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The Classroom Use of Technology

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## The Classroom Use of Technology Since 1920

### GOALS

In Larry Cuban's *Teachers and Machines: The Classroom Use of Technology Since 1920*, Cuban (1986) addresses three questions that guide his investigation on technology use in classrooms: 1- Once the new technology was adapted by school districts, to what degree did the teachers use them? 2- What explains the frequency of teacher use of these technologies since the 1920s? 3- What is the likely level of teacher use of computers in the 1980s and what is the influence of this technology? Throughout the book, Cuban focuses on these goals to analyze why numerous attempts to implement technological tools failed to make an impact within the classroom, curriculum, and teaching overall.

In addition, he tries to understand and explore why teachers infrequently use the technological devices. Cuban analyzes these failures, and applies his ideas to the current wave of technology, the computer. He focuses on the blackboard and textbook, which he regards as great impacting tools, and compares them to more advanced technologies such as film, radio, television, and the computer, which he discovered did not succeed in revolutionizing the classroom. According to Cuban, the radio is the "textbooks of the air" and the television is the "radio with its eyes wide open." Cuban reviews the attempts to adopt technology into American classrooms throughout the 20th century with these questions. Moving pictures, radio, television, and other technology-based improvements were loudly acclaimed to herald a new paradigm for education.

### STRENGTHS

Cuban presents detailed analysis and summaries of his research and early research findings on how frequent technology is used by teachers. He discovers a definite pattern in both

academic and popular writing. They both show an unrelenting cycle that he traces back to the 1920s. With these cyclical events, he succinctly describes the history of each technological device: the rate of usage of film, radio, television, and the microcomputer; the usage of each device in elementary grades compared to high school; and how superintendents and school districts bought these technological devices as a tool expected to be used frequently by teachers within instruction. For example, in 1922, the world-renowned inventor, Thomas Edison, proclaimed “the motion picture is destined to revolutionize our educational system and that in a few years it will supplant largely, if not entirely the use of textbooks” (Cuban, 1986, p. 9).

Cuban described numerous supporters of technology to implement more technological devices such as film, radio, or television as progressive teaching approaches—just like the computer is today. He described the Ford Foundation and its Fund for the Advancement of Education invested over \$20 million in 250 school systems and fifty colleges across the country by 1961, “In 1962, President Kennedy secured an appropriation from Congress that authorized the U.S. Office of Education to plow \$32 million into the development of classroom television” (Cuban 1986 p. 28). With all of these interesting supporters and mandatory movement to install technology within the classroom, it was fascinating to find out that each tool to aid teaching instruction failed.

Another strong point of the book showed the results and assumptions that Cuban concluded as the reason why there was a low rate of use. For example, each technological tool, such as radio, television, or computer, were not used as much because of the teacher’s lack of skill in using the equipment, the cost of maintenance, the inaccessibility of the tools (whenever the teacher needs to use it, it must be requested), and the irrelevance to the curriculum. Finally, these tools were not used simply because some teachers were not interested (Cuban 1986).

Computers, in particular, require a lot of maintenance to keep up with the advances of hardware and software. They are basically too much for some teachers to maintain.

Cuban discusses his findings of frequency use of technology to be more effective in elementary grades due to teacher flexible schedules and content as oppose to secondary grades where teachers had rigid schedules and curriculum that would not easily permit some technological tools within instruction (Cuban 1986).

### **WEAKNESSES**

Cuban provides and explains in great detail as to why technological tools have not been used frequently or impacted the classroom through his research, however, much of his previous research on film and radio is incomplete. He analyzes surveys created by the *National Education Association* (NEA) that are mailed to principals and school districts to determine the amount of use of technological tools, such as film. The superintendents or director of technology would respond to the questionnaires as oppose to the appropriate participant that should be answering the survey: teachers. How would non-users, such as superintendents, of the tools answer if they never came across them? In addition, many surveys were never replied to. He states that much of the data was fragmented and that assumptions were made as a result of the failed technology, that may or may not have been used.

Furthermore, Cuban's research was random. Unannounced visits to classrooms were conducted to record the activities within a classroom. The data recorded indicated that the students and teachers were already engaged in a particular activity, which calculated into eight percent of technological audiovisual utilization. The television, for example, was done in the afternoon by elementary grades. This random research did not focus on the objective of teachers'

use of technology within the classroom. Much of his data is based purely on luck, and the slim chance he saw a teacher using the television, as oppose to a study with less variables.

On his last chapter about computers, Cuban predicts that most teachers will use computers as an aid, unlike radio, film, and television, which today is a fact and elementary levels of use, will “increase but seldom exceed more than 10 percent of weekly instruction.” In addition, he continues to predict that in secondary level schools, students will only use five percent of their weekly usage on computers for instruction, “I predict no great breakthrough in teacher use of patterns at either level of schooling” (Cuban 1986 p. 99). Even though the book is severely outdated he should have seen that the computer was the technological tool that was going to impact academia and definitely aid the teachers’ instruction. Today, the computer dominates many lives, especially the teachers, like me, who are attending computer courses to continue implementation of the fast growing technology. An article published in *Popular Computing* in 1984 by Papert states, “There won’t be schools in the future ... I think the computer will blow up the school.” This completely contradicts Cuban’s predictions.

### IMPLICATIONS

Cuban is trying to demonstrate throughout history, since the 1920s, that “since the mid-nineteenth century the classroom has become home to a succession of technologies (e.g. textbook, chalkboard, radio, film, and television) that has tailored to the dimensions of classroom practice. The promise implied in theses (technological) aids caught educators’ attention: individualized instruction, relief of the tedium of repetitive activities, and presentation of content beyond what was available to a classroom teacher” (Cuban 1986, p.4). This statement illustrates times when teachers are always looking for new ways to encourage students to become more interested and motivated with the content of the curriculum.

As it is demonstrated in Cuban's book, history repeats itself. There will be a new technological tool that will be implemented into the classroom. Teachers must use the new tool to aid their instruction. As the economy grows, reformers and policymakers will always try to "revolutionize the classroom" (Cuban 1986). As Cuban reflects, "Over the last century, public schools have modified their governance, programs, curricula, organization, and instruction in varying degrees." This is the cycle the educational system constantly repeats that can be predicated.

### **APPLIED KNOWLEDGE**

I have learned a great deal from Cuban's book on the history of technology and how it has impacted me. I now know to not fall within the statistics of an infrequent user of technological tools. I agree many of the reasons stated within the book as to why the low-rate of use by teachers is still repeated. Many teachers do not get involved with technological tools or use them in instruction and I find that appalling. Teachers have to use technology within instruction. The students are already exposed to these new advanced technologies that teachers should be updated with as well. I use technology within my classroom with PowerPoint presentations lesson plans with animations and movie clips to motivate and enhance the science curriculum. However, I am at fault to state I do not use technology as effectively as I should but I am one step closer in the right direction by taking computer classes to learn how to implement technology in a more effective way.

Enrolling in Professor Murfin's class has enabled me to learn a great deal of what computers offer. I would like to incorporate a personal website for students and parents to utilize for logistical purposes. Next year, they will be able to view daily assignments, upcoming exams, classroom rules, and course requirements to keep the class focused. In addition, I would like to

keep a blog for my classes to ask me any questions they have regarding our work, especially if they are excessively absent or need extra help. Lastly, I want to explore using more web 2.0 applications such as Stellarium into classroom activities—doing so will be more enjoyable for the students, which will in turn, hopefully, encourage and pique the interest of the students.

**REFERENCES**

Cuban, L. (1986). *Teachers and Machines: The Classroom Use of Technology Since 1920*. New York: Teachers College Press.