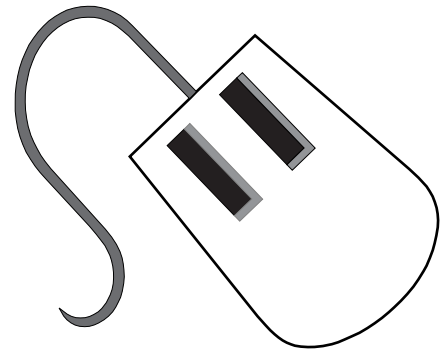


CHAPTER 4

Technology in the Schools

Where Are We Now?



Each and every day, students such as you graduate with education degrees and head out into the “real world.” What does the real world look like for an educator? Obviously, you know that you will have students, a classroom, books, desks and so on, but from an educational technology perspective you may have many questions. What technology will you have at your disposal? Will there be support if you struggle? How long will it take to get help? Will you receive extra training? Once you have the answers to all of these questions, how will you use the technology you have? The goal of this chapter is to provide an insight as to what a “typical” classroom looks like from the technology standpoint.

COMPUTERS AND CONNECTIVITY

In 1996, the CEO Forum, a partnership between business and education leaders, was formed to assess and monitor the progress of integrating technology into the classroom. Over a four-year span, they conducted numerous studies and gathered data from surveys of teachers and schools. The committee also made recommendations at the end of the study. This study was national in scope and provides an insight as to where we are as educators and what you might expect when you walk into your first classroom. Among their findings, they revealed that:

- The ratio of students to computer dropped from a 10:1 ratio in 1996 to a 5.4:1 in 2000 with the low being 5:1 in 1999 (Quality Education Data, 2001).
- Ratios for students to multimedia computers went from 24:1 in 1996 to 9.4:1 in 2000 (Quality Education Data, 2001).
- The percent of public schools that have Internet access was 35% in 1994. By the year 2000, that number had risen to 98% (Rowand, 2001).
- Percentages for public classroom connectivity rose from a low of 3% in 1994 to a high of 77% by 2000 (Rowand, 2001).
- In 1998, the ratio of students per instructional computer with Internet access went from 12:1 down to 7:1 in 2000 (Rowand, 2001).

TEACHER ATTITUDES AND TRAINING

If technology is to be used in the classroom teachers must feel they are properly prepared. The following statistics address this concern with staff comfort levels.

A study by the National Center for Education Statistics found that in 2000, 53% of teachers felt “somewhat prepared” when asked to describe their level of preparedness using technology. (2000) When asked how this training changed their personal technology use, teacher responses broke down as follows.

- 22% used the training to a moderate extent on basic technology skills
- 32% used the training to a moderate extent for curriculum integration
- 32% used the training to a moderate extent for both basic technology skills and curriculum integration. (Fatemi, 1999)

Teacher training, though, does not show strong gains in the allocation of technology dollars. A 2001 National Center for Educational Statistics survey found that 63 percent of technology investment is still allocated to hardware and connectivity while only 17% is dedicated to professional development (Rowand, 2001).

STUDENT TECHNOLOGY USAGE

The following list paints a picture of how students are currently using digital content (making information, ideas and experts available):

- 96% of students polled use computers for research
- 91% use technology to write papers
- 62% use computers for homework
- 60% use technology to visualize new concepts
- 57% practice things learning in class
- 44% gets homework help
- 43% keep up with news
- 39% study for tests
- 35% do non-school activities (i.e., download music)
- 20% take exams
- 19% communicate with classmates about schoolwork
- 14% communicate with teachers
- 7% communicate with students in other towns about schoolwork
- 5% take courses with students from other schools (Doherty, 2001)

Respondents in this 1999 survey of 4th, 8th, and 12th grade students were also asked how often they use the computer for schoolwork.

- 9% of 4th graders use the computer almost every day, compared with 55% use it never or hardly ever
- 14% of 8th graders use computers almost every day, 24% once or twice a week, 28% once or twice a month, and 35% hardly use a computer.
- Seniors in high school responded that 21% use a computer almost everyday, 28% use one once or twice a week, 30% once or twice a month, and 22% hardly ever. (Fatemi, 1999)

TEACHER TECHNOLOGY USAGE

Teacher use of technology has seen a strong increase since 1996. The CEO Forum's four-year study shows the following increases for the year 2000:

- Teachers who use computers daily for planning and/or teaching—76% up from 47% in 1996
- Teachers who use the Internet for instruction rose from 33% to 63%
- Those teachers with e-mail addresses climbed from 39% to 77% (Market Data Retrieval, 2001)

A 2000 survey of teachers by the National Center for Education Statistics found that teachers have a wide range of uses for educational technology at school (Rowand, 2001).



- Of those responding, 39% create instructional materials
- 34% complete administrative record keeping (grades, attendance, etc.)
- 23% communicate with colleagues
- 16% gather information for lesson planning
- 8% use technology for multimedia classroom presentations
- 7% accesses research and the best practices in teaching as well as communicate with parents and students
- 6% access model lesson plans

THE IMPACT OF DEMOGRAPHIC FACTORS

School demographics have a noticeable effect on the availability and use of technology based on statistics from the National Center for Education Statistics, 2001

- 30% of elementary students in 1994 had Internet access in their schools, which rose to 97% in 2000.
- Secondary students rose from 49% with Internet access to 100% in the same four-year span.

Student enrollment also made a difference in the availability of the Internet.

- Schools with less than 300 students saw a 66% increase, from 30% to 96%, in four years.
- Schools with 300–999 students went from 35% to 98%
- Student bodies of 1000 or more increased from 58% to 99% (Rowand, 2001).

There is also a significant difference between city, urban fringe, town, and rural schools when it comes to school access and classroom Internet access. All school types increased Internet access from the low 30% in 1996 to the at least the 96% range. However, the level of Internet access in the classroom shows a disadvantage for some school types. By 2000, while classroom connectivity of towns and rural areas were

87% and 85% respectively, only 78% of urban fringe classroom and 66% of city schools classrooms had Internet access.

As with city types showing a difference in levels of Internet access, levels of minority enrollment and free or reduced price lunch also showed a difference with regard to classroom access. The overall percentages rose from the upper twentieth percentile range and mid-thirties to 96% or above, but the subgroups showed considerable differences. Schools with 50% or more minority enrollment had only 64% of the classroom with Internet access, compared with 85% of the schools with less than 6% minority enrollment. Schools with less than 35% eligible for free or reduced lunch reported that 82% of their classrooms had Internet access, compared with 60% of the schools with 75% or more students eligible.

A 2003 study by Kleiner and Lewis entitled “Internet Access in U.S. Public Schools and Classrooms: 1994–2002” Found the found the following information as well:

- In 2002, 94 percent of public schools with Internet access used broadband connections to access the Internet. This is an increase from 2001 and 2000, when 85 percent and 80 percent of the schools, respectively, were using broadband connections. In 2002, the likelihood of using broadband connections increased with school size; 90 percent of small schools reported using broadband connections to access the Internet, compared with 100 percent of large schools (Kleiner and Lewis, 2003).
- The use of broadband connections increased between 2000 and 2002 from 81 percent to 95 percent in schools with the highest minority enrollment. Similarly, the percentage of schools with the highest poverty concentration (as measured by the percent of students eligible for free or reduced-price lunch) using broadband connections to access the Internet increased from 75 percent to 95 percent (Kleiner and Lewis, 2003).
- Twenty-three percent of public schools with Internet access used wireless Internet connections in 2002. Large schools were more likely than medium-sized and small schools to use wireless Internet connections (37 percent compared with 23 percent and 17 percent, respectively) (Kleiner and Lewis, 2003).
- Of the schools using wireless Internet connections, 88 percent indicated that they used broadband wireless Internet connections. Across all school characteristics, this percentage ranged from 76 percent to 100 percent (Kleiner and Lewis, 2003).
- In 2002, 15 percent of all public school instructional rooms had wireless Internet connections. Differences were observed only by instructional level. A higher percentage of instructional rooms had wireless Internet connections in secondary schools (19 percent) than in elementary schools (13 percent) (Kleiner and Lewis, 2003).
- Public schools have made consistent progress in expanding Internet access in instructional rooms, 2 from 3 percent in 1994 to 77 percent in 2000 and 92 percent in 2002 (Kleiner and Lewis, 2003)



SUMMARY

These statistics provide a glimpse into what a classroom teacher might have at their disposal based on a large study. Some conclusions that might be drawn from all of this:

- Schools have made a considerable investment in educational technology in the last few years.
- The level of Internet access in the schools has increased greatly.
- Teacher training is available, but is still not a large percentage of overall technology expenditures.
- Students use technology frequently and for varied reasons.
- Teachers also use technology frequently with the bulk of this usage falling into administrative work, lesson preparation, and communications.
- Even though almost all schools reported having Internet access in the school itself, this does not necessarily mean the classroom has the amenity as well.
- Depending on the location of the school, the level of classroom access varies from almost everyone to only two-thirds.
- Minority enrollment and free and reduced lunch eligibility has an effect on the classroom access as well.



DISCUSSION QUESTIONS

1. What technology can you expect to be available if you are working in a suburban or rural school?
2. What technology can you expect to be available if you are working in a city school or those on the urban fringe?
3. What areas do you feel still need attention in terms of educational technology in the classroom?
4. Discuss how technology was used in the schools you attended. Did you feel like you were exposed to enough technology to feel comfortable at the university level? Discuss a potential correlation between students who had ample technology and funding/location of that district as opposed to less affluent areas.
5. Looking at yourself in 5 years, where will you be with regard to technology integration and your instructional practice?



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