

Using Audience Response Devices for Extension Programming

Abstract

Audience response devices (ARDs), or "clickers," have traditionally been used in the classroom to take attendance, provide testing of current knowledge and knowledge gain, and assist with review of course topics. The ARDs were used at a recent Extension conference, which provided an opportunity to test how well this tool worked. Though not used in this situation, the demographic information collected prior to the presentation could be used to alter the focus in real-time while the assessment data could potentially be useful in providing greater response for evaluation purposes. Participants overwhelmingly liked using the ARDs in an Extension meeting setting.

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Introduction

Audience response devices (ARDs) are used to provide information to the instructor and classroom. A question is asked by the instructor, and the audience provides an answer using a device that is received, compiled with other responses, and presented in real-time in a histogram format. In nearly all cases, these devices are used in a formal classroom setting at an educational institution for the purposes of attendance, testing, and review.

Much research has been directed toward the effects that ARDs have in these classrooms. Some of the benefits identified in a review article of ARDs include enhanced attention, participation, and engagement; quality of learning; and feedback (Kay & LeSage, 2009). These benefits would also enhance Extension meetings where adults were the target audience. There is very little published, however, in relation to the implementation of these devices in this type of setting. Salmon and Stahl (2005) may be the only group to do so, and even though they did not see significant improvements in short-term retention when ARDs were used in an Extension meeting, they did note that there was a trend of greater test scores with ARDs. They also noted that there was an overwhelming belief that they were useful in a seminar setting (98% of participants). This perception was mirrored by those who used ARDs in an educational institution, where 36 out of 38 articles examining attitudes toward ARDs observed positive opinions (Kay & LeSage, 2009).

One of the key benefits noted by Kay and LeSage (2009) was the use of ARDs to provide real-time feedback so that teachers could change their focus on the fly toward areas where additional explanation was needed. This could be applied to Extension meetings, where demographic information could be retrieved from the audience to identify certain topics to provide more or less specific information (e.g., large vs. small farmers,

large vs. small households, etc.) and has been suggested by Bird and McClellan (2010).

Another area where ARDs may be advantageous in Extension meetings is for the evaluation component. By incorporating the assessment into the seminar, greater feedback may occur. In waiting until the training is over to fill out a paper-based survey, many participants may elect to leave instead. There could also be more perceived anonymity provided by the use of ARDs than by direct collection of a completed survey by the instructor.

As there is little information on the use of ARDs in Extension, the ARDs were implemented in an Extension meeting to identify the feasibility and potential advantages and disadvantages of using these devices.

Program Design

Information on using switchgrass for forage and biofuel production was presented to an audience as part of an Extension conference for stakeholders in 2012. The ARDs used were the ResponseCard® RF LCD from Turning Technologies (Youngstown, OH). They were passed out to audience members and were used to answer questions at the beginning and end of the presentation. At the beginning of the presentation, specific demographic and subject matter interest questions were asked, and at the conclusion of the presentation specific evaluative questions were posed (Figure 1).

Figure 1.

Questions Posed Before and After Presentation Using ARDs

Pre-presentation questions:

1) Age

a) under 30, b) 30-40, c) 40-50, d) over 50

2) Farm acreage

a) <10 acres, b) 10-50 acres, c) 50-100 acres, d) >100 acres

3) Interested in switchgrass for bioenergy? (1 = not interested, 5 = very interested)

a) 1, b) 2, c) 3, d) 4, e) 5

4) Interested in switchgrass for forage? (1 = not interested, 5 = very interested)

a) 1, b) 2, c) 3, d) 4, e) 5

Post-presentation questions:

1) Based on your knowledge before the presentation, do you feel that your knowledge of using switchgrass for biofuel production:

- a) remained the same
- b) increased slightly
- c) increased significantly

2) Based on your interest before the presentation, do you feel that your interest in using switchgrass for biofuel production:

- a) remained the same
- b) increased slightly
- c) increased significantly

3) Do you like using clickers in Extension meetings?

- a) Yes
- b) Neutral
- c) No

Results

There were 11-13 responses for each question posed. Based on the responses, the majority of the audience was over 50 years of age and had operations on ≤ 50 acres. Most of the participants were interested in switchgrass for bioenergy and forage. There may have been slightly greater interest with respect to forage because the response for "very interested" was 55% as opposed to the same response to bioenergy, with 38%. The majority of the participants believed that their knowledge of and interest in using switchgrass for biofuel production increased. Last, 100% of participants ($n = 12$) liked using clickers in Extension meetings.

Though not used in this circumstance, the demographic information retrieved from the audience in real time would allow an Extension professional to change focus slightly to information that would be most appropriate to older farmers with small farms. If there had been little interest in one of the two subjects (bioenergy or forage), one could have expanded more on the one that was of greatest interest to the audience. Hu et al. (2006) and Abrahamson (2006) noted that this kind of contingent teaching may be difficult. Therefore, the Extension professional would need to anticipate in advance how a seminar may need to be amended based on potential feedback and adjust accordingly in preparation for the seminar.

Overall impressions of using the ARDs were positive. The technology worked well with Microsoft Powerpoint©, and reports could be saved and uploaded to Microsoft Excel© with ease. Though not used in this meeting, responses to multiple questions can be tied to individual devices for greater analysis of results. Salmon and Stahl (2005) identified one of the disadvantages as cost because purchasing their system would cost \$16,530. For the system used here (50 devices, USB receiver, software, carrying case, shipping), the cost was \$1,826, which seemed reasonable. Based on use in this and other settings, it is advised to use ARDs with audiences that will contain at least 10 or more participants because the time involved in preparation may outweigh the benefits of using them with such a small group. Parmer, Parmer, and Struempfer (2012) observed positive results when using ARDs with large numbers of children ($> 2,000$) in an Extension setting for testing purposes.

Summary

The ARDs traditionally used in the classrooms of educational institutions for formal instruction were used in an Extension meeting to identify its feasibility in these settings. Questions posed initially could be used to identify the makeup of the audience and focus on the most pertinent information in real time. Questions posed after the meeting could be used to assess the meeting and may provide more feedback. Overall, use of the ARDs was well-received by the participating audience, and ARDs seem to be a low-cost tool that has the potential to be very effective for Extension practices.

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