Effective Use of the Audience Response System: A Primer

Defining a clear purpose
The effective educational use of the ARS requires careful planning and attention to learning objectives. Before designing your question slides, make sure that your use of interactive participation technology is linked to a clear educational objective. The ARS should be used for the following types of purpose:

- To expose and clarify students’ misconceptions
- To differentiate between easier and more difficult concepts
- To promote interactivity and discussion in large group case-based learning
- To elicit and discuss diverse points of view when there is no correct answer (e.g. ethics)
- To administer an effective review session/mock exam that gives immediate feedback
- To assess mastery of content
- To provide immediate feedback on the value of the learning session

Designing effective questions
The ARS is just technology, and its value depends on the effective design of questions to meet the selected purpose. For example, it is better to use questions that require application of knowledge to solve problems if the instructor’s goal is to expose and clarify misconceptions. Questions focusing on rote recall of specific facts and details are less helpful in this context. On the other hand, if running a mock-exam session, then the questions should be designed to reflect the full scope of questions on the real exam – easy, hard, applied, basic facts etc. In all cases, the value of the ARS depends on using questions that elicit a distribution of responses on an appropriate scope of questions, so that the instructor can discuss, clarify and promote student interaction and discussion. Good planning for a session should include anticipating the possible answers you might get to each of your questions, and the steps you will take in response to those answers to help ensure successful audience interaction.

Designing effective polling slides
When designing an interactive presentation, speakers should follow the general rules for PowerPoint with regard to color schemes and font type and size while bearing in mind the principles of good slide design (Crosby, 1994; Holzl, 1997). However, some features are specific to the interactive system, and educators have outlined a number of practical tips (Robertson, 2000; Warnick et al, 2003; Green, 2002). Consider the following tips and techniques for using the ARS:

⇒ Keep questions and answer options short and simple – i.e. Be brief!
⇒ Avoid confusing questions with multiple correct answers.
⇒ Have no more than five answer options.
⇒ Number all answer options to match the keypad system (i.e. do not use letters).
Tips for best practice

⇒ Prepare the audience with a warm up question.
⇒ Allow adequate time for discussion of the response results. Build in one or two minutes for presenting and polling each question and at least 2-3 minutes of discussion. Never leave a polling slide without responding to the distribution of responses.
⇒ Include the students in the discussion of the results. Ask for students to discuss discrepancies among themselves in pairs (1 minute) then repoll. Introduce information or facts that should help deconfound students, and repoll before providing the correct answer. Consider a comparable follow-up question to see if students “really” get it.
⇒ Don’t ask too many in one session but use them sparingly to highlight certain points. A few questions effectively discussed are better than a lot that are glossed over (three to four questions in a 50-minute lecture to highlight key points).
⇒ Use question slides when understanding of a concept is critical to proceeding with new content.

Common pitfalls
The following factors may weaken the effectiveness of your interactive lecture:

Preparation:
• Questions are designed by someone other than the speaker – serving the wrong purpose.
• Questions are too easy, or don’t elicit a distribution of responses.
• Questions are used primarily to see if students can remember facts presented during the first part of the lecture (they have not had time to consolidate).
• Questions are poorly framed: They don’t relate well to the content of the lecture.
• Instructors have not anticipated the students’ responses accurately, and have not planned how to involve students beyond the actual polling.

Set up:
• Lack of communication between speaker and ARS support person
• Speaker does not introduce the system with a brief explanation
• Speaker does not prepare the audience with a warm up question

Teaching techniques:
• Instructor does not provide adequate time for students to think through the polling question and select an answer.
• Response results are not discussed adequately.
• Not enough time is allowed for discussion and audience interaction.
• There are too many question slides in one presentation (optimal use is about 5 per hour)

Creating Your Presentation
The ARS runs embedded in a PowerPoint presentation, which makes it so easy to use. Your presentation will be created on PowerPoint, using one of the standard PowerPoint slides supported by the ARS software. We suggest the “Bulleted List” slide type in the PowerPoint New Slide dialog (figure 1): The standard PowerPoint slide type “blank” is not supported by the ARS software. You may insert objects and images in this template
Please enter the question text and number answer options (figure 2). You may enter 1-10 answer options (although we recommend no more than 5). Images and objects may be inserted into your slide.

⇒ Designate the correct answer in bold if you want the system to highlight it in the result chart (correct answer: green – all incorrect answers: red).

We strongly recommend that you meet and discuss your questions with the Education Technologist to maximize effectiveness.

Your PowerPoint presentation must be received at least 24 hrs in advance of your lecture.

Contact
If you would like to find more about the ARS or schedule a consultation meeting, please contact:

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References


http://cpmcnet.columbia.edu/dept/cere/