Multiple Uses for a Student Remote Control Response System

[Abstract]

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A student remote control response system was presented. Participants received a remote control device to use during the session to see first hand how the system works. The demonstration and discussion included examples of question posing during a class for a variety of purposes. These included conducting informal formative assessment of student comprehension, fostering student engagement and participation, and collecting data for in-class analysis.

Each of these scenarios consisted of displaying a question with up to 5 possible answers and giving students (participants) a fixed amount of time to choose an answer. Students (participants) used their remote controls to select one answer. Participants witnessed how anonymity of responses can encourage participation, and how during the allotted time, a participant may change his/her answer as many times as (s)he chooses. It was also emphasized that questions may be displayed using any software (e.g., directly from a website, word processor, or other environment). Each scenario demonstrated is briefly described below.

Scenario for informal assessment

Show any question that might make a good multiple choice quiz or test item with up to 5 answers. Collect student answers; then discuss as a group and reach a (guided) consensus as to which answer is correct. These scenarios are also valuable as additional engagement scenarios and to help students review and/or apply material that has been covered. This type of scenario was envisioned (and is typically promoted) as the primary use for the remote response system.

Student engagement and participation scenarios

1) Show up to 5 types of problems that represent material on recent homework. Ask students which problem was most confusing to them and proceed to discuss it.
2) Show a problem that requires interpretation and does not have a simplistic answer (e.g., a statistical result with a p-value of 0.06). List up to 5 possible conclusions with supporting reasons, and ask students to select the one they believe is most appropriate. Use this as a springboard for discussion of ideas.
3) Show a problem that requires student collaboration to arrive at an answer. Display the chart of answers and wait for the class to come to a consensus through group discussion as to which answer is correct.

Scenarios for collecting data for in-class analysis

1) Pose a Likert-style survey question with answers from 1 to 5 and allow all participants to select an answer. View the resulting histogram and discuss how to determine the mean, median, and mode response from the data displayed. Other computations may also be emphasized (e.g., quartiles, standard deviation, etc.)
2) Pose a second Likert-style question and collect participant answers. Using software (e.g., Excel or TI-83/84 emulator), demonstrate a T-Test to determine if a statistically significant difference is evident between the answers to the two questions.
3) Divide participants into two groups based on some criteria (gender was used during this presentation); pose a question with categorical answers (e.g., favorite color, preferred type of music). Collect answers from all members of one group first (e.g., all women). Then collect answers to the same question from all members of the other group (e.g., all men). Demonstrate a two-way table to organize the data and a chi-square test to determine if there are statistically significant differences in answers from the two groups.

To analyze data collected from participants, a TI SmartView calculator emulator was used in this presentation.

Participants were also shown a demonstration of companion grading and reporting software to show how student data submitted during class may be reviewed and tracked for a customized participation grade. Participants were shown how the instructor can also review which screen was being displayed at the time the students were making their response selections.

It should be noted that although this demonstration relied on one particular remote response system (i-Clicker), the ideas covered should be applicable to other similar systems as well. Further, although this particular demonstration relied on some statistics course content as a vehicle for demonstrating possible uses of this system, similar uses are applicable in other content areas.

The remote response system demonstrated runs directly from software on a flash drive with a receiving device that plugs into the USB port of the computer. Thus, no software installation is required, but an accessible and functioning USB port is needed on the PC.