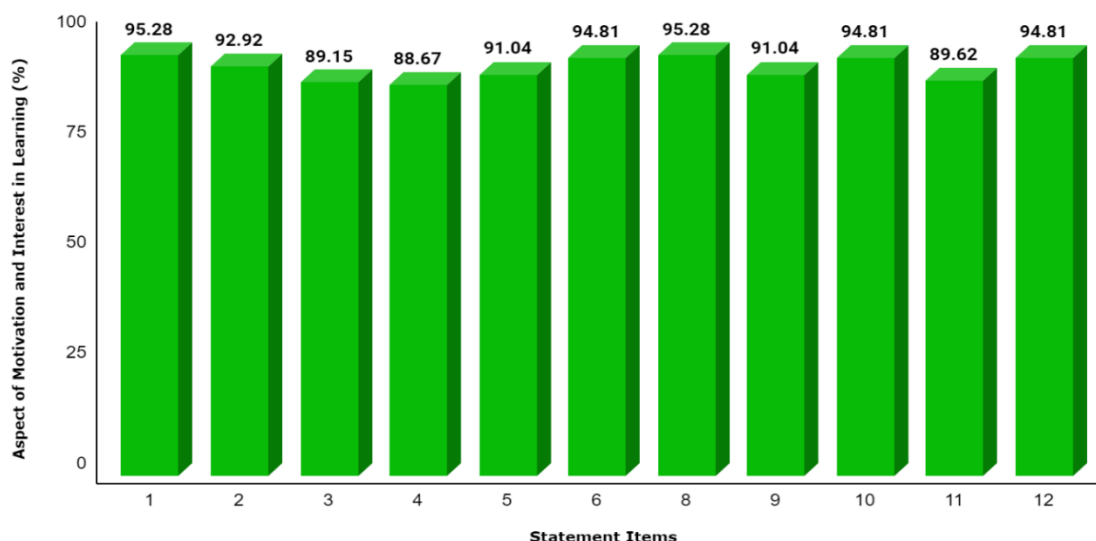


Figure 3. Percentage of Each Statement on Motivation and Learning Interest Aspects

- (1) I am enthusiastic about solving the questions given using ClassPoint media
- (2) I feel challenged to quickly answer questions given using ClassPoint
- (3) Learning using ClassPoint media motivates me to learn more than before
- (4) ClassPoint media can increase my interest in learning difficult concepts
- (5) Evaluation using ClassPoint media increases my competitive spirit to compete healthily with other colleagues
- (6) Using ClassPoint media motivates me to get high grades
- (8) The use of ClassPoint interactive media can increase student involvement in learning
- (9) The use of ClassPoint interactive media increases the effectiveness of my learning in class
- (10) Learning using ClassPoint media does not require attention and is more fun
- (11) The instructions given by the lecturer can be easily understood by students regarding the use of ClassPoint media
- (12) The questions given in ClassPoint in learning are varied and not boring

Based on Figure 3, there are 14 statements containing students' motivation and interest in learning. This is in line with research conducted by Mazlan et al. (2023) which concluded that the ClassPoint application can increase student engagement and motivation. This is also reinforced by research conducted by Fitriana (2023) which states that the use of ClassPoint presentation media can increase students' activeness in learning chemistry. The use of interactive media such as ClassPoint can increase students' motivation and interest in learning. With its interactive features, ClassPoint can make learning more interesting and engaging, thereby increasing students' motivation to learn. Apart from that, the use of technology in learning can also increase student interest because it provides a more interesting and different learning experience. ClassPoint is an effective platform for increasing student engagement and participation in class, students and lecturers agree that students tend to respond more often to interactive quizzes provided through ClassPoint compared to direct verbal responses in class (Bong & Chatterjee, 2022). ClassPoint tool at all instructive levels in all modes of learning to keep learners locked in and offer assistance to understudies to diminish their fear of exams (Akram & Abdelrady, 2023). Students look more enthusiastic about working on the exercises that are presented with ClassPoint (Hidayat et al., 2023). Utilizing classpoint in media-based teaching and learning

activities is entertaining and delightful in the educational process that is conducted with students having the opportunity to immediately talk, respond to tests, and participate in ice-breaking exercises (Ritonga et al., 2023).

Aspect of Knowledge and Skills

The use of ClassPoint interactive media in learning organic chemistry can increase knowledge and help in recalling the material studied and can also hone problem-solving skills and psychomotor abilities. This is shown in the analysis of students' perspectives on the usefulness of ClassPoint media in learning organic chemistry in the knowledge and skills aspects which shows an average with a strongly agree category with a percentage of 90.20%. The results of the percentage of knowledge and skills aspects can be viewed from several statements which can be seen in Figure 4.

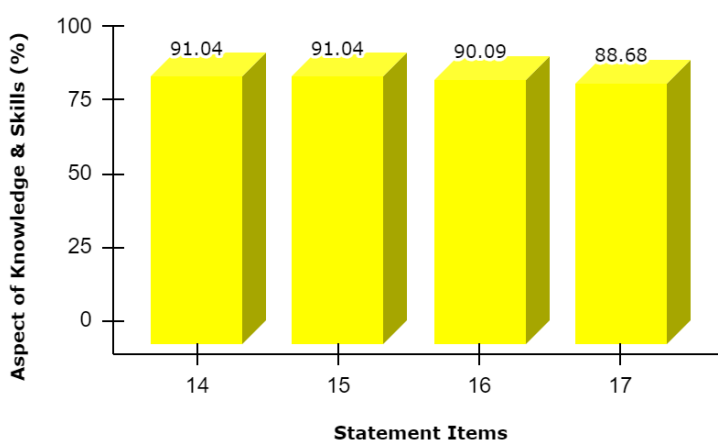


Figure 4. Percentage of Each Statement on Knowledge and Skills Aspects

- (14) Questions given through ClassPoint media can hone problem-solving skills
- (15) Using ClassPoint media in learning can increase my knowledge regarding the lecture material being studied
- (16) Evaluation of learning using ClassPoint can help me recall the material I have studied
- (17) Questions given using ClassPoint media can hone my psychomotor skills

This is in line with the results of research conducted by Setiyanto (2023) concluding that the questions given by lecturers on ClassPoint media can support students to hone their psychomotor and cognitive abilities in solving various problems. This also happens to the concepts in the organic chemistry course, where the material in the organic chemistry course requires students' ability to integrate their knowledge and skills. Aspects of knowledge and skills can also be trained by using ClassPoint features. The lecturer asks questions using Word Cloud, Fill in the Blank, Short answer, Image Upload, Multiple Choice, or Slide Drawing to explore their understanding of knowledge, thus helping them practice problem-solving skills. Apart from that, their skills can also be demonstrated with a variety of questions that require two-way interaction so that students' psychomotor skills will also be honed. Students can advantage of technology-enhanced learning supplements that bind together concepts and are conveyed on demand (Huang, 2005)

Aspect of Feature Usability

The features in ClassPoint interactive media in learning organic chemistry can simplify the learning process and make learning organic chemistry more fun and interactive. This is shown in the analysis of students' perspectives on the usability of ClassPoint media in learning organic chemistry in the aspect of feature usability which

shows an average with a category that strongly agrees with a percentage of 91.93%. ClassPoint interactive media is very helpful in the learning process so that learning can be carried out easily (Sundari & Muhlis, 2021). The percentage results of feature usability aspects can be viewed from several statements which can be seen in Figure 5.

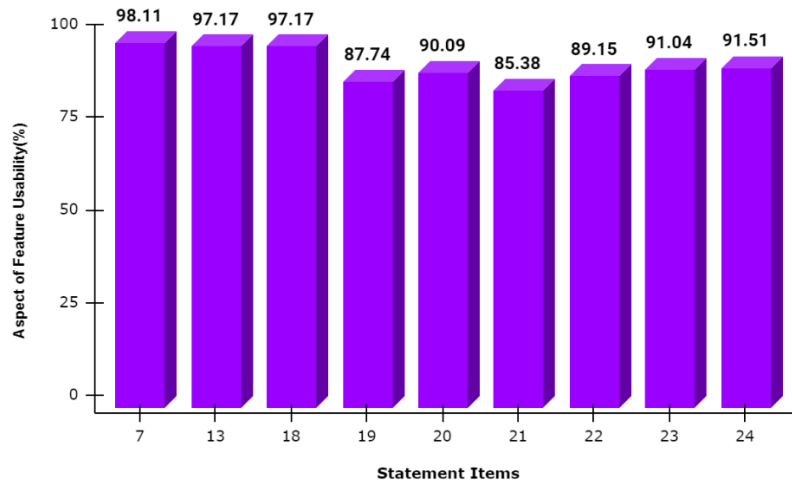


Figure 5. Percentage of Each Statement on Feature Usability Aspects

- (7) Using ClassPoint interactive media can simplify the learning process
- (13) The questions given in ClassPoint in learning are appropriate to the lecture topic
- (18) I feel ClassPoint is easy to use because I don't need to download an application, just use the class code (Class Code) I have joined the bold class
- (19) I feel that annotation features such as laser pointers, digital pens, and highlighters can increase my focus on understanding lecturers' explanations when teaching
- (20) I feel that the use of the pick a name feature in group division, or designating students to answer questions is very appropriate and can give all students the same opportunity to learn.
- (21) I feel that using the word cloud feature helps me to express my thoughts and understanding creatively. Learning becomes more interactive, more exciting, and fun,
- (22) I feel that the short answer quiz feature makes it easier for me to answer questions briefly and clearly which helps me understand the learning material.
- (23) I feel that the Image Upload feature allows me to send images that are relevant to learning so that it makes learning more exciting, interesting, and enjoyable
- (24) Multiple choice quizzes can help measure my understanding of the learning material

Regarding the feature usability aspect of ClassPoint, the views provided are related to the overall ease of use of ClassPoint and also the specifics of features that users often use, both presentation features and quiz features. All statements regarding the features provided by ClassPoint received responses in the strongly agree category, which means that participants/students felt that the ClassPoint feature was very helpful and made learning easier for them

Judging from the results of the questionnaire given, what features the participants really liked can be seen in Figure 6.

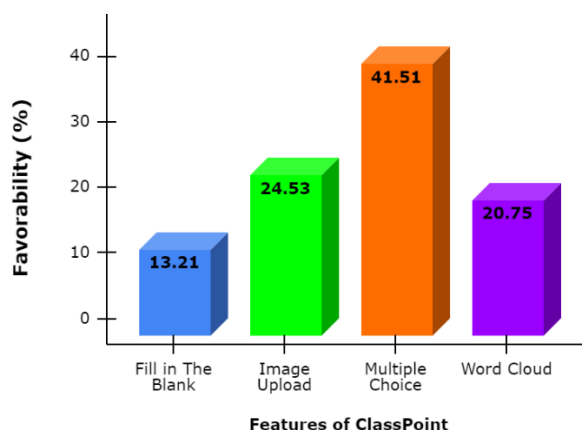
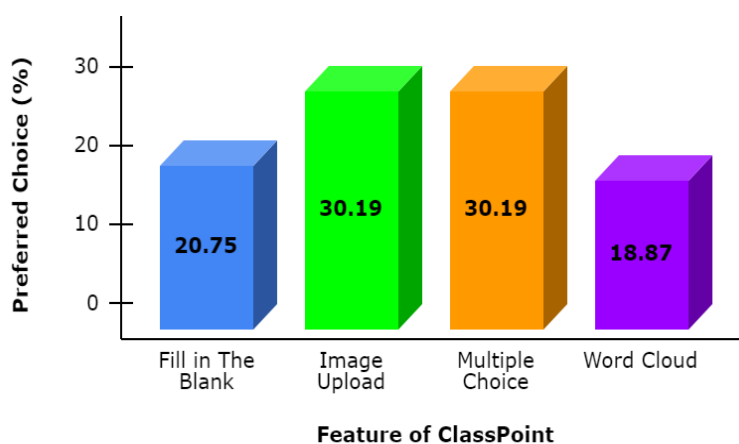


Figure 6. The quiz feature on ClassPoint is a favorite

Based on Figure 6, the quiz feature most liked by participants is multiple choice with a percentage of 41.5%. The multiple-choice feature is widely liked because the multiple choice feature can measure students' understanding of the material being studied. However, in learning organic chemistry, there are two features that participants like, namely the image upload and multiple choice features. This can be seen from the percentage of participants who chose these two features, namely 30.19% which can be seen in Figure 7. The image upload feature is liked by participants in learning organic chemistry because this feature can send images that are appropriate to ongoing learning and make learning easier, become more exciting, interesting, and enjoyable. In organic chemistry Learning, there is generally material about the structure and reaction mechanisms that they can convey through pictures or writing which is then transferred and then uploaded in the ClassPoint application. Students' creativity can be limitless because they can also search for image sources online by searching in search engines directly from ClassPoint without having to leave the application.



Feature 7. Preferred feature for learning Organic Chemistry

A total of 53 participants (100%) stated that the use of ClassPoint in learning organic chemistry is worthy of continuing to be maintained in learning organic chemistry. The reasons given by the 53 participants gave very positive responses. Participants stated that ClassPoint makes them motivated, makes them enthusiastic, makes them understand the

material better with the quiz feature, makes students more focused when the lecturer gives lectures with the presentation feature, and improves their interest in learning better because it can make them more creative Again. Responses from 53 participants showed that the level of student approval for the use of ClassPoint interactive media in learning organic chemistry was very positive, where it can be concluded that learning organic chemistry can be made more interesting and enjoyable for students by treating the learning media used by lecturers. It is hoped that with better and more positive motivation, student interest and involvement in learning will further improve students' understanding and learning achievements, especially in the organic chemistry course which is considered difficult and complex.

Conclusions

Based on the results of research that has been carried out, the conclusion of this research is that students' perspectives on the usefulness of ClassPoint interactive media in learning organic chemistry are in the strongly agree category (91.55%). Student perspectives on the effectiveness of ClassPoint on student involvement in learning organic chemistry are viewed from 3 aspects, namely motivation and interest in learning in the strongly agree category (92.49%), knowledge and skills aspects in the strongly agree category (90.20%) and feature usability aspects also in the strongly agree category (91.93%). The most preferred ClassPoint interactive media features to increase student involvement in learning organic chemistry are the fill in the blank, multiple choice, image upload, and word cloud features.

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