

**Scanning the Crowd: Using Plickers to Conduct Formative Assessments  
of Student Learning**

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# Scanning the Crowd: Using Plickers to Conduct Formative Assessments of Student Learning

## Introduction/Need for Innovation

Formative assessments are useful to teachers as a method to gauge student learning, plan for future instruction, and receive feedback from groups (Arends, 2015). The use of classroom response systems (CRS) can assist in gathering instant feedback to a variety of questions (Deal, 2007) and therefore serve as a tool for formative assessment. Plickers (Plickers.com, n.d.) is one such type of CRS for classroom application that does not require students to use a device, but rather hold up a piece of paper.

## How it works

Instructors must first sign up for a free account on Plickers.com and download the free app onto a smartphone or tablet. On the website, instructors create classes with rosters of students. These students are assigned a specific Plicker number that corresponds to the physical Plicker card. The students use these cards in class to provide responses to questions.

Within each class on the website, instructors create a library of questions. These questions are limited to no more than four response options so typical questions are multiple choice and true/false. After the questions are created, instructors add them to a queue. These questions are then available through the app for the class session(s). Questions can be created and added to the queue directly through the app if necessary.

On the day instructors plan to use Plickers in class, they login to their instructor account on the classroom computer and select “Live View”. This will display the question and response options for students once that question has been selected in the app. Students provide their response by holding their card in the appropriate orientation so their selected response option is pointed up. The instructor then uses the app on a smartphone or tablet to scan the cards. As each student’s card is scanned a checkmark appears on the computer screen next to it. Once all the cards have been scanned, the instructor closes the scan and the answers are recorded. The instructor can then select “Graph” in the “Live View” so students can see the overall results with no names attached. The instructor can reference the questions later via the website to see how specific students answered each question.

## Results to Date/Implications

Plickers were used in a course at Texas Tech University in Spring 2017 as a way to gather feedback and stimulate discussion. During the semester, the cards were integrated in five specific class sessions and multiple questions were asked during each. At the end of the semester, students were asked to provide anonymous responses as to whether they enjoyed using the Plickers in class and if they should be used in the future. The responses were overwhelmingly positive as demonstrated in the following quotes:

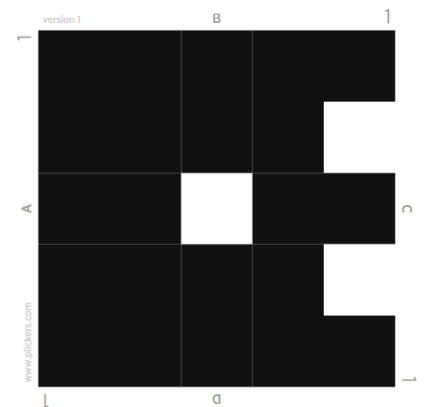


Figure 1. Example of a Plicker card.

- “Loved the plickers! They were a fun thing to do throughout the class.”
- “I really liked the Plickers! I think it was very useful to allow the students to feel like we can provide input without taking too much time for everyone.”
- “I loved them and I liked looking at the end of results when we were done throughout the class.”
- “I wish we used them more.”
- “I think the plickers were really cool! I liked using them and thought they were a good instrument to add to class.”
- “They were easy to use and fun to get instant polls. Use more!”

Beyond this class, teacher educators have also demonstrated how Plickers could be effectively integrated in the high school classroom. Pre-service high school teachers were taught how to use Plickers and have used them in several situations where technology integration is difficult such as a meat locker, a metals lab, a livestock feedlot, and a classroom where cell phones are not permitted.

### **Future Plans/Advice to Others**

As the students suggested, Plickers will be used more often in the post-secondary level course and will be integrated in additional courses. Plickers can be taught to pre-service teachers in 15 minutes, including a demonstration and activity. This active engagement strategy does have some limitations. The response options are limited to no more than four pre-determined answers. This does constrain the types of questions that can be asked. Another feature of Plickers is the ability for instructors to set one answer as the “correct” option; however, this is not required if the responses will not be graded. This was the approach taken in the class at [university] to encourage discussions about the responses and not declare one as the best option.

The Plickers are available in sets of 40 or 63 so class size needs to be a consideration. For classes that have more than 63 students, the Plickers could be shared in pairs or groups. Students can also keep the card in their notebook rather than picking one up at the start of each class period. Depending on the size of the room, some rescans of the cards might be necessary to ensure all students have replied. Also, the time needed to scan the cards should be considered when integrating them into the class period. Finally, because holding up the cards with the correct response can be cumbersome, students can write the response options (A, B, C, D) on the back of the cards to assist them when they hold up the card to provide their answer.

### **Costs/Resources Needed**

The use of this innovative idea can be free. No charge is associated with starting an account on Plickers.com or downloading the app (available for both Apple and Android devices). Multiple options of Plickers card sets can be downloaded for free from the Plickers.com website. A more durable, laminated set can be purchased from Amazon for \$20. The other required technology is a smartphone or tablet with camera and Internet access. The room in which the class is taught also needs an instructor computer with Internet access in order to display the questions and results.

## References

Arends, R.I. (2015). *Learning to Teach* (10<sup>th</sup> Ed.) New York, NY: McGraw-Hill Education.

Deal, A. (2007). A teaching with technology white paper: Classroom response systems.

Retrieved from

[https://www.cmu.edu/teaching/technology/whitepapers/ClassroomResponse\\_Nov07.pdf](https://www.cmu.edu/teaching/technology/whitepapers/ClassroomResponse_Nov07.pdf)

Plickers.com. (2017). Retrieved from <https://plickers.com>