Clicker Systems Research

What are clicker systems?

Clicker systems are classroom responsive systems that can come in physical forms, such as hand-held clicker devices and with rising popularity recently, in the form of web and mobile phone applications. They are used to facilitate teaching activities, through the ability to collect and display feedback from students almost instantly (cmu, unknown).

Why are clicker systems needed?

The need for clicker systems arises from the fact that with large classes it is difficult to monitor the understanding and engagement of the lecture material, the completion of prior reading or assignments and prior lecture attendance (cmu, unknown). There can be other alternative uses for a clicker system within the classroom. For instance, tracking attendance, graded assessments, homework collection, discussion warm-up, group work and as a way for students to measure their own understanding, referred to as formative assessment (Bruf, Derek, unknown).

What are the uses of clicker applications?

As a prerequisite, each student in the class has a device through which they can communicate with the lecturer when asked a question. The most common scenario of use is when a professor asks a multiple-choice question based on a topic that they are currently covering and awaits a response from the students on their clicker devices (Bruf, Derek, unknown).  Once the students submit their answers on their clicker systems, a software on the lecturer’s computer collects, analyses and feeds back this data. Based on the feedback gathered, the lecturer can quantify whether the students’ understanding is sufficient and make teaching decisions based on the data gathered from the students’ clickers, which is referred to as contingent teaching (Bruf, Derek, unknown).

What are the advantages of clicker applications?

##### Cost

Since most students attending university classes have access to a mobile phone/laptop they are able to access applications without the need to purchase an additional clicker. Some clicker applications can be downloaded for free and those that are paid, cost less or the same as a physical clicker (Roll, 2017). Even though students may need to purchase an application, this is a small one-off payment.

##### Immediate feedback

Clickers provide an immediate response for both students and lecturers. This is beneficial for lecturers because it allows them to see how many people are understanding the material and where their gaps in their knowledge are - which are the parts that they need to go over again. Equally, it allows students to test their own understanding and to see how well they did against their peers - which they can use to tailor their revision (Cribb, 2010).

##### Alternative form of participation

Not all students feel comfortable putting up their hand to answer a question in front of the whole class. Therefore, clickers a good way to provide students, who are quieter and less confident, with a voice through an alternative forum (Cribb, 2010).

What are the disadvantages of clicker applications?

##### Time consuming

Initially, when the lecturer is introducing a new application to their students it may take some time for them to set it up e.g. download the application, make an account and learn to use the interface. This may take up valuable teaching time the first time it is used. Also, for the lecturer to set up the software on their computer that will be used to display the results (Cribb, 2010). Furthermore, technical issues may arise at any point either with the clicker software or with the device that is used (cmu, unknown).

##### Unpredictability

Whilst it is advantageous to assess the students’ understanding instantly using a clicker system, it can be difficult for teachers to alter their lesson plan ‘on the spot’.  For instance, some lecturers prefer a well-prepared lesson plan with a set amount dedicated per topic. Receiving feedback from the clicker system may prove challenging as they would need to make decisions and add or change the content they are teaching (Bruf, Derek, unknown).

##### Question Types

Lecturers may find that, especially in their first uses of clicker systems, devising a set of meaningful questions that they can ask, and the right amount of questions can be a difficult balance to get right. If done poorly, the use of a clicker system may actually be counter-intuitive and time consuming (Cribb, 2010).

Types of existing clicker systems and suitability.

There are three different types of clicker systems: physical clickers, web and mobile phone applications. When clicker systems first became popular, it was more likely that students would be using a physical clicker - one which they would have to purchase. More recently, the growth in popularity of virtual applications has risen as everyone is likely to be carrying a device such as a mobile phone or a laptop, meaning that everyone can participate without the need to purchase a separate device (Roll, 2017).

Kahoot!

Kahoot! is a free application that allows teachers to create multiple choice quizzes. The creator of the quiz can choose to start the premade quiz at any time and when this is done, a game pin is created. Anyone who has access to that game pin can participate. After the time is up for a question, a graph with statistics of how the class group performed is displayed. At the end of the game, the creator is given the option to download the results onto their device or onto google drive (Hahn, 2017). The results come in the format of an excel spreadsheet with statistics: overview of the game, final scores, question summary, a breakdown of each question and raw data.

Socrative

Socrative is a free application that allows teachers to create quizzes and one-off questions in the form of multiple choice, true or false and open-ended questions. When starting a quiz, the lecturer has the option of what kind of display they would like to have while the students take part. For example, they can choose to display one question at a time or display a table of all the questions in the quiz. Both options provide live results of how many students have answered in total and how many have answered correctly. Once the quiz is finished, there are options to download reports with results from the whole class, individual students or a question specific breakdown (Palanca, 2018).

Top Hat

Top Hat is a platform where lecturers can create quizzes, assignments, their own interactive reading materials and tests. A unique feature of this platform is the variety of question types available, for example multiple choice, worded, fill in the blank, matching, sorting etc. Furthermore, it has an inbuilt feature for subject specific question types such as chemistry formulas and English essays (tophat, 2018). However, to unlock all features of the platform, students must pay subscription fee which may mean that it is not accessible to all.

iClicker

IClicker is a clicker system which provides 3 different ways for student participation: through an app, the web and with a physical remote. For application and web participation a subscription is required and for the remote, a one-off purchase (iclicker, 2018). Once students have completed an quiz, the lecturer is able to export the results as a .CSV (Comma Separated Values) file and results from past quizzes are stored on the platform to be accessed at any time. The results file contains a breakdown of student performance and participation in the selected quizzing session (iClicker Support, 2018). Due to the subscription fee, this platform may not be the most suitable because not everyone can afford to pay it.

References

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