Using an Audience Response System to increase student engagement and provide effective feedback in face-to-face teaching

Nitin Parmar :: Learning Technologist
[e-Learning team, Learning and Teaching Enhancement Office]

Background

The University of Bath has chosen to use an Audience Response System (ARS) by TurningPoint, for which a pilot is being carried out during the 2008/2009 academic year.

The TurningPoint software works within Microsoft PowerPoint, giving lecture slides greater impact. More than just a simple voting system, the ARS allows collection and analysis of feedback and sharing of the results.

How can it be used to support learning?

- For diagnostic testing at the beginning of a lecture
- For monitoring understanding of the content by students
- For enabling the provision of immediate feedback
- For keeping students actively engaged in their learning
- For promoting peer interaction and support

For further ideas, take a look at EDUCAUSE's publication, **7 things you should know about.. Clickers**, http://go.bath.ac.uk/m77t

How does it work?

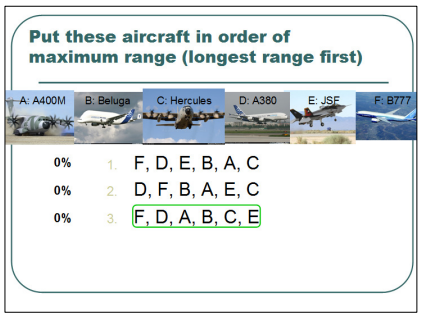
1. The **clicker** - a handheld gadget that allows students to participate in lectures, seminars and tutorials, by submitting their responses to questions and viewing the responses as a graph.
2. A **USB receiver** - this is usually plugged into a PC at the front of the teaching room, which in turn is connected to a projector.

The university has opted for the TurningPoint **ResponseCard RF** ARS. This radio-based option is perfect for small and large groups alike. With an operating range of 60 metres, it is ideal for a variety of rooms around the university campus. Unlike the IR (Infra Red) model, the RF model does not require a "line of sight" between the *clicker* and the USB receiver.

Case Study

Gemma Cranston, a lecturer in the Department of Mechanical Engineering, who used the ARS for a mid-unit formative assessment said, "For such a dry subject, the ARS made the lecture more exciting and interesting for the students… This type of question was very useful as it drew upon a lot of different aspects of the course. Students needed to identify the differences between piston (propeller) powered aircraft, and jet powered aircraft with respect to their range capabilities. Many of the aircraft in the question have specific applications, for example the A400M military aircraft was developed for its endurance as well as aspects like field performance."

Teaching staff can really begin to engage students in their learning at a deeper level, through using formative assessment approaches such as these. Details on this case study are available at: http://go.bath.ac.uk/nyc8



How has it been received by staff?

The initial responses from a large number of pilots have been very positive. For instance, Leah Wild and Hedley Bashforth (Social and Policy Sciences) recently used the ARS to support undergraduate lectures on Research Methods. Leah commented: "(The) ARS allowed questions to be displayed to the whole group and also allowed students to respond anonymously. This could not have been done in any other way in the time available, or without extremely laborious counting processes".

Christine Edmead (Pharmacy & Pharmachology) observed that "the advantage of the technology was that the students could answer anonymously making them more likely to respond than if I had asked for a show of hands for each answer." Additionally, Rob Branston (Management) felt that use of the ARS "clearly showed which topics or questions were proving problematic and allowed discussion of this."

Case studies, including thoughts from staff about the ARS, can be found at: http://go.bath.ac.uk/gt40

How has it been received by students?

A recent survey of Computer Science students who used the ARS during a problems class indicates a positive impact. When surveyed, 66% of a group of 45 students said that the use of the ARS "revolutionises (their) problem classes".

When asked to explain this view, one student replied that, "When getting questions wrong it meant that I'll now remember the correct answers because of the way it is presented". Another commented that "(it) gives you feedback (on) your knowledge and how you are doing in terms of the rest of the class."

External project profiling

Nitin Parmar is currently leading this project at the university. He sits on the steering group for the Electronic Voting Systems Special Interest Group (EVS SIG). Additionally, he represents the e-Learning team on the JISC funded EVAF4All: Electronic Voting Analysis and Feedback for All project, which is based at the University of Edinburgh.

UNIVERSITY OF BATH
LEARNING AND TEACHING ENHANCEMENT OFFICE

Contact details

Nitin would be delighted to come along to your next team or departmental meeting to speak about how the the Audience Response System might be used to support learning and teaching within your context. Please contact him on 01225 384 392 or at N.R.Parmar@bath.ac.uk

Find out more about the Audience Response System pilot project at: http://blogs.bath.ac.uk/ars/

[This poster was produced for the **Innovations in Learning Teaching week** at the University of Bath, 23 – 27 February 2009]