

## **Findings Abstract**

### **Technology Plans and Evaluation**

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This is the final report on the continuing use of technology by one of the first groups of teachers to use the Ameritech classroom. A group of teachers from Brown Middle School in Ravenna, Ohio, started planning for their time in the Ameritech classroom in the Fall of 1997. They then spent ten weeks in the classroom, beginning in February, 1998, and returned at various times after that. In Spring, 1999, as part of their participation in the project, the teachers submitted grant requests to purchase new equipment for their schools. Their purchases were based on their experiences in the Ameritech Classroom and were meant to both allow them to continue teaching in the ways they did while in the Ameritech Classroom and to spread the benefits of these technologies more widely in their schools. As part of their grant applications, the teachers were asked to explain what results they hoped to see from the acquisition of the new technologies. An evaluation plan was then designed to see whether those results were achieved. Those evaluations have been analyzed. The teachers from Brown Middle School had ambitious goals for this project. First, they wanted to spread the use of technology more widely in their school. Second, they wanted to use the technology to help them change the way they teach. That is, they saw the equipment that they purchased jointly as a catalyst for changing the instructional strategies and tactics they used in their classrooms to become less directive and more constructivist. The evaluation plan reflected these goals. First, a log book was attached to the cart that held the primary equipment, and all teachers were asked to record their use of the technology as well as any problems they had. Second, in Spring, 1999, the teachers who used the Ameritech Classroom spent 3 weeks documenting the lessons that they delivered in their classrooms. It was hoped that this would provide a baseline measure of their current teaching strategies (not before their Ameritech Classroom experience but before the school acquired their equipment). In Spring, 2000, the same teachers were asked to do record the same data, almost exactly a year later. This provided a way to measure how things changed in their classrooms. The equipment use log was coded for several things: which teachers used the equipment, for what, and whether they experienced problems. Teaching Strategy Evaluations. The lesson descriptions that were logged in both 1999 and 2000 were coded for the type of instructional strategy used and for technology use. Three major categories of teaching strategies were used: Discovery, Lecture, and Test. Although it might be possible to develop a more detailed classification scheme, this would also lead to more difficulties in the reliability of the coding and in the meaningfulness of the categories. For evaluation purposes here the overall classification seemed most useful. Factors that affect the interpretation of the results of this evaluation include: 1. the fact that the teachers involved in the project changed over time, so that different individuals, in some cases, were providing data in the two time frames, and 2. although the teachers provided copious data for all their classes in the baseline data period, they tended to provide much less data, often for just a single class in the second data gathering period. With those caveats, we can look at the overall results of the evaluation of teaching strategy use. The

first figure compares the percentage of class periods that were devoted to each of the three major classroom strategies. There were not enough reliable data to perform meaningful statistical tests. However, visually, it does appear that there was slightly more discovery learning, less lecture, and more testing done in the classes recorded after the technology was brought into the school than before. Although these results are by no means definitive, they do suggest that this line of inquiry might be worth pursuing.

Technology use evaluations. In a second coding of the teaching logs, class periods were categorized according to whether the students and teachers used technology. In this case, it was a simple binary choice: Yes or No. Obviously, in future studies it would be possible to record what technologies were used and compare their use over time as well. Here, we simply concentrated on whether overall technology use increased among the target teachers after the equipment was introduced to Brown Middle School. The same qualifications exist for these data as for the teaching strategies data. However, here it was even clearer that changes did take place from one year to the next, after the new equipment was acquired, with technology use almost doubling. Again, we should not take the results as definitive, but they are suggestive enough to potentially warrant more investigation.

Equipment log evaluations. The equipment use logs yielded relatively little data. Whether that was due to relatively few uses of the equipment or to inconsistent and sporadic entries into the logs is unclear. Even so, two things are worth mentioning from these data. First, ten different teachers recorded using various pieces of equipment in the logs. Thus, even though the core Ameritech Classroom project teachers were responsible for choosing the equipment, it is clear the goal of spreading technology use beyond those individuals is being achieved. Second, from these logs, the digital camera was easily the most popular technology, with the computer projection system second.

Conclusions. Clearly, this evaluation study was very limited in scope and only partly successful. The sample size, whether we look at number of schools or number of teachers, was very small, limiting the generalizability from the start. In addition, it proved impossible to gather meaningful data from one of the schools at all. Nevertheless, there were a few interesting results that could be worth following up on. First, the method of requesting teachers to record their classroom activities and then coding the resulting data in various ways appears to be a viable way to collect data. Add to that the apparent changes observed over the year between data gathering episodes, and it appears that research into the long-term effects on teacher strategies and technology use could prove fruitful.

Second, it also appears that the availability of equipment does help induce more teachers to use technology beyond those who originally participated in the project and chose the equipment itself. In order to pursue these issues some problems must be addressed. First, as with any self-report procedure, it is important to be certain that the teachers recording their class activities have a clear idea of what the task is as well as of its scope. If teachers are to record every class period, then that has to be made clear. It may also be useful to follow up with the teachers regularly to be sure that they are completing the task. Second, we may need to address the question of the accuracy of the self-report data. Comparisons of teachers' reports with actual behavioral observations would be useful to establish this. A new study has been designed to address these issues and will begin in Winter, 2001.