

## *The Use of a ClassPoint Tool for Student Engagement During Online Lesson*

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### **Abstract**

Teaching online can be quite different than in the classroom where instructor can physically interact with the students. With the aim to encourage student engagement and learning, a synchronous Classroom Response System called ClassPoint was implemented together through live video conference platform for some first-year undergraduate courses in SUTD as it allowed real-time interaction between the instructors and students. ClassPoint allows instructors to quickly integrate interactive quizzes in their existing Microsoft PowerPoint slides and deliver these questions without the hassle of switching to another application during teaching. Since ClassPoint was only developed in 2015, there is limited literature available on its effectiveness as an engaging tool during lesson. In this study, instructors' and students' experience in using ClassPoint in both physical and virtual lesson was examined. This paper will share some of the benefits and drawbacks of using the ClassPoint tool compared to other CRSs and its operating system compatibility. Survey results showed that more than 80% of the students' participants felt that ClassPoint was an effective platform to promote students' engagement and participation in class. All instructors' participants agreed (60% agreed and 40% strongly agreed) that students tend to respond more frequently to interactive quizzes delivered via ClassPoint than reply verbally in class. Overall, the instructors and students enjoyed the use of ClassPoint as it does promote student engagement during both online and physical lessons.

Keywords: Classroom Response System, ClassPoint, Student Engagement, Online Lesson

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## **Introduction**

In every classroom, there are students who always have their hands raised to participate, and those who are hesitant to engage. It can be difficult to bring students who are reluctant to add their voices into discussions especially during online lesson. The use of Classroom Response System (CRS) with clicker technology has been a popular teaching strategy to facilitate student engagement, offering instant and formative assessment during class (Fies & Marshall, 2006; Kay & LeSage, 2009). Its rapid feedback on students' response allows instructor to monitor and assess students' understanding on the lesson content instantaneously (Caldwell, 2007). Thereby giving the opportunity to the instructors to elaborate on the concepts students did not understand. Recent advancements in technology and device accessibility have made it easier to implement CRS in the classroom. Technologies now include mobile devices and computer based CRSs such as Kahoot!, Mentimeter, Learning Catalytics etc. A CRS allows instructors to key in questions to the system before the lesson and deliver them during lesson which students can answer using their own electronic devices. Most of the CRS allows anonymous response which helps to motivate shy and hesitant students who would otherwise not participate in class activity. According to Burns (1985), students' attention span lasts approximately 20 minutes, and therefore, introducing CRS in between lessons could also help to break up long presentation and process the content they just learnt.

Students tend to engage less in online learning environments than in face-to-face learning environments primarily due to the absence of physical connection between instructors and students (Cho & Cho, 2014). The physical disconnection between instructors and students presents deficiency of rich communication that drives student to participate efficiently and persistently in online lesson (Leeds *et al.* 2013). Digital platforms can create additional communication barriers between the instructor and student by not being able to engage through a person's body language and facial expression. At Singapore University of Technology and Design (SUTD), Learning Catalytics has been used to facilitate learning of some undergraduate courses. While this interactive response tool has been quite effective in monitoring students' attendance and class participation, it requires instructors to access an additional platform to input and deliver the questions which can be quite inconvenient during classroom recitations. This challenge escalated further during the Covid-19 pandemic with the sudden shift from face-to-face teaching to virtual lessons. With the aim to mitigate some of these challenges during online teaching, an alternative CRS called ClassPoint was integrated in some first-year undergraduates courses at SUTD together through live video conference platforms. Students can join ClassPoint without the need to download any software or logging into the Learning Catalytics platform. In this study, we examined the instructors' and students' perspective on the effectiveness of ClassPoint tools in promoting student engagement with instructor in the class.

## **Methods**

### **(A) Overview of ClassPoint**

ClassPoint is a Classroom Response System that can be embedded in Microsoft PowerPoint allowing users to turn their existing slides into an interactive presentation and seamlessly deliver quiz questions within PowerPoint without the hassle of switching to another application during teaching. ClassPoint includes several mode of questions, including multiple-choice question, short questions, quick poll to name a few. In addition, ClassPoint has features that enable instructors to add unlimited whiteboards during slide show as well as annotate the slides,

the students can use either their smart-phone or computer-based devices to participate in the quizzes as well as follow along the instructor slide-presentation. They need to use the browser, <http://classpoint.app>, enter the classcode and create a username that would be used throughout the lesson. The use of ClassPoint in SUTD for some courses is a supplement to the traditional teacher-centered lecture setting that promote student engagement by allowing the students to demonstrate their learning progress and knowledge in a fun and interactive way. In some undergraduate courses in SUTD, students' responses are not counted as part of the course assessment. In contrast, there are some undergraduate courses, where students' responses to the quizzes counted towards participation points and attendance.

## **(B) Protocol for measuring the Effectiveness of ClassPoint**

For this particular study, ClassPoint was used for a mathematics course designed for the first-year undergraduate students at SUTD. Students were informed of the use of the ClassPoint application at the commencement of the course. At the start of each class, ClassPoint's class code was provided to students to join and participate during the cohort class lesson. Students were encouraged to join and participate in the embedded quizzes or polls. Delivering lesson materials, ClassPoint participation, in-class polls, homework, assignments and tests for the courses were carried out as normal, without any intervention from this study. There were two surveys conducted for this study in order to receive students' as well instructors' perspective on the effectiveness of ClassPoint. Both the surveys were voluntary in nature.

- (1) An anonymous online questionnaire survey was conducted with instructors who have the experience in using the ClassPoint for their class. The invitation for this survey was not only extended to the mathematics instructors but also to instructors for other courses who have used this tool.
- (2) An anonymous online questionnaire survey was conducted with students at the end of the term. Some of the students had the privilege of experiencing ClassPoint in other courses as well, and have indicated that in the survey.

## **Results and Analysis**

### **(A) Students' Perception: Usage of ClassPoint**

A total of 46 students participated in this study. 37 students (80% of the participants) have had experience using ClassPoint in both online and face-to-face class mode; while the remaining 9 students only have had experience of ClassPoint conducted in either one of the class modes.

In an open-ended survey question, students had to indicate CRS they have used besides ClassPoint and explain which one they prefer. Only 43% of the participants indicated that they have used other CRS. This is a low percentage considering CRS has commonly been used at higher education institutions (Mu & Paparas, 2015). This batch of student participants came from pre-university, which is a plausible reason as to why they were not exposed to CRS as part of the assessment tool used in classroom. However, 82% of the participants have previously used Kahoot! while the remaining 18% used Quizizz, Padlet and Socrative. Kahoot! is an online gamified assessment tool that is fast paced and resonates like a game which allows teachers to assess student's progress in a "game" (Licorish *et al.* 2018). However, gamification type of questions is not for every student. One student expressed her preference of ClassPoint over Kahoot! 'as the competitive nature of Kahoot! ruins the joy of learning'. A few other participants also preferred ClassPoint because "it feels less like a game", which subliminally

makes them answer the questions more seriously than rushing through it. This supports previous studies that not every student will enjoy game-based learning (Jones *et al.* 2019). Having said that, 69% of the participants prefer ClassPoint compared to other CRS they have used and 13% of the participants felt that there is no difference in the various CRS they have used as long the instructor incorporates the questions in a way that is interactive. The remaining 18% do not find ClassPoint a better CRS compared to the other contemporary ones.

**(B) Students’ Perception: The Effectiveness of ClassPoint on Student Engagement**

In the Likert scale questions for the student’s survey, the students’ responses were evaluated as indicated in Table 1. The main purpose of using ClassPoint in our lesson is to encourage students and instructors’ interactivity during class. In **Q3**, 35% of the participants strongly agreed and 41% of the participants agreed that they have experienced greater interaction and engagement with their instructors when ClassPoint is used as a quiz tool during lesson. About 11% were neutral about this and 13% disagreed. When students were asked if ClassPoint has motivated them to participate in questions and polls more often in the class (**Q4**), up to 87% of participants agreed (54% agreed and 33% strongly agreed). In **Q5**, a total of 81% of the participants (37% strongly agree and 44% agree) felt the interactive quiz questions in ClassPoint has helped them to self-evaluate how well they were learning during the lesson while only 4% disagreed. This result indicates that ClassPoint helps students better gauge their learning progress through answering the interactive quizzes. In another question, students were asked on whether running ClassPoint in a lesson has made the class livelier and interesting compared to a class conducted without ClassPoint (**Q6**). The survey response indicated that 69% agreed or strongly agreed while 24% chose to remain neutral. A small percentage of students disagreed with this view. In response to **Q7**, 24% of students answered neutral. This reflects that the use of ClassPoint has not helped in engaging these students in class. However, there is still a large section of students (37% agreed and 17% strongly agreed) who found themselves more engaged in listening to instructor’s presentation or respond promptly to the questions delivered using ClassPoint from their own browser.

Questions	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
<b>Q3.</b> I experienced greater interaction and engagement with my peers and instructors when ClassPoint is used as a quiz tool in the class.	9%	4%	11%	41%	35%
<b>Q4.</b> The ClassPoint has motivated me to participate in questions and polls more often in the class.	4%	7%	2%	54%	33%
<b>Q5.</b> The interactive quiz questions in ClassPoint helped me to self-evaluate how well I was learning the course material during lesson.	2%	2%	15%	44%	37%
<b>Q6.</b> The lessons are lively and interesting when instructors run the class using ClassPoint than a class without the use of ClassPoint.	4%	4%	22%	39%	30%
<b>Q7.</b> ClassPoint’s display slide allows me to follow along and pay more attention to instructors’ presentation, live annotations	9%	13%	24%	37%	17%

and respond promptly to the delivered questions easily using my own browser.

Table 1. Likert Scale: Student's Survey

### (C) Instructors' Perception: The effectiveness of ClassPoint on Student Engagement

There were 6 instructors who participated in this study, excluding the two authors of this paper. Instructor participants have used or are using ClassPoint as a tool to promote student interactivity during lesson. Participants were posed two Likert scale questions on students' participation and response frequency to the interactive questions delivered via ClassPoint (Figure 1). The first question asked if ClassPoint enhances student engagement in class. None of them disagreed with this question. About 67% of the participants agreed (33.3% agreed and strongly agreed) while 33.3% answered neutral. In the second question, instructors were asked if students tend to respond more frequently in the posted short questions than respond verbally in class. Interestingly, all the participants agreed (60% agreed and 40% strongly agreed) that ClassPoint has greatly improved the frequency of student's response to the questions compared to their verbal response in the class. These two results strongly suggest the effectiveness of ClassPoint in promoting in-class participation. Finally, instructors had to compare the efficacy of ClassPoint with other CRS they may have used previously. About 33.3% agreed that ClassPoint has indeed has encouraged students to be more engaged and interactive during class than other CRS, while 16.7% disagreed. These outcomes suggest that the use of ClassPoint has aided and complemented student engagement in both in-class participation and interactivity.

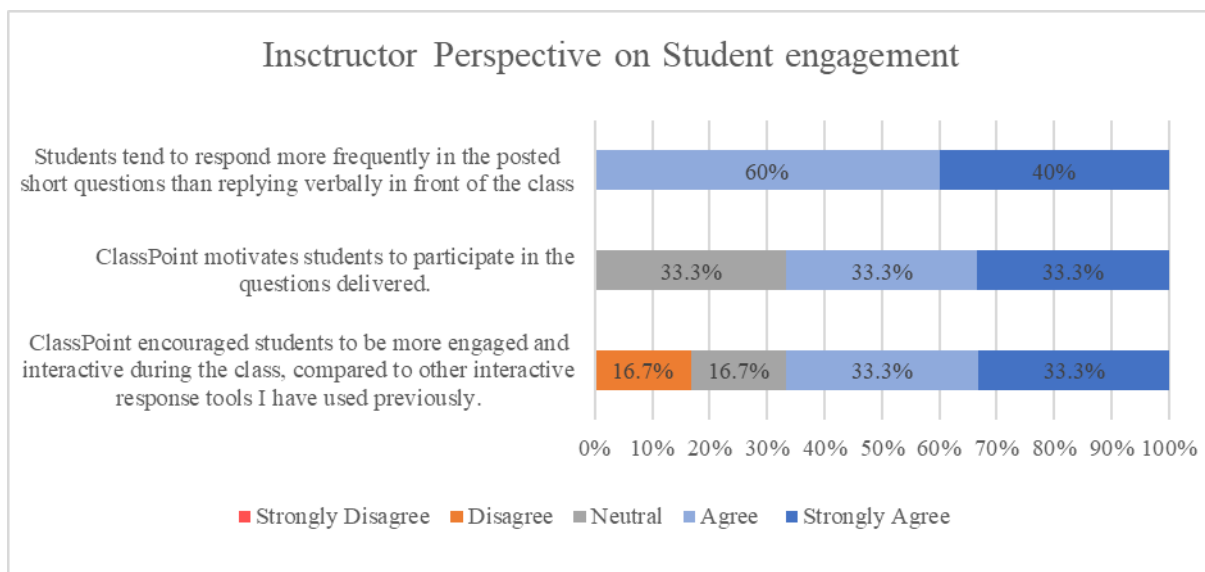


Figure 1. Likert Scale Questions on Instructor's Perspective on Student Engagement with the Use of Classpoint.

### (D) Instructors' Perception: The use of ClassPoint

With so many CRS available in the market, it is equally important to highlight instructor's perception especially in the usability and functionality in adapting ClassPoint in their existing lesson material amid to more potential home-based learning. Majority of the instructors found it easy to incorporate existing PowerPoint slides into interactive quizzes using ClassPoint (Figure 2). However, one instructor strongly disagreed with this view. Based on the survey results, this participant commented on the drawback of ClassPoint to be not compatible with PDF (Portable Document Format like Adobe Acrobat Reader)". As mentioned earlier,

ClassPoint only works in Microsoft PowerPoint which means instructor who uses other document format to teach found it irrelevant. Two-thirds of instructors (66.7%) found that the lesson are more lively when ClassPoint is used because they can modify or add questions seamlessly in response to student’s understanding. However, a small percentage disagreed or chose to remain neutral. In response to a follow up questions with regards to accessing students’ understanding via the multiple choice questions and short answer mode in ClassPoint, majority of them agreed (40% agreed and strongly agreed) while 20% answered neutral. In addition, all the participants (80% agreed or strongly agreed and 20% neutral) enjoyed the convenience of conducting interactive quizzes and collate students’ responses using ClassPoint without the need of switching to another application. About 5 out 6 instructors indicated that they would continue using ClassPoint. These results indicated that instructor perceived ClassPoint as an effective tool in terms of its usability to incorporate in their class to improve students’ learning dynamic.

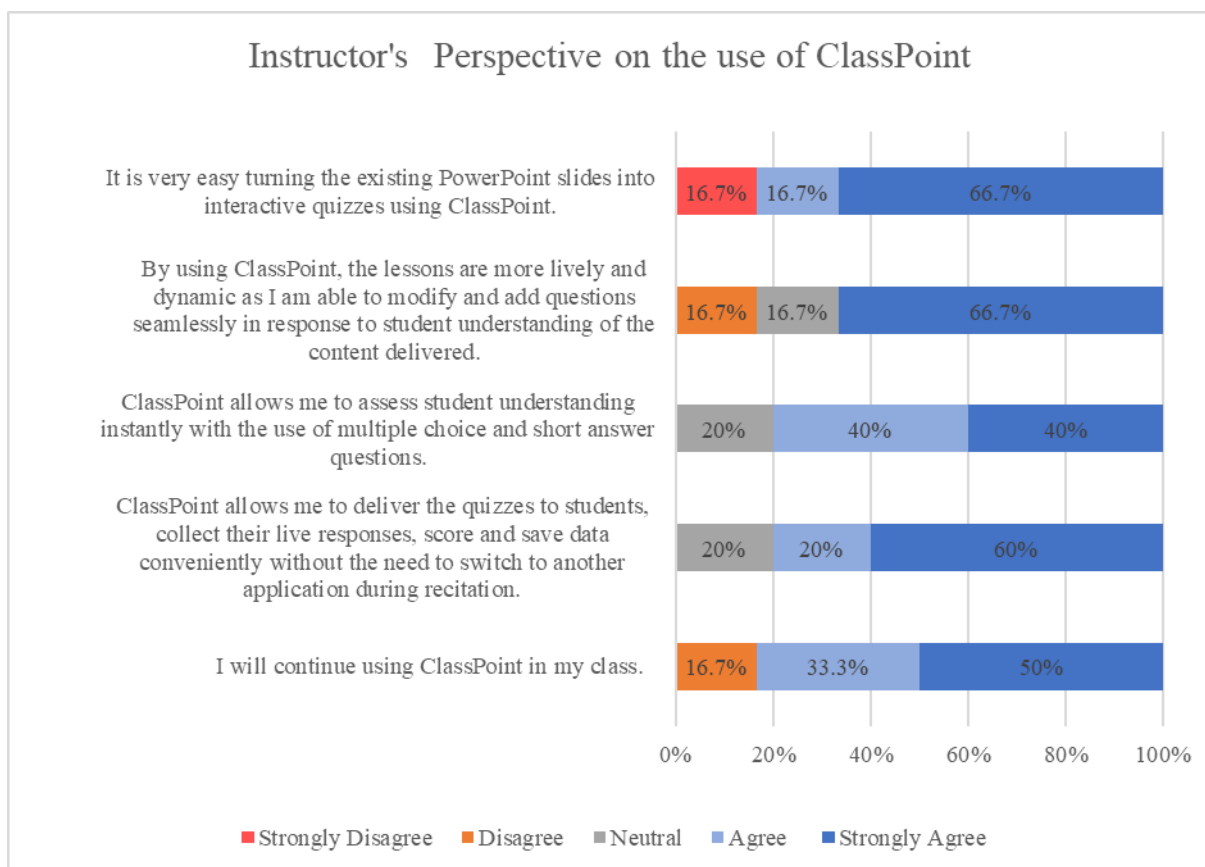


Figure 2. Likert Scale Questions on Instructor Perspective on the Use of Classpoint.

## Discussion

Instructors perceived ClassPoint to be easy to use, and to have a positive impact on student engagement and interactivity. Due to its accessibility, affordability, and its user-friendly capabilities, teachers can feature a fun and unique student response system that is more enticing to the students compared to other CRS. The main advantage of using ClassPoint as part of an interactive quiz tools during lesson is that the users could easily create and deliver the questions using their existing PowerPoint slides without switching to another application. It also provides real-time analytic results and allows instructor to adjust instructional strategy to enrich student learning experience during class. It is a convenient alternative compared to other CRS that runs in a separate platform where the questions would have to be uploaded before class and makes

adding or modifying the questions during lesson a hassle. Based on the analysis of the results, ClassPoint would improve the frequency of student's response compared to verbal response in the class. ClassPoint also offers a diverse selection of features to help engage students through interactive quizzes like, slide drawing, word cloud questions and image upload. Users also found the 'Pick-a-name' function very useful to prevent picking the same students response to their questions too often and provide more opportunity to get other students involved in the classroom conversation.

ClassPoint also has an option to turn questions into a game by using the "competition mode", where students' name and scores are presented in a leaderboard. However, instructors involved in this study did not use this function. Interestingly, one student pointed out he/she was glad that the instructor did not implement this option as it eases the pressure of competing with the peers and could have spent the time focus on answering the question correctly. This observation is synchronous with previous studies (Yien *et al.* 2011) which found that game-based educational tools are better suited to smaller classrooms with elementary and high school students rather than university students who have to achieve specific learning outcomes through intentional learning. Having said that, there are still some students and instructor who enjoyed gamified CRS as it is more fun and keeps the students motivated to participate in a form of competition. Through this study, it is evident that striking a balance between fun and learning is vital to effectively using ClassPoint as a valuable CRS in the classroom which Licorish *et al.* (2018) also agreed for the use of game-based student response systems in education.

There were some challenges with using ClassPoint as a platform to conduct interactive quizzes for the main user aka instructor. The primary limitation is its compatibility with different software and operating systems. As of now, ClassPoint is not compatible with MacOs and iOS versions of PowerPoint. Instructor who often uses MacOS or iOS devices to annotate slides during teaching would not be able to integrate ClassPoint. Since it is only compatible with Window 7/8/10 and PowerPoint Office 2013/2016/20165, instructors using other forms of file format for example Adobe Acrobat Reader found cannot use ClassPoint for their lesson. Despite having an option to save and review students' responses, 33% of the instructor participants highlighted the challenge in capturing individual students' score in response to the quizzes. Unlike the Learning Catalytic, ClassPoint does not have the option to collate students' responses in a summary format of the responses for each questions asked or view results in raw data version to see detailed responses from each respondent. It will indeed be highly convenient if instructors are able to consolidate individual student's performance on all the questions delivered. Besides, it will be beneficial if ClassPoint has a feature whereby instructors can monitor student participation rate in a click of a button rather than manually check the individual responses on each questions.

## **Conclusion**

This paper presented instructors' and students' experience in using ClassPoint for some of the first-year undergraduate courses in SUTD. Survey results showed the use of ClassPoint as an interactive quiz tool desirable for students. It provides greater student-instructor interaction and engagement during class. More than 80% of students agreed that ClassPoint has motivated them to participate more often in class and helped them to self-evaluate their learning progress during lesson. Instructor could also monitor students learning progress from the real-time analytic results to adjust instructional strategy, for example adding in more follow up questions seamlessly within PowerPoint slide without switching to another application during lesson.

The main challenge for the user beside its compatibility is its difficulty in capturing individual students' score in response to the quizzes. Overall, students and instructors enjoyed using ClassPoint as it brings out the lively dynamic of the class.

In conclusion, the use of ClassPoint for in-class interactive response tool is effective in encouraging student engagement and attentiveness. Instructor should strike the balance in incorporating fun and learning with the use of ClassPoint for university-level students.



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