

## The Elementary Computer Initiative: Teacher Benefits

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In 1995, a metropolitan school district (44,000 students) placed five computers and an ink jet color printer in each of its regular elementary classrooms first through fifth grade. The goals of the initiative were numerous but focused on: (1) increasing student performance, (2) addressing different learning styles, (3) providing students with daily access to computers, (4) increasing student proficiency with computers, and (5) preparing students for the future. To accomplish these goals, teachers were required to acquire the capacity to integrate computers into their daily classroom lessons and the school division needed to install, maintain the technical hardware and courseware required to support teacher efforts.

The implementation of the Initiative was evaluated each year for three years to provide information to the school division for use in planning, work tasks and staff development. Teacher attitudes, ability, and instructional behaviors were sampled as well as their perceptions of student motivation and performance due to the Initiative. During the three years, data were collected through classroom observations, focus group interviews, teacher surveys, software surveys, and standardized test scores. This paper provides specific information which describes the benefits teachers received from Initiatives.

### Teacher Benefits

Computer Ability. The Computer Initiative has had a dramatic impact on teacher ability to integrate computers into instruction. For example, non-technology using teachers were eliminated after the first year of the initiative. Furthermore,

- Fifty six percent (56%) of year 1 teachers reported that they were Beginners (i.e., they can perform basic computer tasks such as word processing quite well although they do not know or utilize the full potential of the program). This percentage declined to twenty-four percent (24%) by year three.
- Eleven percent (11%) of year 1 teachers reported that they were Advanced computer users (i.e., they can perform numerous tasks on the computer such as word-processing, graphics, and information management quite well and are familiar with the software's capabilities). This percentage increased to forty-eight percent (48%) in year three.
- One percent (1%) of year 1 teachers reported that they were Accomplished computer users (they know a great deal about computer software and hardware and can perform many tasks using a variety of software). This total increased to twenty-seven percent (27%) of the respondents in the third year of the initiative.

These findings lend support to the conclusion that computer ability can be influenced by factors such as training, instruction and administrative support.

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Teacher Growth. Most teachers (95%) agree or strongly agree that the Computer Initiative has facilitated their professional growth. And, ninety-nine percent (99%) say that it has made them aware of the creative uses of computers in education. Additionally, teachers report that they have more than sufficient knowledge to use computers to aid their instruction. For example, seventy-seven percent (77%) of all teachers report that computer knowledge is less than moderately difficult to the least difficult barrier that they face in implementing the Initiative. However, teachers continue to be less sure of their knowledge of the technical side of the initiative than the instructional side. Forty percent (40%) of them reported that their technical knowledge is the most difficult barrier to implementing the initiative.

Teacher Beliefs and Attitudes. Teacher reaction to computers in their classrooms has been overwhelmingly supportive. They continue to see the computers a very important to their work as a classroom teacher. For example, ninety-seven percent (97%) of all teachers agree or strongly agree that the Initiative is very important to their work as a classroom teacher. Additionally, teachers continue to view the Computer Initiative as worth the cost and time. Ninety-three percent (93%) of all teachers agree or strongly agree that the computers are worth their cost and time. They continue to enjoy working with their students on the computers. Teachers continue to be satisfied with their progress they have made since the Computer Initiative was implemented.

Furthermore, teacher integration of the technology into their instructional strategies seem to be less complicated than in year three than in year two. For example, fewer teachers (20%) in year three perceive that the Computer Initiative requires too much of them than teachers (28%) who reported in year two.

Teacher Instructional Behavior. The primary curricular objective of teachers is improvement of language arts rather than math, social studies or science. For example, fifty-eight percent (58%) of the teachers responded that improving language arts skills was the primary goal for using computers in the classroom. In this area, seventy-four percent (74%) indicated that their primary objective was to use computers to improve writing skills and fifty-two (52%) reported using classroom computers to improve reading skills. On the other hand, teachers rank mathematics, social studies and science as moderate instructional objectives for computer use by teachers.

Instructional Goals. Teachers computers in their classrooms to: (1) introduce new concepts by preparing students for instruction on a topic by using an appropriate software package, (2) reinforce the core curriculum by providing students with extra practice on material already learned, (3) extend the core curriculum by providing additional information on a topic, and/or (4) remediate the core curriculum by providing appropriate software for students who need additional help on a topic

Instructional Strategies. Teachers believe they are (1) better able to present more complex material to their students, (2) use less lecture and whole class instruction, and (3) use more small group instructional strategies.

- There is a strong consensus among teachers that the computers have allowed them to create better products such as newsletters. For example, ninety-eight percent (98%) of the teachers strongly agreed or agreed with the statement.
- Teachers at all grade levels indicate that they discuss technology ideas with other teachers. However, teachers in the primary grades engage in more cooperative planning with their colleagues than the upper grades.

School Technology Teaching Culture. Schools were classified as having “strong,” “stable,” or “weak” cultures to support the implementation of the Computer Initiative. The results of this examination indicate that after 3 years of the Initiative:

- Teachers in schools with a “strong” school teaching culture reported greater changes in teacher instructional behaviors than teachers in “stable” and “weak” school cultures.
- Teachers in schools with a “strong” school teaching culture reported teacher attitude scores that were closer to the “Ideal” profile than teachers in schools with “stable” or “weak” cultures.

Schools in which teachers attributed significantly greater changes in their instructional behavior to the Initiative also demonstrated greater student growth in student test scores.

Table 1

**THE COMPUTER INITIATIVE: SUMMARY OF MAJOR FINDINGS FROM THREE YEARS OF IMPLEMENTATION**

<p><b>Teacher Benefits</b></p>	<p>Teacher computer ability dramatically improved since beginning of initiative. Teachers are satisfied with: (1) working with students on computers and (2) Increased knowledge about technology, (3) Importance of initiative to teacher work, and (4) progress thus far.</p> <p>Beliefs remain that: (1) school is getting most out of initiative and (2) is worth the cost and time.</p> <p>Computers are primarily used to improve language arts, reading and writing skills.</p> <p>Instructional focus on: (1) challenging high ability students and (2) improving student directed learning rather than remediating deficiencies.</p> <p>Instructional delivery changed by: (1) better able to present more complex material, (2) use a more thematic approach, (3) less lecture and whole class instruction, and (4) more small group instruction. Instructional delivery improved in by: (1) teachers being able to present more complex material and (2) software availability.</p> <p>Teacher work behavior changed by: (1) planning how to integrate computer into subject matter delivery and (2) produce better teacher products.</p>
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