

## **Can You Hear Me in The Back? Improving Large Section Instruction Using Walkie-Talkies**

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In the fall of 1995, one of us introduced a new technology that fundamentally changed the nature of large lecture classes: walkie-talkies.<sup>1</sup> This brief educational note describes the inspiration behind the walkie-talkie system, how it works, and the costs and benefits of using the system to teach large principles sections.

The idea for the walkie-talkie system resulted from giving my teaching assistant the opportunity to teach a large (200 student) class to help him gain experience teaching. Sitting in the back of the classroom to observe the teaching assistant provided an entirely different perspective on large classes! The students around me were very interested in what the assistant was teaching, and they constantly turned around to ask me questions. This experience shattered all of my preconceptions about students in the back of the room. They were not poor students, and they were not trying to hide from me. These students wanted to ask questions of the professor but were apparently afraid to shout them out in class. At that moment I decided that my class was not living up to its full potential because of the lack of participation from the students in the back, especially since more

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<sup>1</sup>While co-authored, this article uses I instead of we, since the majority of it involves the recollections and reflections of Russell Sobel.

students sit in the back than up front.

A second and even more surprising observation was that most of the talking I heard in the rows around me was about economics. From the front of the class I had always wondered if the talking was about the class or about the student's social lives. Sitting in the back I heard students asking each other what was just said or asking someone else to explain the concept to them. This interaction between students is called "cooperative learning" and is often stressed by educators as an effective method of learning (see, for example, Majer and Keenan 1994).

I spent some time thinking about how to foster this kind of student interaction and also increase the class participation of the students in the back of the classroom. A primary consideration was that when students talked to each other, it carried two costs. First, the students who are talking miss the next thing the professor says. Second, others around them cannot hear. My idea was to have a kind of "pause" button where students could temporarily halt the lecture to interact with their neighbor. In this way they would not miss the next thing said, and other students would not be prevented from hearing my lecture. Immediately walkie-talkies, with their "beep" button, came to mind. When a student pressed the beep, I could stop for 30 seconds. This would allow pauses when they needed them. Also, walkie-talkies have a feature by which students can talk and have their question broadcast over the sound system in the class. I thought that this would make it so much easier for students to ask questions without shouting. It seemed that the walkie-talkies might solve all of my problems.

After initially coming up with the idea of using walkie-talkies in the classroom, I surveyed my students regarding their feelings about the walkie-talkie system. The response from both of my 200 student classes was overwhelmingly in favor of trying the idea. Of the 313 students present on the day of the survey, 81.5 percent said that I should implement the idea, 14.4 percent were undecided, and only 4.2 percent (or 13 students) said that I should not try the idea. Of those surveyed, 24.0 percent said that they would participate in class more if this idea

was implemented. The results of the survey for many items clearly differed between subsets of the class. For example, the students in the back of the class were twice as likely to say that their voluntary participation would increase, and more likely to favor the implementation of these devices.

After receiving such favorable responses from the survey, I then submitted a proposal requesting funding to purchase the walkie-talkies from both the College Technology Committee and the College Teaching and Learning Committee. After receiving funding for the project in October of 1995, I implemented the walkie-talkie system in both of my intro to economics classes.

### **The Initial Response to the Walkie-Talkie System**

The initial responses to the system were remarkable. The students were overwhelmingly positive. Less than one month into the experiment the student newspaper did a front page story on the system, and the city newspaper also wrote an article on the innovation. At the end of the semester I conducted a follow-up survey that showed massive student support for continuing and expanding the use of walkie-talkies. Many students felt that I should begin attaching part of the course grade to the participation via the walkie-talkies and felt that I should purchase more walkie-talkies.

Most importantly, my student evaluations for the semester improved as a result of using the walkie-talkies. Prior to teaching these two large classes, I had taught three other large lecture classes of the same course and one small section. On every single one of the twenty items on the student evaluations, my score was better than any of the scores I received in my previous large classes. One question on the student evaluation form particularly related to the impact of my walkie-talkies: "the instructor's encouragement of student discussion and questions was...." The responses are coded from 1 (poor) to 5 (excellent). Table 1 shows the average student responses to this question in my principles classes prior to and after using walkie talkies.

The difference is remarkable. It is not only the most favorable

response from my large classes, but is identical to the response from my small (30 student) class from the spring of 1995. It appears as if the walkie-talkies provided a “small class” atmosphere in the large class. In fact, many student comments on my follow-up survey mentioned the small class atmosphere created by the system. Table 2 provides several examples.

During the first semester of classes, I used only six walkie-talkies, which cost around \$140. (The college audio/visual department supplied batteries and a charger for free). Shortly after implementing the walkie-talkie system, I won the department teaching award and used the cash prize to purchase more walkie-talkies as the students had suggested. Currently, I use up to ten walkie-talkies at a time.

Table 1  
The Impact of the Walkie-Talkie System on Student Discussion

Term	Score on the question: “the instructor’s encouragement of student discussion and questions was...”
<i>Prior to Walkie-Talkies (Large Sections)</i>	
Fall 1994 A	4.2
Fall 1994 B	4.3
Spring 1995	4.1
<i>Prior to Walkie-Talkies (Small Section)</i>	
Spring 1995	4.8
<i>After Walkie-Talkies (Large Sections)</i>	
Fall 1995 A	4.8
Fall 1995 B	4.8

Table 2

Selected Student Comments on Walkie-Talkie System

“The bigger class with the walkie-talkie makes it feel smaller.”

“The walkie-talkies make it seem more like a smaller lecture class.”

“The class has become more involved and interesting.”

“I like it because it opens up the class and makes it less formal; therefore, easier to learn. The class has more participation and is more fun.”

“Since the walkie-talkies have been in class, it seems that people pay more attention to what is going on in class.”

“I think it made the class smaller and more personal. I liked having input from the back of the room.”

“I like the walkie-talkies because it makes the class more interesting and more people participate. Students are paying more attention in class.”

“People pay more attention in class because everyone feels involved.”

“The walkie-talkies allow the class to approach a lecture discussion type of class instead of strictly lecture. I like this style much better.”

“The class became more involved and this helped me hold my attention span longer.”

“The walkie-talkies are great! Participation increased by at least 50% and it could have been more if more talkies were available.”

## **A Look at How the System Works**

Many people have trouble understanding how the walkie-talkies can have such a major impact on the classroom environment. To explain this, let me describe how the system works in more detail. Every day I ask for volunteers from my class to hold the walkie-talkies. I try to place a larger share of them near the back of the classroom. When the student takes the walkie-talkie, I take their ID and place it in an envelope and give it back at the end of class when the walkie-talkie is returned. Along with the walkie-talkie, the student is given an instruction card on how to use the device. One additional walkie-talkie is then placed by the microphone on the podium so that all communications over the walkie-talkies are broadcast over the same speaker system that my cordless microphone is using. When students speak into the walkie-talkie, their voice comes out as loud and clear as mine does to the entire classroom.

After passing out the talkies, I take a piece of paper and ask the names of the students holding the walkie-talkies. I make the students say their names over the walkie-talkie so that I am sure they know how to use it to communicate. This part of the system yielded benefits itself, as for the first time I began to learn the names of my students in my very large lecture classes. The good thing is that the names and students I know are spread out over the entire room. Additionally, with this list of names each day, it is very easy for me to call upon students by name to answer questions during my lecture.

During the class, any student who has access to the walkie-talkie (the person holding it or their neighbors) can pick it up and ask me a question. I allow them to interrupt me whenever they want. In the past, I could never see hands raised in such a big class, and when I did call on students, I frequently could not hear the question. Also, I would always have to repeat the question, as certainly no other student had heard what the person asked. That has all changed now. A question asked into the walkie-talkie comes out over the speaker system as loud as my voice during the lecture. The student no longer has to yell! By the end of the semester, students on opposite sides of the room with talkies were

interacting with each other (answering and responding to each other's questions).

A second important feature of the walkie-talkie is the "beep" button. Pressing this button sends a tone over the talkie out on the speaker system. Students are allowed to use the beep button to pause my class. Whenever a student needs me to slow down, or when they wish to ask a neighboring student a question, they can press their beep button, and I stop for approximately 30 seconds before starting again. The beauty of this is that the beeps are anonymous. I cannot tell which student paused class. This means that students need not worry about being embarrassed about pausing class.<sup>2</sup> On average I am paused about twice during a class period that lasts one hour and fifteen minutes. I have also used the beep feature to get students to answer my mid-lecture questions: "If you think the price will rise, beep now, ok. . . if you think the price will fall, beep now." The beep feature works well, again because of its anonymous nature.

In summary, the financial outlay required to set up the walkie-talkie system is fairly minimal, and the benefits seem to be very fairly high. Students enjoy the ability to anonymously "pause" the class to catch up and the ability to participate in class without shouting. In addition, the system employed to account for the walkie-talkies helps to know which students I can call on should I have a question to pose to the class. Using walkie-talkies helps to turn large lecture classes into small ones.

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<sup>2</sup> Friedman (1996, 9) notes that what is individually rational for each student is not necessarily rational for the entire class. Students are reluctant to admit any lack of understanding in front of their classmates even though asking for a restatement of a particularly difficult point might help everyone. Friedman suggests a possible solution: a button on the floor that would allow students to anonymously respond to questions from the professor. "JoinIn," an interactive and relatively anonymous clicker system similar to the one described by Friedman, is now an ancillary product to Gwartney, Stroup, Sobel and Macpherson (2006). We would like to thank Nick Currott for bringing Friedman's suggestion to our attention.

## References

Friedman, David. 1996. *Hidden Order: The Economics of Everyday Life*. New York, NY: HarperCollins.

Gwartney, James D., Richard L. Stroup, Russell S. Sobel, and David A. Macpherson. 2006. *Economics: Private and Public Choice*, 11th Edition. Mason, OH: Thomson/South-Western.

Majer, Mark H., and Diane Keenan. 1994. "Cooperative Learning in Economics." *Economic Inquiry* 32(2) April: 358-361.