

CHAPTER II WIRING AMERICA'S SCHOOLS

The highway is going to give us all access to seemingly unlimited information, anytime and anyplace we care to use it. It's an exhilarating prospect, because putting this technology to use to improve education will lead to downstream benefits in every area of society.

—Bill Gates, 1995

As we go up to 2000, 2001, we will shift from an investment mode to a return mode, a period when we start getting profits in from this major investment.

—Bill Gates, 1998

The rise of the internet, first as research tool and then as mass medium, has been faster than any other new communication medium to date. Schools played a large role in this meteoric rise. First sold to North America as the “information superhighway,” the internet had mass appeal as an educational tool, which was a major factor in accelerating the medium’s growth. Because the internet was so closely allied to education in its early years, its resemblance to radio’s rise is striking. Like radio, the internet blossomed in educational circles before it became harnessed for commercial purposes. Like radio, educators could easily produce, disseminate, and control content, making it especially appealing to teachers. And like radio, the intensive efforts of a powerful industry, and a lack of government regulation and investment, has diminished its value as a medium for education. The main difference between radio and the internet is that educators really did control radio for a short period of time before the radio industry got the upper hand. Seventy years later, corporate interests were far more savvy, using educational rhetoric from the outset to more quickly gain control of the new internet medium. This chapter is the story of how this was done.

The internet began in the late 1960s as a military computer network that permitted different people in separate locations to communicate with each other over existing telephone lines. Supported by the U.S Defense Department’s Advanced Research Project Administration (ARPA), researchers at universities and corporations designed a distributed network system that became the ARPANet (or the Net) so that no communication would be routed through a central switcher. The system was ingenious because it avoided communication clogs and could withstand any kind of system errors, natural disasters, or military attacks by quickly finding other paths to route the lines of communication.

During the early years of internet development, only those institutions and universities with defense contracts could use the Net. By the 1970s, however, researchers from other non-affiliated universities began pushing for the ability to exchange data over the network as well. The government thus established two independent networks in the 1970s and 1980s, the Computers and Science Network (CSNET) and the “Because It’s Time Network” (BITNET), to be used for academic research. While the Defense Department’s desire to continue ARPANet funding decreased during the mid-1980s, the government developed another university research network, NSFNet, based in the National Science Foundation. NSFNet connected to all interested

universities at no cost, and to the corporate sector for a fee. The publicly-funded NSF also funded five supercomputer sites and high-speed network lines between them. According to Aufderheide (1999), this connection matrix “allowed NSFNET to become the ‘backbone’ of an entire collection of networks that is known collectively as the Internet” (p. 231).

Between 1988 and 1990, as the government withdrew ARPANet funding entirely, the internet mainly functioned as a university-based network. Academic researchers, computer programmers, and amateur hackers all tinkered away at this new tool of communication, developing news groups, gopher lists, one-to-one email communication, and new ways to pass along large chunks of research data and other information. Like the radio hackers of the 1910s who no longer had to rely on AT&T or the government to transmit communication over vast distances, these inventors—often young researchers at universities—reveled in the internet’s democratic, if not anarchic possibilities. As Burstein and Kline wrote in 1995, “simply put, the Internet is ungovernable...you can pretty much do what you want—and for the most part, there’s no sheriff or posse to stop you” (pp. 113-114).

During this experimental phase, with more and more users logging on worldwide, sharing information, and generating excitement about the medium, the internet had become, in Campbell, et. al’s (2003) words, “an enormous free-floating library without a Dewey decimal system” (p. 46). Three other developments made the internet more easily accessible during the early 1990s: First, in 1991, Tim Berners-Lee, a researcher at the Geneva-based European research institute, CERN, made an enormously important internet contribution by developing hypertext. This development led to the world wide web, a data-linking system that enabled users to easily skip to related information sources via hypertext links. Second, the National Super Computing Administration (NSCA) at the University of Illinois released the Mosaic browser software, developed by in 1993. Mosaic handled the web files and links, and translated them into a user-friendly graphic layout. And third, search engine technology helped users find specific sites with key words. Consequently more and more people began developing home pages and sharing in this global information exchange. Educators, especially at the university level, continued to play a large part in developing internet capabilities, and in providing and disseminating internet content.

During this early era of web connectivity, the internet again can be likened to radio in that users were not yet able to grasp how the web would ultimately operate beyond a research and communication tool spreading knowledge, democracy, and free speech across cyberspace. In fact, when Al Gore was a senator on the Science Committee in the early 1990s, he framed the internet in terms of its potential value in education, and proposed the creation of a National Research and Education Network. To his mind, the internet needed to be a government-supported communications medium that highlighted education in function and purpose. In coining the term “information superhighway” in 1992, Gore meant to compare the internet to the publicly-supported interstate road network that his father, when a senator, had backed in the 1950s. This governmentally-funded educational network would never be established, however. The building excitement over the internet had also reached the corporate sector, which was suddenly understanding the medium as a valuable extension of existing, corporate-owned telecommunications services. Accordingly, these commercial interests were suddenly determined to control the new medium. They had the power, and certainly a legacy of government-supported telephone, radio and television monopolies, to enlist government support on their behalf. Aufderheide (1999) has documented this important development:

As enthusiasm for the concept grew...major telecommunications interests became alarmed at the idea of federal investment in and control over aspects of telecommunications service. By the time Clinton took office, it was firmly established that the information superhighway would be a private-sector initiative with government encouragement. (p. 43)

As with radio, then, the internet's potential as a commercial medium developed alongside its potential as an educational tool. Education would have a particularly important function, however, in popularizing the internet towards commercial ends.

A Hairpin Turn on the Information Superhighway: 1993-1995

By 1993, technology developments enabled internet users to transmit pictures, sounds, and video files, bringing on a new era of multimedia and digital convergence. It was at about this time that the internet began appearing in public schools. K-12 educators were increasingly enthused about this “living” textbook and communication tool, and the ways it could be applied in the classroom. Students could access streams of free educational material and countless discussions on controversial topics with wide-ranging viewpoints. They could learn how to mine vast data banks, learn information-discrimination techniques, and write reports using up-to-date facts. Unlike all the classroom technologies before it, the internet also afforded interactivity: Experts could write or talk back to answer student queries—even in real time—and schools could connect with other teachers and students around the world. Some technologically adept teachers began sharing internet resources with other teachers, creating their own internet environments, learning, along with their students, how to develop home pages and disseminate student writing, research projects, artwork, and other useful class materials over the web. Likewise, librarians began to catalogue web sites they deemed to have exceptional informational value.

Here was an educational technology, like radio, which could enable educators to link to existing content outside the classroom *and* to produce educational content relatively cheaply after the initial technological investments were made. With its ability to transmit information about school and classroom activities and accommodate email questions from parents, the internet could also be an exciting means for peer interaction and homework help outside of class, as well as a means for greater parental involvement, an issue of increasing importance among educators.

Here was a technology that could also allow teachers an unprecedented amount of choice, flexibility, and control over what content to bring into the classroom and *when*; they could access any part of the internet at any time. Indeed, besides a research tool and “real life” textbook, the internet was a writing lab, a conversation and debate forum, a student/teacher portfolio, and a wide-reaching educational community, 24 hours a day. As such, the “library” of internet content itself could be conveniently accessed from a student's home (as long as there was a connection). Early educational “how-to” books appeared in 1993, including *The Internet in K-12 Education*, and *Libraries and the Internet*, which outlined the internet's possibilities for schools and universities. Meanwhile, the term “information superhighway” was becoming a common way to think about the internet in the popular media. News reports suggested that the internet would bring amazing home, work and school conveniences, which would lead to enormous learning

activities. Other reports dwelled on the comfortable online shopping opportunities for people who preferred to peruse the web late at night in their pajamas; the internet's 500 TV channel capacity potential; and a new range of telecommunications services that would lead to cheaper phone bills.

In 1993, the Clinton Administration introduced the public service, www.whitehouse.gov, which allowed citizens to access government databases and other pages containing history, policy, and communications. This web page was meant to illustrate the internet's democratic spirit: With direct access to government data bases and White House speeches, the public could be more involved in government decision-making, enabling greater democracy. As the news media exalted [whitehouse.gov](http://www.whitehouse.gov), the White House much more quietly released a series of business-related reports having to do with internet technology and economic growth. The first report, called "Technology for Economic Growth in America," discussed the growing importance of information technology in terms of U.S. economic expansion. "American technology must move in a new direction to build economic strength and spur economic growth," it read (Technology, 1993). The second report, released a month later, "Building a Stronger, Hi-Tech, Deregulated Economy," called for the development of a nationwide "superhighway" (Building, 1993) and discussed the internet's potential as a means for greater business efficiency. Again identifying the internet as the "engine of economic growth," the report advised that the government should make the acceleration of the "National Information Infrastructure" of high-speed telecommunications networks, advanced computer systems, and software a top priority (Reengineering, 1993).

Ultimately, corporate interests saw this government interest and involvement in the e-commerce infrastructure as threatening to their plans to control internet commerce. As one telecommunications executive wrote in a public letter to USA Today's business section at the end 1993:

I'm glad to hear Al Gore and the administration are active supporters of the information superhighway. I am concerned, however, about the level of government involvement they have in mind. Many industry insiders agree government should ease restrictions. But it should limit its involvement. Too much government involvement, and the wish of many to make access to the superhighway free to all, will be as counterproductive as the outdated restrictions they want to lift. When I speak to groups about the information highway, the audience is always supportive of the free market and competitive forces being allowed to operate in order to allow the superhighway to reach its full potential. Let's face it; if it weren't for the old-fashioned profit motive, cable TV would be but a mere shadow of its present self. Let the free market work. (December 28, p. 8A).

The Clinton Administration, having a desire to move forward on the information superhighway but experiencing intense pressure from lobbyists, a Republican-controlled House of Representatives, and other allies within the corporate sector, deferred to the telecommunications and cable industry's hunger for control over the internet. Similar to the Governments' "philosophy of commercial radio" established in the 1930s, the Clinton Administration endorsed a philosophy of commercial internet. In a move that would ripple through the media industry in years to come, the Clinton administration in 1993 proposed

deregulation legislation that evolved into the landmark Telecommunication Act of 1996. During this period of the act's development, a few legislators attempted to protect the internet (or elements of the internet) as a publicly-owned space. In 1993, Ed Markey (D-MA) and Jack Fields (R-TX) sponsored H.R. 3636, which, apart from proposing more severe limitations on telephone company ownership, also included the notion of a universal service, price breaks to educational and medical facilities, and government inquiries to promote civic uses of the internet (Aufderheide, 1999, p. 50). When this bill was absorbed into another internet-related bill, H.R. 3626 (rigidly represented telecommunication company interests), H.R. 3636 slid away while H.R. 3626 passed easily. Then a year later, U.S. Senators Ernest Hollings (D-SC) and John Danforth (R-MO) sponsored S. 1822, which also supported universal service and the support of internet access for non-profit institutions. Significantly, the bill contained an amendment proposed by Sen. Daniel Inouye (D-HI) that asked for 20 percent of the internet's available space to be reserved for public interest. Recalling the failed Wagner-Hatfield amendment to the Communications Act of 1934, the bill's 20 percent set-aside was then reduced to 5 percent, with provisions to ensure that the internet would accommodate a diverse communication forum:

The builders of these new networks will use real public property for laying copper wires, coaxial cable, and fiber optic cable, and use previously unused electromagnetic frequencies. The public has a right to demand compensations to the form of public access to such networks by entities that provide substantial benefits to the public....Second, the U.S. Government has a compelling interest in ensuring that all citizens of the United States have access to a broad and diverse array of communications services, including noncommercial educational, informational, cultural, civic, and charitable services. Such broad access furthers the Government's compelling interests in education, in facilitating widespread public discourse among all citizens, and in improving democratic self-governance. Because citizens now receive a large majority of their information through use of these telecommunications networks, the owners of these networks will become gatekeepers of the information that the public receives....Third, the owners of these telecommunications networks are likely to design their networks so as to maximize the potential profit of such networks....These owners are unlikely to adopt rate structures that will allow access for entities with few financial resources. In particular, entities providing noncommercial educational, informational, cultural, civic, and charitable services are likely to be excluded....By reserving capacity for public users, the legislation provides a public forum for speech without involving the Government in regulating speech content. (USCSCCST, 1994, pp. 13-14; quoted in Aufderheide, p. 52).

According to Aufderheide (1999), the bill made a remarkable statement about the need to create a public sphere in cyberspace. "It was especially noteworthy," she writes, "because it employed the notion of 'the public' in a way that did not simply equate the public with competition and consumer price and new-product benefits" (p. 52). Unlike the 1934 debates about the future of radio as a public medium (see Balas, 1999), the concept of the internet as a universally accessible public sphere did not become a public issue; the bill quietly died before it ever reached the floor of the Senate. Other bills cast the internet according to the interests of the telephone and cable industry and the Republican leadership. Even as non-profits, including the

Center for Media Education, the Media Access Project, the Benton Foundation, and the National Education Association, attempted to revive the 5 percent set-aside of S. 1822, these efforts were easily stamped out in the highly politicized and deregulation-friendly 104th Congress (Aufderheide, 1999). Commerce, not education, would have its way.

In 1994, more internet developments pointed to the web as a future venue for commercial enterprise. For starters, Netscape, a commercial version of the Mosaic browser software, became available and proved to be immediately successful—much more so than its precursor. Through Netscape, the first searchable shopping malls emerged on the web, allowing users to experience the web as an electronic catalogue or store. Furthermore, new marketing research indicated that the internet had tremendous and novel advertising and marketing potential, as well as being an effective means for the direct distribution of certain goods. These initial studies found that the internet, when used properly, could target appealing demographics (e.g., people in the 16-34 range) and reach individuals more effectively and cheaply than traditional advertising strategies.

Not surprisingly, sponsored web-sites were anathema to the internet's original users (or "netizens," as they were called at the time), who gasped at the banner ads and email-based marketing strategies appearing on the web and invading their public space. As *Business Week* wrote in 1994:

Advertising on the Internet. Just a few months ago, the very idea caused Internet veterans to gnash their teeth. The Internet community had thrived—both socially and technically—precisely because of its implicit ethic: Give as much as you take. Where else could a university researcher, say, offer thousands of colleagues copies of her new database program and then enjoy a flood of comments and improvements in return—at essentially no charge to anyone? Madison Avenue, with its one-way messages and penchant for mass market overkill, would seem the very antithesis of the Internet culture. (November 14, p. 84)

Accordingly, marketing researchers advised that commercial enterprises come together to develop new standards for facilitating commerce, and come up with strategies that would be less offensive. One piece of advice included designing "marketing innovations that take advantage of the medium's inherent interactivity and 'play value,'" and developing "stimulating and exciting content-rich sponsored environments" (Hoffman, 1995, p. 2). Not surprisingly, another 1994 development was CommerceNet, an organization committed to transforming the internet into a global electronic marketplace. "Stop thinking about it as the Information Highway and start thinking about it as the marketing superhighway," Don Logan, President and CEO of Time, Inc, said to the Association of National Advertisers during this period. "Doesn't it sound better already?" (Burstein & Kline, 1995, p. 101).

The year 1995 would be pivotal in terms of the way the internet began to be framed in both private and public arenas. First of all, the online dial up systems, America Online, CompuServe, and Prodigy, took off in the home market; more home users were logging on, joining chat groups, creating their own home pages, and exploring the already-existing internet content. Second, Microsoft released its Windows 95 operating system, which was bundled with the company's internet browser, Microsoft Explorer. The release was a major event for the computer industry, driving holiday computer and software sales. Third, an investment frenzy over internet stock, as evidenced by Netscape's initial public offering (IPO) of its stock, brought internet entrepreneurialism, the growth of the web, and internet market expectations to a new level. And fourth, and perhaps most importantly, control of the high-speed NSFNET lines, which

had been maintained by the government since 1986 and were considered the backbone of the internet, was silently transferred to cable and local phone companies, effectively ending direct Government involvement in the internet (see Aufderheide, 1999). There was little debate on this business-friendly transfer because the news media was steered in other directions, as I will illustrate below.

The developments between 1993 and 1995 set the internet on a course as a medium for increased electronic commerce (Ready, 1994). Yet, beginning in 1995, the rhetoric of government officials as well as that of corporate advertising and public relations efforts emphasized an entirely different use for the internet—the internet as an educational tool. Indeed, for three years, images of internet education flooded the news media, and education became the most popular way to understand the internet as a new, exciting, and transformative technology, belying Washington’s quiet efforts to prioritize the internet and make it the centerpiece nation’s commercial activity.

The Educational Challenge: 1995-1998

On September 21, 1995, President Clinton gave a pivotal speech to elementary school students, government officials, and a number of executives from information companies, who were all gathered in the rotunda of San Francisco’s Exploratorium, the city’s hands-on “museum of science, art and human perception.” The setting was symbolic: San Francisco is both the home of “Internet row,” the growing center of much online activity, and California, besides being home to Silicon Valley and the most technologically innovative state in the nation.

It was here that Clinton issued his first “challenge” to America “to see to it that every classroom in our country is connected to the Information Superhighway.” Speaking about the “vast world of knowledge” available through the internet, and about the need to get American children hooked, “not on tobacco but on education,” President Clinton validated education, not commerce, as the most important aspect of the internet. Indeed, it seemed as if the Clinton Administration was reverting to an earlier 1992 initiative, which would have provided a governmentally-controlled, educational network for schools, colleges and universities. This was not the case, however. Clinton’s speech was calculated to enlist private-sector companies—like AT&T, Sprint, MCI, Pacific Bell, America Online, Sun Microsystems, Apple, Xerox Parc, Oracle, 3com, Silicon Graphics, Applied Materials, TCI, and Cisco Systems (all represented in the Exploratorium audience)—in the school-wiring effort. By asking for their partnership, Clinton was also signaling that all internet-related efforts on behalf of education would be, at least in part, within the context of corporate control.

In announcing the California initiative, which would connect all the state’s schools to the internet by the end of the year, Clinton introduced the model for a larger, national initiative to wire all of America’s schools by 2000:

If we can connect 20 percent of the schools in the largest state in the nation in less than a year, we can surely connect the rest of the country by the end of the decade. In the coming days, I will announce the winners of our Technology Learning Challenge. And over the next several weeks, I will put forward a public-private partnership plan that lays out how we can move our entire nation toward the goal of technological literacy for every young person in America.

Clinton noted education technology research studies—which incidentally had been conducted by the computer industry—to justify the absolute need for internet technologies in school. “The facts speak for themselves,” he said. “Children with access to computers learn faster and better.”

In this education vision, volunteers, not the government, would help the private sector in activating classroom wiring efforts. As Press Secretary Mike McCurry explained after Clinton’s address, the Administration had been planning this initiative in cooperation with the telecommunications industry. “What we are so excited about here today is that the private sector, which has long had an interest in seeing how they could help California schools, have really come together now in a very specific way and set some goals that they believe are achievable” (McCurry, 1995). Clinton’s speech, then, was described as a catalyst to pull telecommunications companies together and, in McCurry’s words, a way to “really light a fire to get actual work done” (McCurry, 1995). It was also meant to recognize the work that had already been completed in the California effort, which was framed in terms of philanthropy and public gains. Clinton pointed to a coalition of Silicon Valley companies that had already contributed \$15 million towards wiring California’s schools; America Online for supplying a year’s worth of internet service; AT&T for providing internet access and voice mail; Sprint for providing hookups; MCI for providing software; and Sun Microsystems and Pacific Bell for leading the way in linking schools.

Along with the private sector, Clinton used his speech to challenge community members—parents, students, local officials and industry professionals—to volunteer their time towards the noble goal of student learning. He highlighted a nonprofit volunteer organization called NetDay, which had been founded earlier that year. Begun by John Gage (from Sun Microsystems) and Michael Kaufman (from the public TV station and PBS affiliate, KQED), NetDay facilitated “high-tech barn raisings” (a phrase used by both Clinton and Gore) twice a year, generating community excitement about classroom internet technology, selling comprehensive wiring kits to schools at volume discounts, and tracking the percentage of wired schools. “In the morning,” Clinton said, “volunteers will arrive at each school. By noon they will have wired the library, the labs, the classrooms. By nightfall, those schools will have the technology they deserve.” Gore, especially, would become a popular figure on NetDays, appearing on local news programs dressed in work clothes and posing inside school corridors on top of stepladders. Such high-profile political involvement in conjunction with rather large-scale community efforts inevitably generated positive public relations regarding student internet use.

With this speech, then, internet-enhanced education would become a main theme in Clinton Administration rhetoric for the next three years. Shortly after the September, 1995 address, a number of education-oriented announcements from the White House followed:

- December 1995. An advisory council to President Clinton released a report based on a 2-year study on school internet use that cited “dramatic” results for “at-risk” students, and argued for the importance of “bringing the world’s best materials into the classrooms of the nation’s worst-off students” (Connecting, 1995). The council’s recommendation: every community needs to connect its elementary and secondary schools to the internet. This initiative was passed on to U.S. citizens, who still pay a small tax on their phone bill each month to fund the technology discounts.
- January 1996. Al Gore unveiled the “Welcome to the White House For Kids” site at a technologically advanced elementary school in San Carlos, California. Users logging on to

the site were greeted by Socks, the Clinton family cat, who gave virtual tours of the White House.

- February 1996. Having initially acted to motivate private sector and community involvement, the Clinton-Gore Administration began to commit more government investment towards educational internet access. As part of the Telecommunications Act of 1996, the \$2.25 billion E-rate initiative aimed to give 20 to 90 percent discounts on the telecommunication services needed to wire schools and libraries.
- June 1996. The Department of Education's technology literacy plan called for a two billion dollar investment in public schools, seed monies to be matched by state, local, industry and business dollars to meet for goals:
 1. All teachers in the nation will have the training and support they need to help students learn using computers and the information superhighway.
 2. All teachers and students will have modern multimedia computers in their classrooms.
 3. Every classroom will be connected to the information superhighway.
 4. Effective software and online learning resources will be an integral part of every school's curriculum (Riley, 1996).

By 1997, that two billion school internet investment appropriation would more than double to \$425 million.

- February 1997. In his State of the Union address, President Clinton proclaimed that his number one priority for the next four years would be education. Clinton listed a number of traditional issues on which his administration would focus its attention, including standards, literacy, Head Start, school vouchers, building "character," and school repair. Clinton's last point, his educational finale, was his personal push to make the internet accessible to all American school children (Clinton, 1997a).

These governmental efforts inevitably increased the profile of internet-based education, and drew attention to the many educational internet activities that had already been underway.

While the telecommunications and computer industry were no doubt happy about extending their internet access services to many more users, they were not thrilled with the idea of footing the school and library hook up bills. Clinton's original plan would have made the telecommunications industry solely responsible for wiring the schools. After they opposed this arrangement, the FCC arranged for a compromise in 1996: the Telecommunications industry would now commit to offering schools and libraries 40-60 percent discounts off of regular rates; schools in low-income areas would receive up to 90 percent off. Local and state funding would cover the rest. However, to finance the discounts, computer, telecommunication, and internet-related companies would create an annual \$2.25 billion funding pool, which would be generated by taxing citizens' phone bills, thereby fully subsidizing the cost of telecommunication companies' internet services and equipment.

Internet in the Schools: The Corporate Connection

Even so, other members of the business community quickly saw an opportunity by embracing this new theme of internet-enhanced education, and suddenly began to package internet education as the internet priority of the future. One of these was Microsoft Chairman Bill Gates. Like Thomas Edison's commercial film interests, or RCA executive David Sarnoff's

educational rhetoric with regard to radio, Gates was one of a number of corporate elites who exalted the internet's educational promise while having a considerable amount to gain by the internet's widespread acceptance. On November, 1995, two months after Clinton's first educational proclamation, and three months after the release of Windows 95, Gates began giving public lectures on the importance of the internet as an indispensable learning tool and the role the internet would play in the future of American schooling. His first speech, addressing more than 700 national education leaders and students at Georgetown University, was an organized public spectacle. "The most important use for information technology is to improve education," Gates told a large audience. "We have a tremendous opportunity to enhance the ways we think and learn by taking advantage of technology" (Microsoft, 1995). Reinforcing his ideas with video clips of students using the internet in classrooms, Gates introduced his concept of a "Connected Learning Community."

In this vision, students are connected between schools, between school and home, and between school and the outside world. Internet-connected classrooms offer a stimulating, enriched learning environment whereby students access the world's information, collaborate and problem-solve with peers, teachers, and subject matter experts, and are all accommodated in terms of their individual learning styles. Teachers are coaches and facilitators in the internet-driven classroom, and are able to access student records, immediately assess students' learning curve, and provide appropriate feedback. Parents are also able to connect to teachers and school activities, so that they feel involved in their child's education. "The concept of the Connected Learning Community is an exciting vision with tremendous potential," Gates said, "but we all need to work together to do our part to help."

Microsoft, Gates announced, would gladly do its share in this massive volunteer effort to get internet-based learning in schools as quickly as possible. First, he said, Microsoft software developers were working on technologies that would help facilitate home-school connectivity, and would be giving this software—the Microsoft Parent-Teacher Connection Server—to schools for free. Second, the company had begun to invest in online educational resources. As a new partner of the nonprofit internet site, Global Schoolhouse, Microsoft would help to build "compelling" content, provide innovative lesson plans, class projects, teaching tools, and resource areas, and give information on in-service training, conferences, and teaching standards. In the coming months Gates would also announce a number of other web-based services accessible through the company web site:

1. Microsoft.com/education: a resource site for instructors, technology professionals, and educational administrators, with features such as the teacher network, which facilitates online discussions between educators.
2. Microsoft.com/safekids: a site offering guidelines to young users on how to search the web "safely." ("As more children connect to the Internet at home and at school," the site read, "they must learn to be street smart—even on electronic highways.")
3. Asia.microsoft.com/education/teachertraining: one of many sites for teachers from other countries to get up to speed on web-based learning.
4. Microsoft.com/encarta: the company's for-purchase, hyperlinked encyclopedia that contains audio, video, and picture resources.

In 1996, according to Schlender (1996), Microsoft was spending \$400 million a year to become an internet content provider (p. 46). Microsoft was not alone, however. Joining Microsoft were a number of other computer and telecommunications corporations who also began investing in internet material for schools, internet access initiatives, and school web site

competitions. AT&T launched the AT&T Learning Network, committing a much-touted \$150 million “to help connect schools, libraries, and communities to the Information Superhighway” (Welcome, 1997). Apple’s Global Education Network, Sun Microsystem’s SchoolCruiser, and Disney’s Edu-station, were other examples of Corporate America’s investment in internet education.

Besides Microsoft’s many internet educational sites, Gates also announced that he would donate the proceeds from his book, *The Road Ahead* (1995), towards the technology programs in 22 school districts as identified by the National Foundation for the Improvement of Education (a subsidiary of the National Educational Association). In a sense, Gates’ heavily promoted speaking events also acted as a book tour. *The Road Ahead* documents Gates’ personal vision of the internet as a communication, spatial navigation, business, shopping, and learning tool. His chapter on education, called “Education: The Best Investment,” appears towards the end of the book, between chapters on “Friction-Free Capitalism” and “Plugged in at Home.” Gates’ education chapter outlined similar themes found in his speeches: students will be exposed to a seemingly limitless world of information, will learn at their own pace, and investigate questions with the help of a larger electronic community. *The Road Ahead* explains how, through technology that allows the computer to “know” the user, education will become customized according to students’ individual needs:

Many educational software programs will have distinct personalities, and the student and the computer will get to know each other. A student will ask, perhaps orally, “What caused the American Civil War?” His or her computer will reply, describing the conflicting contentions: that it was primarily a battle over economics or human rights. The length and approach of the answer will vary depending on the student and the circumstances. A student will be able to interrupt at any time to ask the computer for more or less detail or to request a different approach altogether. The computer will know what information the student has read or watched and will point out connections or correlations and offer appropriate links. If the computer knows the student likes historical fiction, war stories, folk music, or sports, it may try to use that knowledge to present the information. But this will be only an attention-getting device. The machine, like a good human teacher, won’t give in to a child who has lopsided interests. Instead it will use the child’s predilections to teach a broader curriculum. (p. 195)

For Gates, learning takes place as much in the classroom as it does online, with students exploring (or being explored by) customized netspaces. Echoing the pro-technology rhetoric of decades earlier, Gates painted a vision of computers replacing human beings in the classroom. According to Gates, it’s the computers themselves (and the research and marketing teams behind these online learning experiences) that will know students’ learning interests and proclivities, not teachers. His pro-technology, pro-education arguments had wide appeal. *The Road Ahead* became a national best seller during the 1995 holiday season (it was released in November in anticipation of holiday sales) and was re-released as a paperback in 1997.

Celebrating Internet Education on Television Ads

Beginning in 1995, corporate America's sudden celebration of internet education was also visualized on television. The high-profile advertisements, broadcast during prime time, painted glorious pictures of internet learning, and illustrated the important role the internet would play in young people's school and home lives. Not surprisingly, Microsoft began the ad-blitz with a \$100 million advertising campaign, shown between 1995 and 1997, that featured the potentially miraculous educational content the internet would bring to schools (Burstein & Kline, 1995). With each asking "Where do you want to go today?" the ads showed viewers an idealized internet surfing experience filled with wholesome and affirming educational and democratic conventions. One commercial, which advertised Microsoft's internet-related software, took a "user's" point of view by never leaving the computer screen. Set to "What a Wonderful World" sung by a soft, soothing female voice, the ad began with a text screen that read "Microsoft software helps you learn." The mouse arrow then clicked from image after image of visually appealing and value-loaded, "educational" web content: German protests at the Berlin Wall; the Berlin Wall being dismantled (at this point the audio of Martin Luther King's "I have a dream" speech overtakes the music: "I have a dream my poor little children shall not be judged by the color of their skin but by the content of their character"); various planets accompanied by audio from man's first moon walk; diagrams of a heart, a photo of Mao; video of Martin Luther King giving a speech; a Martin Luther King photo with accompanying text; Anne Frank; and Picasso's painting, "The White Dove," which slowly dissolves to a film image of a white dove flapping upward, presumably indicating world peace. At one point the arrow moves to a computer menu category list and considers the selection: mathematics, physics, chemistry, earth science, paleontology, and astronomy. The arrow chooses—not surprisingly—astronomy, predictably linking technology to space exploration/enlightenment, a common theme in these commercials.

Evoking history, medicine, astronomy, and peace, the ads' depiction of internet use showed a constantly moving stream of digital images. They multiplied, changed size, or appeared as video, suggesting an internet experience of constant interactivity. As the ad implied, a student visiting all these web sites could learn about serious and evocative world events, and more importantly, the nature of American democracy—in color, up close and in depth. Indeed, this was internet surfing in idealized form: The ad smartly avoided depictions of load up times, banner advertisements, and emerging game and shopping opportunities. Beginning with this 1995 Microsoft campaign, televised images of the internet underwent a clear shift, from evoking a mysterious place that only unlikely people knew about (e.g., little girl sages from MCI, or an IBM ad featuring internet-enlightened nuns) and a savvy means for business efficiency, to an enchanting learning paradise and celebration of internet educational content.

More education-related advertising persisted throughout 1996. As television ads laid claim to creating the best educational environment ever with the internet, they also framed the Net as the solution to a multitude of parental concerns. The focus of home use was not only education, but also the surreptitious monitoring and surveillance of adolescent behavior—or the elimination of the need for such direct parental supervision. At home with the internet, children were placed in front of their "home learning centers," oohing and ahing as their curiosity transported them to higher levels of cognition. One 1996 advertisement for WebTV Network Inc. (acquired by Microsoft in 1997) showed three young boys positioned attentively in front of a huge living room monitor emitting a blue halo of light. Thus, WebTV transformed after-school sloth in front of the boob tube into an intense parlay with technology, where the medium

conveniently imparted knowledge and parents could leave their children in the protective custody of a wholesome, surrogate school.

The message these ads gave to parents (and teachers) was that they need not be present to provide inspiration to children working on homework. As illustrated by a 1996 Intel commercial, all school assignments were depicted as having positive self-directed experiences when they were done with the aid of an Intel computer chip. The commercial portrayed an elementary-aged girl researching a book report on jazz music via the internet. She was shown to “interact” so completely with the audio and video files supported by the computer chip that she was transported into the glowing circuitry of the chip, while expertly playing a jazz riff on a saxophone. To adequately portray children as both enchanted by and adeptly handling computers, many of these ads often highlighted the internet’s “interactive” nature by focusing on students’ hands as they clicked on the mouse or typed astute questions. Shots of the screen (constantly being modified by the mouse arrow or typed words) as extensions of the students’ curiosity would follow, as well as frequent close ups of student faces as they “oohed,” “ahhed,” and absorbed the magnitude of their choices.

If the internet could work as an educational babysitter for innocent youth, it could also work as an electronic monitor and chaperone for curious teenagers with rising hormone levels. With two slick advertisements, AT&T WorldNet Service suggested ways to forever alter teenage dating and flirting, while simultaneously gaining valuable multimedia skills. The first commercial opened with a girl exiting her car and saying goodnight to her date as her wary father steals a glance from a second-floor window. Inside, the girl says goodnight to her father and goes to her room. From the isolation of her bedroom, however, the date resumes past reasonable hours, compliments of AT&T WorldNet Service. To the tune of Patsy Cline’s 1957 hit “Walkin’ After Midnight,” the creative and interactive capacities of the two high school sweethearts are unleashed as they used advanced multimedia software, computers, cameras, and scanners to cut and paste digital love messages and send them back and forth from their home computers.

While portraying multimedia skills as valuable, these ads also portrayed the social development of teens via technology in very positive ways, and showed a seamless line of technology between school and home. In another AT&T ad, which debuted during the January 1998 Super Bowl (home of U.S. television’s most expensive airtime), gossip about a teenage girl with a crush is transmitted to seemingly everyone with the help of AT&T. Angela, the girl, entrusts her school friends with knowledge of her fondness for Bobby Templeton. Soon, the whole school, and then the whole world is abuzz with the news. The gossip doesn’t travel through secret paper notes or whispered conversations, but through computer labs, a boy at home with a computer, laser-printed love signs, cell phones, pagers, and satellites. When Angela got home, her mother says “Hey Ange, that Bobby Templeton’s pretty cute.” The girl replies “You know too?!” and then finds the real Bobby in the next room. The ad ends with a voice over: “Spread the word on the world’s most powerful network.” Besides making kids smarter, these ads suggested, internet technology would make teens more socially integrated and popular (a classic middle-class concern), but also remain under the watchful eye of their parents (another classic parental concern)

MCI joined Microsoft, Intel, and AT&T in 1997 as promoters of internet education with their “Is this a great time, or what?” campaign. One ad in this campaign featured the notion of real-world experts and intense internet interactivity. Starting with warm, lush, classical music and opening on a long shot of an astronaut floating happily in a space capsule, the first ad

dramatized a classroom's "exciting" communication with an online expert. The expert in this commercial was a Russian astronaut—indicating a new era of Russian-American space collaboration, and gently reminding target-audience baby boomers of the Sputnik challenge and of NASA's technological achievements:

Russian astronaut: Hello America!

(A tracking shot sweeps by a row of computer-engrossed European-American fourth graders in an airy, sunny classroom. The students are looking at their monitors while interacting with each other. One kid points to the screen.)

Ask him what's it like floating in space.

What?

(A low chatter with words like "cool" runs throughout the ad. A child's hands—in close up—type quickly. The astronaut slowly reaches out and grabs a floating camera. We hear more questions from the entranced students)

Do you ever get a chance to sleep?

(The shot cuts to a close up of a cursor arrow clicking "send" on the computer screen. Text below the cursor reads "To: Mission Control (Internet).")

Lauren Bacall-like VO: It used to be that we just launched rockets into space.

(A European-American girl looking at the screen appears transfixed. The astronaut punches a message into his computer. Then a student's shoelace floats upwards, followed by an African-American girl's pigtails, a European-American boy's frog (coming out of a desk), and an Asian-American boy's pencil. The children appear captivated and amazed. Meanwhile we hear snippets of the kids' bursting curiosity.

"What's the scariest moment...what about coming home when the fuel's all gone?"

Lauren Bacall-like VO: Today, through distance learning, MCI can launch entire schools.

The lush music incorporates a plinky, happy xylophone. Kids—along with a globe, a book a trumpet and a lunch box—float happily above their desks. A European-American boy (still seated) pokes at transparent blobs floating out of a bottle. Finally, a black screen with white text (ending with an e-mail smiley face) reads: Is this a great time, or what?:) MCI.

Another ad within this campaign focused on the democratic/educational potential of the web. In a rush of elegantly visualized people, symbolic school settings and stylized talking heads, the ad featured uncommonly articulate White children and an upper class African-

American businessman who talk about the web as a means for equal interaction and unfettered social accessibility. Various voices narrate the copy, often overlapping to create a sort of echo effect:

People can communicate mind to mind. Not black to white. There are no genders. Not man to woman. There is no age. Not young and old. There are no infirmities. Not short to tall. Or handsome to homely. Just thought to thought. Idea to idea. Uninfluenced by the rest of it. There are only minds. Only minds...What is this place. Utopia? No. No. The internet. It's a nice place, this place called the internet. Is this a great time or what?:)

In addition to the elegant people (shot, no less, in slow motion), key words flash by quickly on computer screens (as if being typed) and on green chalkboards (where children decisively crossed them out): “there is no...race”; “no genders”; “no age”; “there are no infirmities”; “only minds”; “utopia”). Children, who were often delivering segments of the voiceover or visually crossing out words, were positioned in schools, by chalkboards and alone in library corridors. If *everyone* was on the internet, these ads suggested, we would be able to realize a wonderful world of peace, prosperity and equality. The web, as an educative and social tool, became retooled as a social panacea.

These twin themes—education and democratic social consciousness via internet access—took off in other televised advertising campaigns. Two ads by Oracle, a computer company featuring less expensive network computers that carry little software but require an internet connection, responded to urban-suburban inequality in America and First World-Third World inequality on a global scale. The first ad, scheduled during high-profile programs such as the 1997 World Series, was a tale of two cities and two boys. The first boy lived in an airy, picturesque suburban home with a large porch and flowering trees. The second boy lived in a dingy brick urban high-rise apartment in a neighborhood of traffic noise. The male voice-over says “There’s no question that computers open up entirely new worlds. But, (cut to shots of second boy) what about children who can’t afford personal computers? Fortunately, as of today, we’ll never have to ask that question again” (cut to text: Introducing Network Computers. Starting at \$299.). By this point, the two boys are smiling as they click away on their keyboards and communicate as animated dots in a chat room. The narrator concludes “Networked computers allow everyone to join the information age, and we’d like to say welcome.”

The second Oracle ad, which made an auspicious debut during the 1998 Super Bowl, purported to change the world with a new kind of “educational” revolution. The 30-second (there was also a 1-minute version) ad is laden with images of Southeast Asia, particularly Cambodia and young people with the identifying scarves of the Khmer Rouge revolutionaries. Other “revolutionary” images such as Soviet-style troops and leaders were thrown in for added effect. The male voice-over says “This revolution will be about knowledge and access (cut to shot of a young black male in a stocking cap on a graffiti-sprayed urban basketball court), about progress and opportunity.” The narrator later asks “Where do we come in? We make the software that manages information, that will enable anyone, anywhere, to sit at the seat of knowledge.” The final shot cut from an ancient Cambodian temple to a red wooden school chair on a platform, streaked with golden light. The selection of the Khmer Rouge as the featured revolutionaries for this ad was strategic, since the Khmer Rouge had so many child soldiers who, in this revolution, could be more productively typing away on networked computers. The old-fashioned red

classroom chair was also an important image to bridge the cozy one-room school house with a high-tech learning environment. Once again, internet education, according to this ad, was poised to save the world.

Why the Corporate Interest in Internet Education?

The many televised education-oriented internet commercials that bombarded the public between 1995 and 1998 had all aspects of the internet covered: internet-ready computers (Oracle), internet processing chips (Intel), internet software (Microsoft, Oracle) and internet access (MCI, AT&T). Other ads with similar educational and socially progressive themes (most often developed by the same computer and telecommunication companies) appeared in magazines and newspapers. The overall message was the same: if children have access to computers they will learn more, be happier, and help the world become a better place.

Even though there can be much to say about the internet's true educational potential, McChesney (1997) is quick to point out that "markets are ill-equipped to address social values except to exploit them, often perversely, in advertising messages to sell commodities" (p. 47). Education, one of the most noble causes, and one that can almost immediately engage the families of America (a broad constituency), was a theme that certainly could be exploited. While these themes could make people rally around—and share the cost in—community efforts to wire the schools, they could also make people see the benefits of a home connection, and see value in Microsoft's philanthropic-sounding "Connected Learning Community"—links between home and school. For the American middle class, who in Garrison Keillor's words, want all their children to be "above average," and who depend upon education to get ahead (Ehrenreich, 1989), an idea like a school-home internet connection can make a powerful impression as a way to give kids an edge, and a way to get parents involved in the process. Furthermore, images of children using computers (for the most part, ads portrayed children between 8 and 11 years old) indicate an adult-like savvy on the children's part, especially since they were shown to be doing things beyond the skills of most adults. While the images pointed to a rosy, technologically satisfying future for children with the right kind of multimedia skills, they also signaled rapid antiquity for any adult not on the internet bandwagon.

With education and educational content playing such a starring role in much of the public discourse surrounding internet use between 1995 and 1998, however, internet content was only alluded to in vague and utopian terms. It was a conversation with an astronaut floating in space, or a seamless stream of planets and historical figures. These were accessible, idealistic images with no strings attached. Nothing remotely looking like advertising existed in these images. As Sussman (1997) writes, "Much of the excited rhetoric about the glorious future of the information society does not take into consideration the material and personal interests of the private institutions and governments that actually dominate it. Instead, communication technology is usually portrayed as if it's all there for anyone's taking" (p. x).

What was actually happening to web content within this same period was a different story. According to Lawrence and Giles (1999), sites that had anything to do with education were becoming drastically overshadowed by sites that pushed e-commerce. In 1997, President Clinton left his educational agenda to Vice President Al Gore (who continued to participate in NetDays, introduce educational initiatives like the "Technology Literacy Challenge Fund," and speak about "connecting children to the future"), and began to push e-commerce. As Sussman (1997) has observed, "The Clinton Administration, despite its public relations efforts on behalf

of an ‘information superhighway,’ would not venture into regulatory turf so as not to offend ‘government downsizing’ conservatives” (p. 182). During an address in July 1997 (only five months after his State of the Union address pledged education as that year’s single most important priority), Clinton announced his Electronic Commerce Initiative:

But as has already been said, one of the most revolutionary uses of the Internet is in the world of commerce. Already we can buy books and clothing, obtain business advice, purchase everything from garden tools to hot sauce to high-tech communications equipment over the Internet. But we know it is just the beginning. Trade on the Internet is doubling or tripling every single year. In just a few years, it will generate hundreds of billions of dollars in goods and services.

If we establish an environment in which electronic commerce can grow and flourish, then every computer will be a window open to every business, large and small, everywhere in the world. Not only will industry leaders such as IBM be able to tap into new markets, but the smallest start-up company will have an unlimited network of sales and distribution at its fingertips. (Clinton, 1997b)

Within that same year, 1997, internet shopping activity doubled, according to a CommerceNet/Nielsen Media Research survey (CommerceNet, 1997). The success of Amazon.com was representative of this shift. Electronic shopping opportunities had been heralded since the early 1990s in the press as a novelty: ordering a pizza online, or buying a car without experiencing the pressure from a car salesman. Amazon.com, however, turned novelty into mass consumerism by becoming the primary internet e-tailer between 1995 and 1997. Benefiting from an enormous amount of free press publicity, Amazon.com became the first internet superstore, eventually offering everything from CDs to drug prescriptions. Its overwhelming success and memorable trade name pointed to the internet’s one-stop online shopping opportunities of the future.

The web’s interactivity, it turned out, offered unique advantages when it came to advertising and marketing. People could easily process their own invoices (supplying names, addresses, credit card numbers, and purchase requests online) without having to go through a customer service representative. Online questionnaires and contests could help companies inexpensively figure out how to make their products and services more effective and popular (Zoll, 2000). Additionally, cookies—small electronic files that automatically fix onto users’ computers each time a web site is accessed—could identify the computer (and as such, the user) by transmitting back a code to the originating web site and processing it in the web site’s data bank. Cookie codes enable the web site to develop purchasing profiles on web users, and then eventually advertise certain products according to users’ individual interests and searching tendencies. Critics have likened cookies to the experience of being followed in a department store by someone with a legal pad, who writes down each product a shopper looks at, picks up, and purchases.

Even as cookies brought alarm to privacy groups, online companies framed cookies as a benefit to both the online business world and online shoppers. “What the better-targeted, more personalized ad will do is see that more people get ads that really mean something,” said Daniel Jaffe of the National Association of Advertisers (Penkava, 1999). This means a more competitive marketplace, a more efficient marketplace and lower cost” (p. 2). Indeed, IBM produced a

television commercial in 1999 that featured internet users (played by actors) who *wanted* to be profiled and targeted. Promoting IBM's profiling software, E-business Solutions, the commercial showed a focus group of eight people sitting around a table discussing their advertising needs, while researchers observed from behind mirrored glass:

African-American Man: They don't know me. I get these catalogues for kids clothes and I don't have any kids.

European-American Woman #1: I get discounts for car repair. I take the subway.

European-American Woman #2: I get offers for aluminum siding...I live in an apartment.

African-American Man: Hey, hey, you behind the glass! You're the ones with the computers and databases. You don't know me, you don't know them...you oughta know who we are!

The music, "Getting to Know You," from *The King and I* plays underneath the following text: Know what your customers want. IBM Business Intelligence. E-business Solutions. IBM: Solutions for a small planet.

African-American Man (peering through glass): Hey, I think they got sandwiches in there....

Profiling, according to this scenario, is helpful for consumers because it eliminates bothersome advertising appeals. In other words, targeted advertising is welcome advertising. That this focus group was conscious of the people observing them behind mirrored glass, and were comfortable (even happy) having their conversation monitored, further suggested that cookies are a benign surveillance mechanism; a technology with only the best interests of ordinary people at heart.

Interestingly, because all commercial browser software, such as Netscape or Microsoft Explorer, is automatically formatted to accept all cookies by default, users don't tend to be aware that they were being profiled as they searched the web (Bruno & Gerrity, 2000). Furthermore, some web pages developed ways to block user access *unless* they accepted a cookie, making it necessary for a user to provide data in exchange for entering a web site. Cookies don't identify the names of users, and so appear innocuous. But combined with the names, addresses, phone numbers and other personal information online users/shoppers routinely give out when filling out web site forms and questionnaires, as well as a record of online purchases from a specific web site, cookies provide web sites with deep profiles on individual users. Such profiling ensures that a larger percentage of interested shoppers respond to online ads in a positive way, allowing online businesses to charge advertisers more money for placing ads on their web sites. User profile information can also be processed in "third party" advertising data banks and sold to other companies interested in marketing to a specific category of online user. Moreover, new developments in spyware technology (e.g., RealAudio, KaZAa)—software that users unwittingly download along with other software—allow for even better tracking of user web surfing and preferences. Spyware routinely hijacks browser homepages, sending user data directly back to advertiser and marketing databanks, not just to individual web sites. Companies clearly

recognized the huge marketing potential of such information-packed data banks, already significant from catalogue and direct-mail data collection (Tedeschi, 2000).

With such advantages as user profiling technologies, more companies rushed to market products and services on the web, stake out particular internet territories, and create an online presence between 1995 and 2000. By the late 1990s, much of the “information superhighway” had become a vast new market for consumer goods and services, a public relations tool for consumer information and outreach, and a means for sharing consumer data between businesses.

With this in mind, it seems clear that getting people on the web between 1995 and 1998—as many people as possible—was a crucial factor in making this newly privatized, commercially-based medium work as a profitable marketplace. Without admitting education’s role in this agenda, Gates said as much in *The Road Ahead*. From his (and other corporate executives) perspective in 1995:

In the rush to build the information highway, no one has seen any gold yet, and there’s a lot of investing to be done before anyone does. The investments will be driven by faith that the market will be large. Neither the full highway nor the market will exist until a broadband network has been brought to most homes and businesses. Before that can happen, the software platforms, applications, networks, servers, and information appliances that will make up the highway all have to be built and deployed. Many pieces of the highway won’t be profitable until there are tens of millions of users. (p. 228)

Hooking up schools, it seems, (and hyping educational opportunities in the process) was part of a large-scale strategy to get America wired as quickly as possible in order for the shopping and commercialized services to begin. By 2001, nearly 100 percent of U.S. schools were online.