# Using Hand Held Electronic Responders to Induce Active Learning in the Classroom

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## Introduction

John Fitzgerald Kennedy once said, "Our progress as a nation can be no swifter than our progress in education." Over the past twenty years or so, education has taken several giant leaps forward and is starting to take advantage of new technologies that can greatly enhance traditional classroom learning. Teachers are moving away from the lecture only style of teaching, and are using multiple activities to split up the monotony of the classroom. Technology has aided the process by allowing teachers to incorporate flashy and exciting games, activities, and hands-on learning to keep students engaged and interested in the learning material. Possibly one of the most exciting current pieces of technology are handheld electronic responders. These are small devices, similar to remotes, which allow students to select an answer to a multiple-choice question and allow the results to show up instantly on the display. By instantly seeing the results the instructor can see if the material is being understood and can allow student to become more involved in the learning process. By using hand held electronic responders we can take learning that extra step forward and utilize a tool that will assist in asking questions, taking tests and providing immediate feedback.

## How it works

These systems are primarily used for allowing teachers to ask questions of students during class, allowing the teacher and students to receive instant feedback. Some systems can also be used to take and grade tests, record attendance, and generate reports and statistics. Once the system is purchased, the proper software will need to be downloaded on to the teacher's computer before the system will work. Each student will receive their own personal keypad either directly on loan from the teacher, or by purchasing their own. The system will keep track of individual responses to questions based off the students' keypads. The teacher can enter questions directly in to the system or the teacher can verbally read the question and let the students answer via their responders. The information is sent to a wireless hub to allow the teacher to see who has answered and what they have answered. The teacher can decide if the answers will be shown or hidden in the case of a test. Some responders allow the information to be sent back to the computer to allow the information to be converted in to charts and graphs and then recorded in to grade books and attendance sheets.

## Results to date

The Department of Agricultural Education at North Carolina State University is currently in an exploratory mode with this technology. In order to gain an understanding of the technology and its capacity to increase student learning and favorable classroom attitudes, several formal efforts to experimentally evaluate the system are being conducted this year. All of the informal feedback received to this point has been positive. This past fall in an "Introduction to Occupational Education" class, one section of the course used the CPS system while the other section served

as a control group. A similar study involved three sections of a high school "Introduction to Agriscience" class. During the spring semester, the CPS system is currently being used in nine different classes throughout the College of Agriculture and Life Sciences.

School systems and colleges have started using this technology in the classroom. According to www.e-instruction.com since their CPS system became available in 2000, over 800,000 response pads have been sold and the technology is being used in all 50 states and over 10 countries worldwide.

## Advice to others

By implementing electronic responders in to the classroom, numerous new opportunities for learning are open to the students. Multiple learning styles can be reached through group work, individual work, and the ability for teachers to use instant feedback to more thoroughly explain difficult and less understood concepts. Teachers can immediately check for understanding of the material and adjust the lesson accordingly. In addition to inducing active learning, some systems come with a bonus. These systems can save time for teachers by accomplishing the mundane tasks of the class such as attendance, test grading, and compiling reports and statistics that can be used for checking test validity, student achievement, and reporting statistical analysis that can be sent to administration.

## Costs

The CPS 24-pad system costs $3,000 and the CPS 32-pad system costs $4,000. Additional receivers and pads can be priced based on quantity. E-Instruction has an introductory special allowing you to buy one or more systems and get one or more systems free.

## References


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