

The following is an e-mail from Prof. R N Shelby, a physics professor at the US Naval Academy, to Fred Hartline, the Vice President of Software here at Better Education.

### **THE USE OF CLASSTALK IN SMALL CLASSES (7/23/97)**

There has been much written and discussed about the use of the Classtalk classroom communication system in large lecture sections. There are many wonderful possibilities for improving learning in that situation. Perhaps it is not as widely known that there are also many extremely useful and exciting applications for the Classtalk system in the smaller classroom settings.

To make one of my points I would like to briefly relate a story that should strike a responsive chord with many experienced professors. At the Naval Academy, where I teach, the section size of the basic physics course is about 24 students. One day our topic was Gauss Law. After some discussion, I gave a simple Classtalk question on the material and got less than 25% correct responses. Sensing that the students were very weak on this topic I decided to call on my obviously excellent talent as a lecturer with 35 years of teaching experience to transmit a clear understanding to the students. The students listened intently for 10 minutes as I discussed, drew diagrams on the board and questioned individual students around the room on specific points in the material. Proud of the wonderful explanation that I had given, I asked the general rhetorical question that so many of us have asked, Now do you feel that you understand the material? There were confident smiles, thumbs up and a verbal expression of a eagerness to be asked more questions.

Of course, this moment would have been the end of the story until the next exam or problem set before Classtalk. I would have moved on to the next topic. However, with Classtalk I immediately gave the same question again, and the result gave me more than a little food for thought. After my discussion and the students expressions of confidence, there were no correct answers!

There are many ways to explain away this story. Naturally one could question my ability as a Professor. One could also note that any experienced professor knows that students are often over confident about their mastery of the material. However, it is my opinion that this story can serve the important purpose of reminding us about our often very poor knowledge of the level of student understanding in the classroom setting. Perhaps we should remember that institutions have gone to great expense to create classroom settings that are expected to have the opportunities for high level intellectual interactions. When we are as ignorant, as we often are, of the level of student understanding, there is little or no chance for the classroom setting to realize its potential.

Point:Even in a small section setting it is very difficult to be accurately aware of the real-time level of student understanding that is necessary to effectively make use of what should be a time of high level intellectual interactions. Classtalk can be used to greatly improve this situation by giving quick real time checks on conceptual understanding. Activities can be adjusted during the period to respond to the level of understanding.

A second important use of Classtalk is also common to both large and small section settings. Many studies have shown that any method that encourages are requires the student to be actively involved in the classroom experience will result in better results. Classtalk is perfect for this role! Every student must participate and every student knows that the professor is aware of his or her answer. This knowledge is probably more important than the fact that the professor has a record. As a bonus, students love to use Classtalk. Course evaluation consistently shows this.

Point: Classtalk is a very effective tool for getting the students actively involved in the classroom setting.

Finally a word of caution for all new Classtalk users. Using Classtalk is very effective and the students love it, but one must aware of a start-up price to be paid. Using Classtalk is natural and exciting for the professor only after it is fully integrated into the presentations and it is being used on a regular basis. As an example, many use the technique of requiring individual student responses when a question is asked for the first time followed by student discussion and then a second answer. If the professor doesn't resist the temptation to give the students the word during the discussion period, very quickly the discussion period degenerates into a wait for the professor to reveal the answer. There has been much written on different effective techniques for the use of Classtalk, and a new user should carefully study these suggestions and choose one that is compatible with their situation.

Point: There is a start-up price to be paid in using Classtalk. Read the literature, choose an approach that appears to be effective for your situation, and expect to take a couple of semesters to become comfortable with the use of the system. But remember, the work and the patience is worth the effort!

R. M Shelby  
Prof, Physics Dept  
USNA