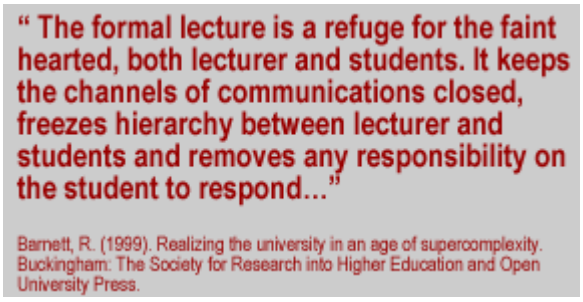
# E-Learning Case Study 05.12.08

## Audience Response Systems - 'Clickers'

### Overview & benefits




The PowerPoint presentation has largely replaced the overhead projector in the role of sharing materials with groups of students in support of lectures. PowerPoint allows us to draw upon and incorporate a wide range of media formats; using websites, video clips, images, diagrams and animations, to support and enhance teaching is now commonplace.

However, engaging with each and every student in a way that allows the tutor to test their learning, interact easily, and draw on student experiences is still challenging. It is in this area that Audience Response Systems, or 'Clickers', can revolutionise the way we communicate with students in this setting.

With Clickers, each student is issued with a radio transmitting keypad at the beginning of the lecture, and can use it to respond quickly and anonymously to pre-prepared questions incorporated into the PowerPoint presentation.

Using Clickers, lecturers can now:

- quickly measure students' comprehension,
- painlessly test problem-solving skills and performance
- invite, capture, shared, display student opinion
- if appropriate, record and export results for further analysis and/or discussion.

The questions can be a simple Yes/No, agree/disagree, or multiple choice style.
A participation monitor is displayed during voting so that the lecturer can make sure every student has responded, and can then close the voting.

The results are shown instantly, through a choice of histograms that the lecturer can use to gauge understanding or opinion.

With this feedback, the lecturer may redirect, review, or carry on the direction of the lecture based on this. The crucial difference here is that all students are interacting and can feel more engaged with the lecture.

### Features

- Uses established technology
- Existing content can be quickly and easily repurposed
- Short & shallow learning curve
- Easy to create
- Easy to respond to - engages every student
- Clear & rapid results - democratic and fast-paced
- Communicate results quickly and clearly
- Engaging content increases interactivity and feelings of participation
- Results can be analysed using Excel
- Uploading results to a Moodle course extends the boundaries of the classroom

Training & support in the use of Clickers is offered by Learning Technologists Martin King, and David Thurlby. Please visit the e-learning training & support pages to enrol upon a session.

### Further Reading

Martin King's del.icio.us online bookmarks for websites, articles and research concerned with the use of Clickers

### Case Study

Ask the audience: The use of electronic voting pads in psychology lectures. Dr Polly Dalton, Department of Psychology.

#### Background

The trial took place over three 2-hour lectures to groups of around 140 second year psychology undergraduates.

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**Intended outcome(s)**

1. To increase student engagement and participation during 2-hour large group teaching sessions.

2. To provide an instantaneous and anonymous measure of student learning, allowing improved formative feedback.

**The challenge**

1. Two hours is a long time to keep students engaged and attentive. This problem is exacerbated by large group sizes, as students are dispersed throughout large lecture rooms and tend to feel more 'removed' from the lecturer than in smaller classes.

2. Most students are reluctant to speak up in front of a large group of their peers, making it difficult to gauge their understanding 'online'.

**Established practice**

1. I intersperse my lectures with videos, experimental demonstrations and small group discussion exercises, with the aim of providing a variety of activities to keep students engaged and attentive. However I felt there was room for improvement and thought that the clickers could contribute.

2. I try to assess understanding during lectures by asking questions (and stubbornly sitting out the ensuing silence, until someone speaks up…) I also include small group exercises, during which I make myself available to answer questions.

I find that students are much more likely to raise queries during these times. However, despite these methods, I am still only able to collect input from a minority of students. Even when asking for a show of hands, many students won't respond.

**The e-learning advantage**

1. Everyone seems to love the clickers! They are fun to use, for students and for the lecturer, and this contributes to an overall atmosphere of playfulness and enjoyment in which it is easy to maintain attention and engagement.

2. The clickers collect immediate and, crucially, anonymous input from every student in the room. The lecturer can build short questions and quizzes into the lecture material, allowing instantaneous feedback about student understanding (which can then prompt repetition and clarification where necessary). Students are much more willing to participate and answer questions, because of the anonymity of their responses.

**Key points for effective practice**

The technology is well-designed, reliable, intuitive and easy to use. It works with PowerPoint, so the voting slides can simply be added to presentations, without the need to start from scratch.

My feeling is that the enormously positive response towards the clickers that I observed in my lectures might have been related, at least in part, to their novelty.
For this reason, my inclination would be to avoid overuse, both within a single lecture and across a course.

To ensure full participation, every student needs to have his/her own voting pad. This might be problematic for the very largest classes, as I believe the college currently owns only 160.

I would say that the main risk is the reliance on technical support, both in delivering the hardware for the start of the session and in ensuring that the software is installed on the relevant machine. I did not encounter any problems with the support, but as the clickers become more widely used, this might be an area for concern.

**Conclusions and recommendations**

I have not come across a single person – lecturer or student – with a bad word to say about the clickers! Used in moderation, they can increase participation, engagement and enjoyment for both staff and students. My only recommendation is that the college ensures that the technology is effectively supported, especially as it becomes more and more widely used.