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## **Have You Used Clickers in Programming?**

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**Abstract:** Extension agents must provide pertinent programming to their audiences as well as show the impact of their programs. While understanding the audience is a basic tenet of effective public speaking, Extension audiences are not always homogeneous, and typically Extension Agents provide education to participants with different educational levels and life experiences. This article illustrates that Extension educators and their participants can benefit greatly through strategic use of clickers and extends the discussion to the advantages of use for heterogeneous audiences and in applied research. Techniques for using clickers to collect program impact data are discussed.

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### **Introduction**

Extension agents must provide pertinent programming to their audiences as well as show the impact of their programs. Understanding the audience is a basic tenet of effective public speaking, is necessary for efficacious/effective educational programming and evaluation, and is important to providing a satisfying participant experience. In certain fields (such as K-12 and up), the instructor gets to know the audience over time, and the audiences are fairly homogeneous in many respects. In a number of class situations clickers or Classroom Response Systems (CRS) are being used (Cooperstein & Kocevar-Weidinger, 2004; Gustafson & Crane, 2005; Hoffman & Goodwin, 2006; Leu, 2009; Weerts, Miller, & Altice, 2009).

Clickers are handheld devices for collecting information (Carnevale, 2005) from participants to use to inform the presentation or for data collection and analysis. In these situations, clicker technology can aid educators in better determining audience understanding and tailoring the content.

Extension audiences are not always homogeneous, and typically Extension agents provide education to participants with different educational levels and life experiences. Extension educators rarely have a meaningful advance attendant roster, and there may be little ability to predetermine audience composition. For example, participants in community education sessions are frequently composed of a variety of stakeholders, including practitioners, administrators, and consumers, as well as other groups with formal or informal attachments to the subject matter.

Not knowing the audience makeup beforehand leaves the presenter at a disadvantage as participants' interests align with topics differently. Moreover, Extension educators frequently experience difficulty in collecting program impact data. For these reasons, clicker technology can be well suited to Extension endeavors given that an expanded use of clickers lends themselves to research applications. This article illustrates that Extension educators and their participants can benefit greatly through strategic use of clickers and extends the discussion to the advantages of use for heterogeneous audiences and in applied research.

## **Clickers for Educator Understanding**

Educators may use clickers to explore participants' reported level of familiarity with the topic, relationship to the topic, motivation for attending the workshop, as well as their demographics. Information garnered can be used to tailor the presentation or activities providing emphasis or additional detail where warranted. If concerned about anonymity, random distribution of clickers to participants (all or a representative sample) ensures anonymity. Educators can then explore by asking pertinent questions to which participants respond via the clickers.

## **Clickers for Participant Understanding and Participation**

Clickers offer an opportunity to assess the participants' understanding of the subject as the session progresses. Questions designed to ascertain comprehension can be embedded in PowerPoint presentations to promote reflection on the material already covered. Responses will guide the educator to elaborate, confirm, or redirect discussions. Through periodic measurement of understanding, it is less likely participants will fall behind and disengage from the session. Educators benefit through the ability to detect when to elaborate and when to continue.

Participants are often interested in the diversity of experiences among others who are in attendance. Displaying participant "votes" or demographic information such as occupation can be engaging. Participant interest can be stimulated through soliciting their opinions on problem resolution approaches, where participants "vote" for which item is the correct or preferred response. This activity allows for follow-up discussion to explore the pros and cons associated with each proposed approach.

When a variety of effective approaches are possible, the discussion offers an opportunity for solution sharing and a broadening of participant perspectives. Where one approach is preferable over others, "voting" can also serve as a knowledge check at the close of the session and presents another opportunity to discuss why the correct answer is the best choice over the alternatives. The knowledge check is a teaching opportunity embedded in a group activity.

## **Clicker Portability Well Suited to Extension**

Participant response choices are transmitted through the use of a "clicker." To use clicker technology, three components are needed:

1. The small handheld wireless response device,
2. Computer software to manage and display responses, and
3. A portable receiver that receives the clicker's radio signal.

Clicker technology is effective where participants are up to 300 feet away from the receiver and do not have a direct "line of sight" to the receiver (Weerts, Miller, & Altice, 2009).

## Clicker Use in Applied Research

While Extension educators need to show impact, they often do not have the time to administer pre- and post-surveys, enter and clean the data, and conduct analysis. Clickers easily automate data collection and minimize error. Pre- and post-survey data can be imported into statistical processing software for analysis. Current clicker technology allows for question types like Likert scales, weighted responses to prioritize as well as collecting information on percent correct responses. Data from different groups can be compared or aggregated across multiple workshop presentations on a single topic. If desired, group performance can be shared with the participants to underscore positive knowledge change.

## Limitations

The data collected cannot be associated with a specific participant under the clicker distribution method described. This limitation can be overcome by recording the clicker device number next to the person's name on the registration form or through random identifier assignment., such as plant names. Alternatively, if individuals always use the same clicker for all responses, respondent anonymity can be maintained while gathering relevant data.

Another potential limitation is the cost of providing a clicker for each participant. For very large groups it may be cost prohibitive. However, by surveying a random sample of the audience, the educator could use far fewer clickers and still retrieve representative data. One drawback is that once the audience understands the technology, most will want the clickers to have their ideas/opinions heard and "counted."

## Conclusions

Use of clickers will provide educators with a tool to further enhance their presentations and reporting of impacts. Even when they are presenting a workshop at a conference, this technology will allow educators to collect demographic data quickly and efficiently with anonymity and tie that data to pre- and post-workshop surveys. thereby yielding much more meaningful data for subsequent analysis and potential publication.

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