

**TEACHING JOURNALISM WITH TECHNOLOGY:  
THE USE OF TECHNOLOGY IN ARKANSAS JOURNALISM PROGRAMS**

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THE USE OF TECHNOLOGY IN ARKANSAS JOURNALISM PROGRAMS**

A thesis submitted in partial fulfillment  
of the requirements for the degree of  
Master of Arts

By

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## Acknowledgements

People often ask me, “How long have you been working on your thesis?” My response, throughout the thesis-writing process, has been, “a lifetime.” Most people thought I was joking, but indeed I do feel I’ve been preparing to write this thesis since I became cognizant of the world around me. Learning has been the focus of my everyday life. Once a computer became part of that everyday life, I began to wonder how a machine could affect learning. It took me many years to formulate the questions I wanted to answer, many years of thinking about the machines that have become so pervasive in our lives today, to arrive at the topic of this thesis, but once the topic was determined, the writing of the thesis has been, if not fun, quite fulfilling.

This project got its start about six years ago. By little more than a fluke, as a college freshman I took what would become a pivotal course in my life. It was an upper-level class in computer literacy on the Macintosh, housed in the graduate school of education. Most of the students in the evening class were teachers trying to understand Macs so they could use the computer in their classes. I was in the class because, as a longtime PC user, I wanted to feel more at ease on the Mac. Picking up new technology has always come easily to me, and by the fourth week of the course, I was mentoring the teachers seated near me in the class on how to improve their Power Point presentations.

It has always struck me as ironic that a class I added at the last minute would inspire me to think more on the role of computers in education — something that, until that moment, I hadn’t quite recognized as an interest of mine. Personally, I had

never experienced computers in education, per se; my high school library had a handful of computers available for database searches, but they were not connected to the Internet — we didn't have Internet access in my hometown then — and it never occurred to me the computer could be anything more than an easier way to search the Reader's Guide to Periodical Literature. Now, high school students' lives are so dependent on technology, with cell phones, instant messaging and e-mail everyday parts of their lives. My mother used to yell at me for talking on the phone for so long; kids these days carry on 20 (or more) conversations with their friends at once on a computer that, often, doesn't occupy the phone line at all. To think these changes could occur in less than a decade amazes me.

I threw myself into articles and books that looked at the ways in which computers were changing our lives. I researched without intending ever to do anything more than answer my own questions: How do people learn? Does technology really help learning occur better or more completely? Are schools wasting money on all these computers? What methods of teaching work best? About the time I was a junior, I realized all this research would come to something; as a senior, I would be expected to write a final research paper. Suddenly, my research had an ultimate goal, and by the time I reached my last semester, I was ready to start writing the paper I had been cultivating for so long.

Anticipation turned to disappointment when I was told my final research paper topic had been predetermined by the professor of that semester's senior seminar, and that my final paper could not exceed 15 pages. I couldn't capture even a portion of my thoughts in 15 pages, and with resignation I accepted — though not

happily — the fact that my paper would not be written. The magazine and newspaper clippings I had been saving were put into a box, and the subject was locked away until I started graduate school two years later. Writing this thesis has brought a sense of closure to the questions that have plagued me over the years, and I recognize my good fortune at choosing a topic with which I have not grown bored.

In the six years it took for this thesis to morph from an idea to its final form, a diverse and far-flung group of people served to both encourage and thwart my attempts to put my ideas to paper. For both the encouragement and the disinterest, I am equally grateful. I know now that, had I been allowed to write this paper for my undergraduate senior paper, my professor would have never made the deadline for turning in her final grades, and I might have collapsed from exhaustion in trying to put it together in the span of only a few weeks. If my family members and friends far and wide hadn't constantly asked how my thesis was going, I may never have found the determination to finish it.

While my family has been unwavering in their support of my writing, the confidence to pursue it seriously was largely inspired by three mentors during my years as a young student, three people who recognized a talent in me I couldn't see for myself and who encouraged me to pursue it further. Two were my high school English teachers, Vickie Brantly and Susan Bergman, who are still teaching. To say these two women were enthusiastic in their support would be a gross understatement. Before I stepped foot into their classrooms, I would have never thought I had the capacity to write more than 10 pages on any subject. They recognized within my writing a strong voice and a maturity I never could have recognized on my own.

Before I met them, the idea of writing for a living was hardly my intention; thanks to their encouragement, I cannot imagine a life for myself that doesn't include some kind of writing.

The third mentor was my first journalism professor, a man named Charles Puffenbarger, known to all as "Puff." A professor at the George Washington University, Puff singled me out of an introductory reporting class of 15 and lavished a level of attention upon me I wasn't sure was deserved. Puff never asked me what I wanted to do; he insisted I would be a wonderful writer and there was nothing more to discuss. As his student, I found the confidence to excel in an environment that intimidated me; as his student, I succeeded in ways I could not have without him. Puff was a very special man and touched the lives of many students during his time in the industry. That he believed in me meant the world to me, and when he died I knew I had lost my best supporter.

Others have been vocal about their high expectations for me, and that support has always given me the courage to challenge myself and better myself. My paternal grandmother, for whom I am named, died when I was in my early teens, but her memory has long been a source of inspiration for me. She was her high school's valedictorian but never had the opportunity to go to college, and throughout my education, I have always felt an acute sense of appreciation for the opportunities I have had and the pride I know she would feel if she could see me today. A law professor of mine in the GWU Honors Program, Jill Kastle, pushed me to do my best always, saying to me, "I know you can do better than this. Just fix it." To this day, she remains steadfast in her belief that one day I will make a "fabulous lawyer." During



the two courses I took with her, my critical-thinking skills were finely honed, and whether or not I fulfill my destiny as a fabulous lawyer, those skills are ones I value greatly.

It is to my parents, however, that I feel I owe the most. They have spent their lives telling me I can do anything I set my mind to, and after years of wondering if it was true, I look at this thesis and believe it is. I have accomplished what, at times, seemed too large to conceive. My parents are extraordinary people, and it is my greatest hope that I have inherited some of their exceptional generosity, faith and love. They may not have always understood me or agreed with me, but they have supported me unconditionally. Against my pleas to the contrary, they gave me a brother who has become a close friend and ally in life. My family means the world to me, and I would not be half the person I am had it not been for them.

If I learned anything about myself in writing this thesis, it is that in misery, my procrastination always wins. My family and a close network of friends, from those who were only barely cognizant of my thesis to those who asked after it weekly, are the people who kept my life filled with happiness. With deep gratitude I thank Scott, Edward, Eric, Erbey, Loretta, AnnaLisa, Katherine and Tommy for always believing in me and expecting great things.

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## Chapter 1: Introduction

The 1984 Super Bowl forever changed the way the world thought about the computer. A commercial for Apple aired during the third quarter of the game played on the themes of George Orwell's novel, *1984*. The commercial envisioned a world where futuristic tubes connected blank buildings. Big Brother is shown on a TV monitor. A single woman has remained free of this Orwellian landscape, and she crushes the TV image, causing a bright light to flood the screen. A voice announces, "On January 24<sup>th</sup>, Apple Computer will introduce the Macintosh. And you'll see why 1984 won't be like *1984*."<sup>1</sup>

So marked the beginning of the hype of the computer, which, like other mass media technologies before it, promised to revolutionize our lives and teach our students better, cheaper and faster. Since the early 1980s, education reformers, politicians, parents and administrators have raved about the potential of the computer to change completely the nature, cost and effectiveness of education in America. The rush to buy computers for classrooms, wire every school across the country for Internet access and sit kids en masse behind glowing cathode-ray tube screens has progressed at rapid pace since.

Companies in the computer industry have long seen the value in working with schools to bring technology to the kids. Apple Computer from the beginning has been instrumental in bringing computers to classrooms, believing that in putting Apples before children at school, parents would buy computers for the home with which their kids were familiar. Ultimately, Apple lost its bet; IBM, a forerunner in business-

computing machines, garnered the home computing market by focusing on introducing the workforce to its line of personal computers. But the presence of the computer in the classroom was solidified during the race to win market share, and even today the cries for more computers, better Internet access and more lab time dominate talks of education reform.

And why? There are conflicting studies, representing the range of possibilities, that together ultimately fail to prove conclusively that computers increase learning. Students do not step away from a computer with newfound genius, nor do teachers always know what kinds of activities on the computer will best engage student attention and learning. There are few guides for teachers on how best to incorporate technology into the classroom. There is evidence that a good teacher will motivate students more than a less-talented teacher; technology, often, plays little or no role in the matter.

When teachers do embrace technology, particularly in higher education, they often begin to rethink the ways in which they teach, adjusting their role from teacher to facilitator. These teachers look closely at the ways students learn, what shapes learning and motivation, and try to adjust their classrooms to improve the learning environment. They begin observing their peers in education, borrowing books on teaching skills, remembering teachers that impacted them and how those teachers taught. The computer does not change a classroom; the teacher is the ultimate gatekeeper. But often the changes inherent to bringing technology into the classroom

inspire the teacher to rethink the classroom, making the environment, and by extension the learning that occurs, much better for the students.

Technology is not a cure-all for the problems facing educators today. And indeed there are many problems, in higher education in general and particularly facing journalism programs across the country. Journalism departments have a unique role in higher education; they are charged with the goal of giving students a liberal-arts education that will prepare them with critical-thinking skills, a well-rounded knowledge of history, literature, politics and culture, and an awareness of the world necessary for success in the profession. Yet they must also provide journalism students with specific skills necessary for their jobs. Journalists are storytellers, writers and designers. In the current climate of media convergence, journalists are increasingly also Web designers, video technicians and technology gurus. The skills demanded of today's journalist are broader than ever, yet the accrediting organization for journalism programs still requires journalism students take no more than about 25 percent of their coursework in journalism classes. Professionals insist journalism graduates need an ever-increasing set of skills to be successful in the marketplace, while academics recognize that making journalism programs more vocational in nature challenges their already tenuous status as a liberal-arts program.

### **Thesis Overview and Method**

This thesis looks at each of these issues in depth, ultimately culminating in a study of how journalism professors in Arkansas are using technology in journalism

education. Before discussing the survey results, however, the thesis reviews existing research to allow for a more informed analysis of the survey data.

The history of journalism education is a rich one. Pioneers in journalism education, particularly Joseph Pulitzer and Charles Eliot, helped shape the methods by which generations of journalism students would be educated in America. For nearly 100 years, their two divergent views of journalism education have persisted in journalism programs throughout the country. Journalism education has historically tried to find the right balance between skills training and liberal-arts education. Chapter 2 examines these issues surrounding the history and evolution of journalism education.

Technology affects learning, but to understand how, it is important first to understand how learning occurs. The two major philosophies on learning, directed instruction and constructivism, differ on how they believe individuals construct knowledge. Followers of the directed instruction philosophy believe individuals learn discrete skills and facts independent of context; constructivists believe individuals build knowledge around activities and periods of discovery. Technology can be used in instruction to fulfill both of these theories on learning. However, there are many issues that arise when attempting to integrate technology into the classroom. Among these issues are the ability of technology to accommodate different learning styles; the ways in which technology changes the role of a teacher; how teachers embrace change; ensuring equitable access for students across socioeconomic levels; and using

technology in such a way that students can overcome preconceived notions of the technology as an entertainment medium. Chapter 3 takes a close look at these issues.

Chapter 4 turns to the unique challenges of university-level education, where teachers are expected to publish original research and serve their academic communities in addition to their teaching duties. Technology places yet more demands on faculty members who often already feel overwhelmed. To integrate technology into their classrooms, educators must attend training and continually learn new skills, on top of their other duties. Higher education seeks to give students an education, but it also provides an atmosphere for young adults to become more culturally aware of their world. Technology, when it removes the need for face-to-face class meetings, can dilute the power of the college or university to perform this critical role in society. Many introductory-level courses in higher education operate as mass lecture courses, where hundreds of students crowd into a large lecture hall and are often unknown by their instructors. Technology allows more one-on-one communication in this environment, giving faculty members a tool — e-mail — to connect directly with the many faces in the lecture hall. Technology also shifts the instructor from a lecturing expert to more of a facilitator of learning, where the students direct much of their own learning.

Turning to journalism higher education, Chapter 5 looks at the challenges surrounding journalism education in an environment of convergence and budget cutbacks. Journalism programs, sometimes referred to as j-schools, across the country have debated their role since their 19<sup>th</sup> century beginnings; is the role of journalism

education to provide a broad-based liberal-arts education or to provide students with tangible skills for use in their careers? Scholars have debated for a century about whether journalism is a profession or a vocation. Journalism accrediting requirements specify that journalism students should take only about 25 percent of their curriculum inside the journalism department; the argument has always been that journalists should know enough to write intelligently about the world they will cover. But if journalism programs are to integrate more technology into the classrooms, particularly specific, skills-based computer training, can it be done within the “75-25” rule? Many suggest not, and argue journalism skills are today more or less what they have always been: critical thinking, reporting and writing. This debate has in many ways overtaken journalism education discussion today, as Chapter 5 discusses at length. The use of the term “j-school” in this thesis has been avoided to prevent confusion between schools with separate schools of journalism and those that have programs or courses offered within other schools.

Chapter 6 analyzes findings from a survey of journalism educators in Arkansas, looking at how respondents are using technology in their classrooms and in their work outside of class. The survey also captured data for the first time on what technologies are available to journalism students at Arkansas institutions of higher learning. The results of the survey show journalism educators in Arkansas are relatively slow adopters of technology, more often opting to use technologies that have been available for many years rather than more cutting-edge, interactive technologies. The survey asked journalism educators two open-ended questions, the



responses to which underline the range of issues presented throughout this thesis.

Journalism educators demonstrated, with their free responses, that the issues presented in this thesis are relevant and everyday concerns in journalism education.

## **Chapter 2: History of Journalism Education in the United States**

Newspapers began appearing in Europe and England centuries ago, following the invention of movable type in the 15th century by Gutenberg. The availability of a means of spreading information among varied social classes threatened the control governments had over their people, and from the beginning, governments tried to restrain the ancestors of modern-day journalists from spreading information, fearing unfettered dissemination of information would undermine their ability to govern.<sup>2</sup>

Boston Postmaster John Campbell founded the first known journalistic enterprise in 1700. Handwritten and distributed to governors of New England colonies near Massachusetts, his publication, called the *Boston News-Letter*, summarized English news for those far away from European decision-making. His news endeavor, while not profitable, was a pioneer in American journalism, and paved the way for his successors to create a thriving profession.<sup>3</sup>

Yet American journalism, as a profession, existed without opportunities for training for more than 150 years; the first journalism course in American higher education appeared in just 1869.<sup>4</sup>

### **Journalism Education as a Social Force**

One journalism historian, De Forest O'Dell, wrote in 1935, "Professional education for journalism came into being in the United States ... as the result of a 39-year conflict between the American social order and the Penny Press." This early newspaper format emphasized sensational news items that invited criticism by

reform-minded journalists, academics and politicians. John Ward Fenno first suggested the need for journalism education in 1789, saying the evil in the newspapers of the day might be eradicated by appointing instead college-trained editors. The first known “meager” journalism offering at an institution of higher learning was in 1869 at Washington College (later renamed Washington and Lee University).<sup>5</sup>

As “all public institutions of learning are called into existence by social needs,” so journalism education came into being in answer to the demands of specific social forces. For 39 years, the movement to control the press confronted the American people, and the resultant program of education for journalism was the answer of the social forces involved to the query concerning the manner in which society should treat the newspaper.<sup>6</sup>

Others have regarded journalism as a social institution that deserved a presence in higher education. The first president of Cornell University, Andrew Dickson White, was throughout his career interested in the “national problem of professional education. . . . He believed in the press as a social institution for which potential workers should be provided with the highest type of training.”<sup>7</sup>

The first journalism course offered at the University of Kansas, surprisingly, was offered after the head of the sociology department suggested doing so. The professor, F.W. Blackmar, believed the press had an obligation to society and urged the English department to offer courses that would train future newspaper workers.<sup>8</sup> Doing so, he believed, would position education as a means of controlling the press “for the welfare of human society.”<sup>9</sup>

## Pioneers

Joseph Pulitzer is well known for his role in the introduction of journalism education to the American university, but many of his contemporaries, while their efforts are less known, were equally instrumental in establishing journalism courses and programs in the United States.

In fact, General Robert E. Lee was a strong proponent of journalism education.<sup>10</sup> Lee strongly believed journalism education would help rehabilitate the South after the end of the Civil War. He wrote a letter to the board of trustees at Washington College, where he served as president, recommending “the institution of 50 scholarships for young men proposing to make printing or journalism their profession.”<sup>11</sup> The trustees agreed to his proposals. Interest in the proposed journalism instruction attracted attention across the country, including from newspapers in New York City. A reporter sent to the university to report on the new scholarships interviewed a history professor, William Preston Johnson, who said:

The reason we propose giving these press scholarships is this: that printing is one of the arts which diffuse education and we should therefore seek to qualify printers for the task of educating as far as possible. We do not hope to make men fit for the editorial chair at once, but we do hope to give them as thorough a training as possible in the ways of their profession, and to give them as good an education as possible that they may make better and more cultivated editors.<sup>12</sup>

Joseph Pulitzer, owner of *The New York World*, announced in 1903 the \$2 million endowment of a school of journalism at Columbia University.<sup>13</sup> He had asked

one of his secretaries, a man named George Hosmer, to prepare a brochure, “The Making of a Journalist,” to talk about the need for professional training to do newspaper work. Hosmer took copies of the brochure to the presidents of Columbia and Harvard Universities, telling each that Pulitzer was interested in making a sizeable donation to be used for journalism education. Hosmer was to inquire about each president’s interest in the proposal. The president of Harvard, Charles Eliot, was out of town when Hosmer visited Cambridge, so the proposal was left for him to read upon his return one month later; when he reviewed the pamphlet, he wrote with mild curiosity in the idea. However, Columbia’s president had in the meantime gained approval from the University’s committee on education and the trustees.<sup>14</sup>

When Columbia University announced it would create an entirely separate School of Journalism in 1903, both praise and criticism ensued from newspaper and magazine editors across the country. One publication wrote in response:

Columbia University is to have a School of Journalism. ... This is absolutely new in the field of education; there have been courses of lectures on journalism in colleges, and private institutions have taught or attempted to teach the art, but the systematic training for newspaper work in a fully equipped institution established solely for that purpose is a novel undertaking, and may be regarded as one of the most interesting educational experiments of our time.<sup>15</sup>

Though Harvard did not receive Pulitzer’s endowment, Eliot was nominated by Pulitzer to serve on the board of advisers for the School of Journalism. He later prepared a curriculum for journalism study that was published in *The World*.<sup>16</sup> Eliot’s interest in the newspaper press arose from his appreciation of the social significance of journalism as an institution. He believed journalism was a “possible means of

improving the welfare of humankind.” Yet, Eliot believed that journalism education should primarily be concerned with business-office procedures; he recommended courses in newspaper administration, newspaper manufacture, the law of journalism, ethics of journalism, history of journalism and literary forms of newspapers.<sup>17</sup> He had little experience in editorial rooms and had no means of realizing the newsgathering and news-disseminating needs of newspapers. Eliot’s plan for journalism education was first used when the University of Missouri set up the first separate school of journalism in 1908.<sup>18</sup>

By contrast, Dr. Willard Grosvenor Bleyer of the University of Wisconsin was the first to use Pulitzer’s plan for journalism education when he created a class in journalism in 1905.<sup>19</sup> He was a strong supporter of the professionalization of journalism, which he wrote about in “A Great Need of the Profession,” where he argued:

Because journalists are unorganized, practically all that has been done to develop and improve education for journalism has come from university professors in charge of schools and departments of journalism in American universities. It has been only by the persistence of those university teachers in carrying on their work that the indifference, not to say hostility, of newspaper writers and editors has been overcome in the course of the last 20 years. ... Journalism will never rise to the level of other great professions until newspaper men and women in active service on daily newspapers throughout the country organize themselves into strong local, state and national societies.<sup>20</sup>

Unlike Eliot, Bleyer had spent many years working at newspapers, including *The Milwaukee Sentinel* and *The Madison Daily Times*. He emphasized preparation for the editorial department. In his scheme, journalism education began only after a

student had done study in literature and the social sciences. Like Eliot, he believed some emphasis should be given on the business interests of the newspaper, but only as a secondary matter, with editorial concerns placed at the forefront.<sup>21</sup>

### **Early Journalism Coursework**

Though Washington College offered the first journalism course in 1869, few colleges and universities followed the example quickly. Cornell University published plans in the 1875-1876 catalogue that it planned to issue a certificate in journalism, though the university offered no class work in the subject.<sup>22</sup>

The University of Missouri, recognized for its longtime excellence in journalism education, surprised academics in the 1870s when the head of the English department, David Russell McAnally, required his students to use “reporting method” in a political economy course.<sup>23</sup> His was the first course at the University of Missouri in journalism; he later offered a course in the History of Journalism, the first attempt at a “systemic presentation of the growth and development in that field.”<sup>24</sup> He left the university in 1885 to join *The St. Louis Globe-Democrat*. Between his departure in 1885 and 1896, no purely journalistic courses were offered at Missouri, though some English courses dealt incidentally with news writing.

Interest in offering courses in journalism was at first concentrated in the Midwest. The University of Missouri offered its first course in 1878; Denver University in 1882. The University of Kansas became the third western institution to offer journalism coursework in 1894, introducing a course in “the general theory of

newspaper writing.” However, only three students enrolled, and no further courses were offered until 1903.<sup>25</sup> Central to early journalism instruction at Kansas was “a series of lectures given by leading newspaper editors and publishers of the state.”

At Bessie Tift College in Forsyth, Georgia, the board of directors created a school of journalism in 1898. The catalogue described the program:

A class will be formed for the advantage of such young ladies as may desire to become good writers. To be sure, we can't guarantee success in this line, but there are many phases of the course that are of untold advantage and are quite within the reach of any pupil of average intelligence. The course contemplates reporting, general and special correspondence, story and novel writing, literary criticism, authorship and much else.<sup>26</sup>

The University of Missouri set up the first separate school of journalism in 1908.<sup>27</sup> Aside from its unique setup, the University distinguished itself further by using a laboratory method. Students learned journalism by publishing a newspaper, mirroring the success of professional-education programs such as medicine and law, where students learn by doing.<sup>28</sup>

Change in the field occurred quickly. In the 1920s and 1930s, leaders in journalism education called for expanded journalism curricula, with more emphasis on social sciences. Journalism programs responded by offering courses in “public opinion, the history of journalism, ethics and the relationship between newspapers and society.”<sup>29</sup> Graduate and professional journalism programs got their start in the 1930s, quickly expanding after World War II. By 1918, there were 86 schools offering some journalism coursework.<sup>30</sup>



## **Responsibilities and Goals of Journalism Education**

In 1950, Leslie G. Moeller defined the goals of professional journalism education in *Quill* in this order:

- (1) It should fit the student for being an effective citizen.
- (2) It should fit him for living a useful, full, satisfying life.
- (3) It should provide basic preparation for work in journalism.<sup>31</sup>

This assessment of the responsibilities of journalism education relies heavily on a popular philosophy of professional education, one that argues schools should give students critical-thinking skills and a general body of knowledge that will equip them to navigate through life as an enlightened, moral human.<sup>32</sup> Naturally, professional education should also give students the “corpus of knowledge” for their chosen profession, including the skills and traits of personality and character that prepare them for their future careers. But at its base, Director of Institutional Research at Michigan State University Paul Dressel argues, professional education must assist students in gaining self-understanding and moral grounding, for “without knowledge of his own nature and a reasoned philosophy of life, he will fail to realize his full potential.” A later research report on the training and hiring of journalists, written by two professors and a working journalist and published in 1987, said “the goal of journalism education, whether implicitly or explicitly stated, is socialization to the profession.”<sup>33</sup>

In 1994, the Association for Education in Journalism and Mass Communication (AEJMC) and the Association of Schools of Journalism and Mass

Communication (ASJMC) jointly formed a committee to review the missions and purposes of journalism and mass communication education.<sup>34</sup> Appointed by the incoming presidents of the two associations, the committee was formed at a time when many journalism departments faced difficulties convincing college administrators of the importance of keeping mass communications studies separate from communications departments. The committee reviewed mission statements and statements of purpose from 176 departments across the country. Of those, several departments specifically referred to, in their mission statements, their hope to give journalism graduates critical-thinking or analytical skills (36.4%). Other frequent components were “practical skills” students were expected to learn, such as “basic written communication, information gathering, oral and visual communication skills, reporting and production.”

Separately, two AEJMC task forces were working on mission statements for the field. The AEJMC Vision 2000 Task Force wrote this mission statement for journalism and mass communication education:

Since we are all consumers and to some extent producers, communication skills — in terms of both producing and interpreting messages — should be part of the basic education in a democratic society. The goal of journalism and mass communication programs is to provide students and the larger society with a deeper understanding of mass communication processes and to improve the practices and performance of mass media professionals. Their goal is to produce socially responsible, informed, skilled citizens who understand how various media technologies and communication processes emerge within particular social, economic and political contexts, and thereby affect both individual identity and societal processes on a global level. Journalism and mass communication have become vital to the maintenance of an informed society. Knowledge of how we

speaking, how we write and think, how we inform, interpret and persuade — as well as how we are spoken to, how we are addressed, how we are envisioned, informed and persuaded — are now critical for educated people.<sup>35</sup>

The history of journalism in the United States, from its earliest days, has been a lesson in balance, moderation and differing philosophies. Pulitzer and Eliot, two of journalism education's first supporters, differed on what topics they felt journalism training should focus. That debate continues today, and affects greatly the ways in which technology can be and is used in journalism schools.

### **Summary**

When moveable type appeared in the 1400s, it made possible for the first time mass communication, paving the way for the first journalistic enterprises three centuries later. In America, early journalists wrote for the Penny Press, which tended to publish sensational news stories. Journalism education, first introduced in the mid-1800s, was seen as a means of improving the quality of newspapers. Pioneers in journalism education tended to advance two basic philosophies of journalism education: Joseph Pulitzer and his followers believed journalism education should prepare students for lives as journalists; Harvard University President Charles Eliot and his followers advocated teaching business-office procedures. Early coursework at the University of Missouri and other schools struggled to attract students, but the field changed quickly after Missouri introduced the first separate school of journalism in 1908. By 1918, 86 schools offered journalism courses of some sort. Over the years,

journalism educators have debated what the ultimate goals of journalism education are and should be, much as the pioneers did. The accrediting organization for journalism programs weighed in with a mission statement for journalism and mass communication education in 2000.

### **Chapter 3: Technology and Education**

The term “technology” is often misinterpreted as referring specifically to computing technologies that have been introduced into classrooms in the last 20 to 30 years. In fact, “technology as practice is the knowing exploitation of natural processes for human ends; as product it’s the things human ingenuity has made to channel the processes as to achieve those ends.”<sup>36</sup> Educational technology can be any kind of technology or innovation that affects how classes are conducted or learning happens. Educational technology “can be traced back to the time when tribal priests systematized bodies of knowledge, and early cultures invented pictographs or sign writing to record and transmit information.”<sup>37</sup> Often, scholars discuss educational technology as a process rather than a product.<sup>38</sup> How technology changes the classroom processes, then, becomes more important than the actual technology used. The focus of this study is on how technology is used to facilitate learning, both in the processes of learning and the products used for that learning. Larry Cuban, a professor of education at Stanford University who has spent much of his career looking at technology in education, defines instructional technology as any device “available to teachers for use in instructing students in a more efficient and stimulating manner than the sole use of the teacher’s voice.”<sup>39</sup>

Though the cries for change in the American education system can be heard most often from politicians, advocates, parents and members of the press, those who work in education agree that this is a time of change for our educational system. “The technological revolution in our educational institutions is portentous as the printing

press was,” writes one college president.<sup>40</sup> Not all teachers and administrators would assess this “technological revolution” similarly, but they would likely all agree that the changes wrought by technology have reshaped the nature of education in America.

This chapter looks at the psychological research done on how individuals learn, at the history of educational technologies introduced into classrooms during the 20<sup>th</sup> century, and at the particular issues that arise when computers become a part of classrooms. This research provides a basis for the discussions of technology in higher education, and specifically in journalism higher education, that follow.

### **Purpose of Education**

Education plays a central role in our society, though delineating education’s exact goal is something many scholars have attempted to define. Technology or no technology, Diane Laurillard, a professor at the Open University in England, says teaching hopes “to make student learning possible.”<sup>41</sup> Robert Kozma and Patricia Schank, of the Center for Technology in Learning, write that the emphasis in U.S. schools today is on individual learning and performance, or what learners can absorb and learn individually.<sup>42</sup> Thomas Dwyer, a professor of computer science at the University of Dayton, believes education helps people achieve certain kinds of control over their lives, liberating human potential and thus the person.<sup>43</sup> And former education professor John Biggs says, “the aim of teaching is to enable the child accurately to remember facts and rules, and to solve problems embodying these data,

with speed and accuracy.”<sup>44</sup> Solving problems seems to be a common theme among the scholars, though, as Kozma and Schank elaborate: “Increasing student ability to solve problems and demonstrate competency over challenging subject matter is a primary goal of education in America, particularly in mathematics and science.”<sup>45</sup>

Biggs argues education has four goals:

narrowly based skill learning, broadly based learning of generic codes, intrinsically motivated learning and developmentally mature learning. ... The educational problem is that of providing the conditions for their development.<sup>46</sup>

This shift to giving students problem-solving skills seems to mark a shift in the demands placed on the educational system from those made years ago. During most of the 20th century, the education system in the United States was educating students who would later in life work in production and other blue-collar professions. Now, economists say students must be prepared for lives as “problem identifiers, problem solvers and strategic brokers.” Another significant change in the U.S. landscape is that people no longer confine learning to the classroom; learning has permeated every facet and stage of life, becoming a lifetime attempt to acquire and apply knowledge to everyday problems, situations and tasks.<sup>47</sup>

Those who believe education must prepare individuals for this kind of life strongly believe education should, at all times, have a firm grounding in real-world problems. The argument, then, becomes one of professional preparedness; school becomes an exercise in career preparation and professional training. One scholar says education in an ideal setting would:

1. Have analogs in adult work, but also reflect students' interests.
2. [Be] complex and open-ended, requiring students to work through the definition of the problem and regulate their own performance.
3. Relate to practical situations so that experiences from work and daily living provide important information, strategies and insights.
4. [Be] accomplished in multiple ways, typically with more than one good answer or outcome.
5. [Be] performed by student teams, with different students taking on different specialized roles.
6. [Be] performed with the same information and same types of technology tools used by professionals.
7. Result in a product that allows students to feel they are making a contribution to the larger community.<sup>48</sup>

Not everyone agrees with this assessment. There are many, from parents to academics, who believe the primary purpose of schooling is to prepare a child to inhabit the world as an informed, responsible, socially aware citizen. Schools are “intricate social systems where the processes of learning and teaching affirm the importance of knowledge as a social good,” writes one college president. “Our education system, for all of its failings, tries to promote a sense of social responsibility, the development of a common culture, as well as explicit and implicit social and ethical values.”<sup>49</sup> Universities and colleges, in particular, promise students and parents an atmosphere where students will develop a sense of civic responsibility, a common culture and sensitivity to others.

### **Theories of Learning**

Before a discussion of how technology can impact and facilitate learning, it is important to understand how learning occurs and how the teacher can affect learning



among students. The question of how people learn has puzzled psychologists and educators for centuries, going back to the days of Aristotle and Plato. Trevor Jones, assistant professor of business at Duquesne University, writes “learning is achieved when a permanent change in thinking, attitude or behavior occurs.”<sup>50</sup> Biggs argues learning occurs when improvement is made with practice.<sup>51</sup> Researchers and psychologists have done countless experiments to determine the circumstances that most effectively promote learning. For example, studies have show that “human memory retention is greater when learning is followed by a nap or a night’s sleep than when it is followed by the hurly-burly of everyday activities.”<sup>52</sup>

From this research, two philosophies of teaching and learning have emerged: directed instruction and constructivism.<sup>53</sup> Each philosophy has a strong body of supporters who believe their philosophy represents the best way for teaching and learning to occur. Directed learning is based on behaviorist learning theory and the information-processing branch of the cognitive learning theories. Constructivism, by contrast, evolved from other branches of thinking in cognitive-learning theory. While many educational theorists believe learning and teaching should adhere to one philosophy alone, in fact it is possible to create a classroom environment where both philosophies are used in moderation. Some think that this mixing of differing classroom philosophies may actually help schools meet the many tasks asked of them.

Both directed instruction and constructivist approaches are trying to do the same thing: identify what Robert Gagné called the “conditions of learning,” or the circumstances that exist when learning takes place. The differing philosophies have

been created based on work of learning theorists and psychologists who have studied human beings as learners and the behavior of students in the classrooms. The theories differ as they attempt to define learning and describe how learning takes place.<sup>54</sup>

Those who believe in directed instruction, also known as objectivists, believe knowledge has a “separate, real existence of its own outside the human mind.”<sup>55</sup> In this model, learning occurs when a body of knowledge is transmitted to the learner, usually through teacher-led lectures structured to impart knowledge to the students. Directed instruction excels at allowing individual pacing and remediation, making learning more efficient, and allowing for self-instruction.<sup>56</sup> In a directed-instruction classroom, students will make use of computers and other technologies for drills and tutorials that help them learn specific, stated skills. The stress is often on individualized work, not group work. Tools are often more traditional ones, using teaching and assessment methods such as worksheets, lectures and tests with specific expected responses.<sup>57</sup>

Constructivists believe learners build knowledge through experience, that learning occurs when a person is able to create his or her own version of knowledge based on individual backgrounds, experiences and aptitudes. Constructivist instruction excels at making skills more relevant to a student’s background, motivating students to learn and teaching students how to work together.<sup>58</sup> A constructivist classroom will more often use technology to do complex problem-solving exercises that help students learn broad concepts and skills, rather than specific ones. Learning is achieved through posing problems, researching solutions

and completing projects that work to solve the problem. Teaching and assessment models are less traditional, with open-ended test questions, portfolio projects and presentations, and performance checklists.<sup>59</sup>

### **Directed Instruction**

Well-known psychologists such as B.F. Skinner, Edward Thorndike and Robert Gagné first advanced the theories that now underlie directed instruction.<sup>60</sup> B.F. Skinner subscribed to Russian psychologist Ivan Pavlov's beliefs, which said that behavior is largely controlled by involuntary responses to outside stimuli. Skinner believed "behavior is more controlled by the consequences of actions than by events preceding the actions."<sup>61</sup> His studies focused on cause-and-effect relationships that exhibited three kinds of behaviors to influence behaviors: positive reinforcement, negative reinforcement and punishment. Skinner's work has greatly influenced behaviorist principles; he believed teaching was a process of setting up contingencies of reinforcement to encourage learning among students. Based on these beliefs, technologies such as drills and practices work well to facilitate learning.

Robert Gagné elaborated upon these philosophies by creating practical instructional strategies teachers could use to facilitate learning with directed learning. He is well known for his "events of instruction," which are nine conditions of learning:

1. Gaining attention.
2. Informing the learner of the objective.
3. Stimulating recall of prerequisite learning.
4. Presenting new material.

5. Providing learning guidance.
6. Eliciting performance.
7. Providing feedback about correctness.
8. Assessing performance.
9. Enhancing retention and recall.<sup>62</sup>

Gagné further believed that to be effective, teachers must do three things. First, they must ensure students have the necessary prerequisite skills. Second, teachers supply “instructional conditions,” or carefully structured presentations, lectures and activities to facilitate understanding, remembering and transferring the content to be learned. Third, the teacher must vary the conditions for the different kinds of learning, which Gagné described as intellectual skills, such as problem solving, cognitive strategies, verbal information, motor skills and attitudes.<sup>63</sup>

Directed instruction has been criticized for its lack of problem-solving instruction, instead “breaking topics into discrete skills” that are taught in isolation. Students often complain that directed instruction is boring and irrelevant. Students also have limited opportunities to work in groups in directed instruction.<sup>64</sup>

### **Constructivism**

Constructivist strategies are based on areas of cognitive science that look at a student’s motivation to learn and see the relevance of their lessons.<sup>65</sup> The fundamental ideas of constructivist thinking trace back to John Dewey, Lev Vygotsky and Jean Piaget, among others. John Dewey believed instruction should be centered around relevant meaningful activities; otherwise, he believed, the instruction was “worse than useless.”<sup>66</sup> Simply put, constructivism focuses on a learner’s ability to

construct knowledge in a meaningful, active manner, rather than passively receiving knowledge from an instructor.<sup>67</sup>

Vygotsky, a Russian philosopher and educational psychologist, believed cognitive development was “directly related to and based on social development.”<sup>68</sup> Teachers, he believed, should work to discover where a child was in his or her development and then build upon those experiences, which Vygotsky called “scaffolding.” In this manner, learning best occurs when methods are used that take into account each person’s individual development. Educational technologies often use this scaffolding technique.

Jean Piaget is recognized as one of the most influential thinkers on the stages of learning.<sup>69</sup> He formed many of his principles by “observing the development of thought processes and learning patterns in his own children from infancy through the years of childhood and adolescence.”<sup>70</sup> Constructivist educators often claim Piaget is the “philosophical mentor” that guides their work, but in fact Piaget was quite uninterested in how his theories could affect classroom instruction.<sup>71</sup> Perhaps his most relevant finding to this thesis is his belief that much learning occurs outside formal instruction, when the learner interacts with his or her environment, which falls in line with constructivist beliefs.

Constructivists believe traditional instruction focuses too much on structure and out-of-context facts, which they say can actually impede learning progress by dulling the learner’s desire to know things in context.<sup>72</sup> Constructivists instead promote periods of unstructured learning, where the learner explores information and

does problem-solving exercises. “Considerable research ... supports the notion that the best learning occurs when it can be interwoven with students’ prior knowledge, even if that knowledge is not directly related to the course discipline.”<sup>73</sup>

Constructivist learning focuses on the ability to solve real-world problems.<sup>74</sup> The nature of constructivist learning places a heavier burden on the instructor to create meaningful activities and evaluate far more complex projects than are typically found in directed learning environments. But, most reformers believe these kinds of student-centered teaching activities are “essential for student learning in the 21<sup>st</sup> century.”<sup>75</sup>

Constructivist instruction is often criticized for the lack of certification of skills acquired. “It is not sufficient to know that a doctor was on a team of medical students that performed the operation successfully; you want to know if the doctor can do it without the team.”<sup>76</sup> Constructivist instruction also sometimes falls short in gauging how much prior knowledge is necessary. Critics doubt a student’s ability to select the most appropriate instruction for themselves. Others wonder if skills learned in constructivist environments will transfer to practical solutions; one study suggested not necessarily.<sup>77</sup>

### **Learning with Technology**

Technology can be used in both directed learning and constructivist environments. An important point is that the ways in which technology is used depends almost entirely on the instructor, not the technology itself. Computers, televisions and radios have been used in many different ways, by many different

teachers, because each instructor devises the process by which it is used, a process that is, in itself, a technology.

Common uses of technology can be broken into two types, Type I and Type II, that address the different learning environments described above. Type I technologies tend to emphasize drill and other repetitive teaching techniques.<sup>78</sup> They are defined by a few common characteristics: they stimulate relatively passive involvement; almost everything within the application has been predetermined; there are a limited number of acceptable responses; the point is to acquire facts by rote memory; and most of the application's functions can be observed quickly, often in as little as 10 minutes.<sup>79</sup>

Type II technologies support “new and better ways of teaching and learning.”<sup>80</sup> They also have many common characteristics: they stimulate active user involvement; the user is in charge of almost everything that occurs; there is a large repertoire of acceptable responses and inputs; they are usually applications aimed at creative tasks; and it usually takes hours to discover all of the applications possibilities.<sup>81</sup> An example of a Type II application is SimCity, which allows users to create and manage environments that work like realistic models. Type II applications are expensive and difficult to develop and test, and are not widely available.<sup>82</sup>

## **Learning Styles**

Matching the differing theories on learning are unmistakable differences in learning styles among students, from kindergarten through graduate school.

“Psychologists have shown that individuals differ in their abilities, their rates of learning and often even in their general approaches to learning.”<sup>83</sup> Instructors sometimes give students personality tests to help understand and relate to their students during a course. One basic personality trait that can affect how a student learns is what Biggs calls “levels of arousal.”<sup>84</sup> This measure differentiates between extraverts, who have low levels of arousal and seek out stimulation, preferring to work in noisy conditions, and introverts, who have a high level of arousal and prefer to work in quiet situations.

Knowing students’ learning styles and personalities helps teachers tailor instruction and activities to individual students. Biggs argues more of this “matching of student style and task style” should be done than is currently.<sup>85</sup> Teachers can also adjust their expectations of student participation and communication based upon what they learn about the student’s personality and learning style. Many shy or passive students find technology particularly helps them overcome communication anxiety they sometimes feel in a classroom.<sup>86</sup> Technology can also help engage students who lose interest when reading books or listening to lectures.<sup>87</sup> And, many students may actually prefer dealing with learning materials in an impersonal manner, rather than asking a teacher for assistance — in or out of class.<sup>88</sup>

By the time they arrive on campus, upper-level students are generally aware of how they learn best, though they often abandon their learning style in favor of quick memorization techniques and cramming. Researchers have looked at how memorization works best, and have found that, in support of constructivist theories,



“material is acquired faster and retained more accurately if it is meaningful.”<sup>89</sup> A meaningful context for information learned and memorized may be as simple as finding a pattern in the information the learner is trying to memorize. Frequent self-questioning about material just covered is also an effective technique, often more so than rereading material a second or third time. Nevertheless, periodic review is crucial for retaining information.<sup>90</sup>

### **Historical Look at Educational Technology**

When listening to the tenor of arguments for using computers in classrooms, it is easy to forget that throughout history, educational reformers, parents and others have looked to new technologies as means of radically changing not only of education, but society itself. With the invention and popularization of new technologies, reformers have written about how each new device could “revolutionize — a word frequently used by promoters of technology — the classroom.”<sup>91</sup> Neil Postman, often a critic of educational technology, writes:

I am old enough to remember when closed-circuit television was going to save our children from dull lessons taught by semi-educated teachers; old enough to remember when eight-millimeter film would do the trick if only we could get the appropriate technology on each child’s desk. I even remember when teacher-proof textbooks, scientifically designed and tested, were claimed to be the royal road to fail-proof learning. Now, we hear of interactive television and, of course, the true and only savior, computers — as if all the other technologies were only false prophets. ... Which brings me to a heretical possibility that [you] might want to consider: There is no technological solution to the problems of education in America.<sup>92</sup>

Not everyone agrees with Postman's assessments. Most proponents of educational technology would argue technology alone indeed can be no savior, but proper use of technology can indeed help students learn. In fact, the teacher plays a significant role in the application of educational technology.

## **Radio**

The radio is often thought of as the first technology — as we think of technologies today — to be integrated into the classroom. There were efforts to integrate educational technologies prior to the radio, and as discussed earlier, new educational technologies are as old as the chalkboard. One interesting example of an attempt to revolutionize education before the radio was the short-lived attempt to create “aerial classrooms,” or classrooms that would allow students to view urban geography firsthand from an airplane.<sup>93</sup> Unlike aerial classrooms, which failed to materialize in education in any significant fashion, the radio had a significant, if not always prominent, place in American classrooms for many years.

Benjamin Darrow, an early supporter of educational radio, was the founder and first director of the Ohio School of the Air. He wrote:

The central and dominant aim of education by radio is to bring the world to the classroom, to make universally available the services of the finest teachers, the inspiration of the greatest leaders ... and unfolding world events which through the radio may come as a vibrant and challenging textbook of the air.<sup>94</sup>

The American School of the Air, a CBS program initially broadcast in 1930, offered historical biographies, book discussions, civic lessons, dramas and current

events aimed at elementary and secondary school students twice weekly.<sup>95</sup> The University of Wisconsin began broadcasting music programs in 1917; by the early 1940s, the Wisconsin School of the Air was offering 11 instructional programs regularly.<sup>96</sup>

Though early enthusiasm for radio was great, technical problems in the early attempts to use it educationally made it difficult to spread quickly.<sup>97</sup> And, even when the technology was stable enough to use regularly, studies show teachers did not use radio as much as reformers thought they should. “Considered within the context of the six- to seven-hour instructional day, the amount of time spent listening to radio in classrooms before the advent of television is infinitesimal.”<sup>98</sup> When surveyed in 1941, principals gave several reasons for why the teachers were not using radios in the classroom, including a lack of or inadequate radio-receiving equipment, scheduling difficulties within the school, lack of information, poor reception and a lack of programs related to their curriculum.<sup>99</sup> Radios spread rapidly in homes,<sup>100</sup> but never realized the hopes of reformers before “instructional television gripped the imagination of the policy makers and educators.”<sup>101</sup>

## **Film**

I believe that 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. I should say that on the average we get about 2 percent efficiency out of schoolbooks as they are written today. The education of the future, as I see it, will be conducted through the medium of the motion picture ... where it should be possible to obtain 100 percent efficiency.<sup>102</sup>

Thomas Edison's enthusiasm for the promise of film is well documented, as this quote from 1922 shows. Reformers thought of film "as real and concrete, a medium for breathing reality into the spoken and printed word that stirred emotion and interest."<sup>103</sup> College courses appeared in the 1920s to help future teachers learn how to use film in their classrooms. Yet, because of the costs, there was limited access to films, and equipment was often unreliable, so teachers infrequently used films.<sup>104</sup> Many studies conducted in the 1920s and 1930s claimed film could be used to motivate students to learn. Yet, a study conducted by the National Education Association in 1954 revealed that two-thirds of the orders for films came from just 14 percent of the teachers, indicating that though film was used, it was used by a small group of adopters, while the majority of teachers failed to use the new technology at all.<sup>105</sup>

### **Instructional Television**

What made instructional television different from its film and radio predecessors was a decision by the Federal Communications Commission, prompted by veteran radio broadcasters who were concerned about the number of available television channels being allocated to commercial entities, to allocate 242 channels for educational purposes.<sup>106</sup> Instructional television also saw a vast increase in the amount of funding from foundations, such as the Ford Foundation, which poured millions of dollars into the development and spread of instructional television through its Fund for the Advancement of Education. Adoption of instructional television

tended to follow one of three patterns: total instruction by television, as seen only in the American Samoa, where a severe teacher shortage left little choice; partial instruction by television, as seen in the 1950s, particularly in St. Louis, Philadelphia and Hagerstown, Md.; and television as a teaching aid, which was the most common use.<sup>107</sup>

The use of instructional television in Hagerstown is often cited as an example of how television can help improve learning and motivation among students. There, administrators appealed to the Ford Foundation fund for money to use closed-circuit television to meet the needs of the overcrowded school district.<sup>108</sup> Once set up, the system allowed for more than 100 students at a time to watch telecasts of more subjects than any previous effort. The experiment lasted for five years, at the conclusion of which standardized test scores in math, science, reading and other subjects showed dramatic improvement.<sup>109</sup>

## **Computers**

Though the computer shares many similarities with technologies already discussed, it has many unique qualities. First, its versatility: the computer can be used for “drill, problem solving, motivation and interaction,” whereas earlier technologies often possessed only one or two of these characteristics.<sup>110</sup> As in earlier technologies, educators have felt pressured by outsiders to introduce the computer into the classroom, yet unlike earlier technologies, educators are embracing the computer both top-down and bottom-up.<sup>111</sup> Finally, unlike other technologies, the computer can be

used in a variety of ways. It is capable of being a tutor, tool or tutee; the actual use depends on the teacher.<sup>112</sup>

Eliot Soloway, a teacher of electrical engineering at the University of Michigan, says of the power of the computer:

We still learn facts, but we learn them in the context of a meaningful question. The whole classroom structure changes. It's more collaborative, more like the workplace. Ideally, the teacher's role changes, too ... [they become] mentors guiding students through the learning process and helping them find the information they need to do their work independently.<sup>113</sup>

Constructivists believe technology allows students to understand more complex concepts, because the technology allows for integrating different disciplines through work on individual and group projects.<sup>114</sup>

At least one survey found teachers are willing to cut other things in favor of computers:

The national survey conducted earlier this year by Public Agenda found that 70 percent of the public school teachers surveyed believed that computer skills constitute an essential component of the curriculum. Less than 25 percent believe that such classic works of literature as those by Shakespeare, Hemingway or Steinbeck are essential. What possible value could Hamlet's "To be, or not to be, that is the question" have when compared with the latest CD-ROM that takes the viewer on a virtual trip into the workings of the human body or into the greatest cities of Europe?<sup>115</sup>

Like other technologies before it, the computer has been widely touted as an unquestionably useful tool in classrooms. The fervor with which some promote the computer as an educational tool easily matches, and in many cases exceeds, the

excitement seen with the radio and television. “These [computers] can enhance coursework and improve student learning, transforming student and faculty roles through the individualization of teaching,” write two scholars in an article particularly unwavering in its defense of technology in education.<sup>116</sup> Unlike technologies before it, though, the computer was touted in the earliest days of introduction to the classroom as providing a dynamic, information-heavy atmosphere of learning. What has distinguished talk about the educational promise of computing is that computers offer up a vision of interaction between learning and information, not just one between education and computing.<sup>117</sup> The most ardent supporters of computers in the classroom tout their ability to evolve the classroom into an environment more conducive to learning.<sup>118</sup> Those who feel the benefits of computers in education have been wildly exaggerated point to the lack of conclusive proof that computers actually help teach students.<sup>119</sup>

### **Uses of the Computer in Education**

At the most basic level, computers are used to do routine tasks for instructors and students, such as word processing for preparation of course syllabi, exams and papers.<sup>120</sup> This administrative use of computers in education inspires no controversy; “it makes recordkeeping more efficient, helps teachers analyze student-learning trends and is good for all sorts of back-office administrative functions.”<sup>121</sup> Using technology in this manner saves time on paperwork and increases teacher productivity.<sup>122</sup> Some faculty members will accordingly use presentation software to

improve the visual appearance of their lectures without ever changing the content or structure of the course.<sup>123</sup>

Where the controversy appears is when computing moves beyond the administrative or visual sprucing-up and into instruction. The computer can be used in instruction in one of three ways: tutor, tool or tutee. The computer as tutor functions as an automated instructor; the student receives tutoring from the program on a particular subject, responds and moves through the program. As a tool, the computer is used usually for a single function, such as super calculation, word processing or statistical analysis. When a student interacts with a computer as tutee, though, opportunities for real learning occur. The student must first possess the knowledge he or she is trying to teach the computer. The computer makes a good student, as it is dumb, patient and rigid, and can be rebooted to start from scratch when necessary.<sup>124</sup> More often than not, however, computers are not used as tutees; furthermore, as tools or tutors they are instructionally about as effective as teachers. Tutee applications would be Type II applications discussed earlier, and are expensive to create.

Technology provides unique instructional capabilities, such as linking students directly with information searches, often via the Web, helping students visualize problems and solutions, tracking student progress and linking learners to learning tools.<sup>125</sup> Yet, to a large extent, for all the educational applications of technology, “a decade after the technology was introduced, educators still cannot answer the question of whether computers improve student learning.”<sup>126</sup>



Contradictory studies looking at the effectiveness of technology in education, matched with the ongoing debate about the need for social education as well as knowledge-based education, lead many to assert technology in education must be balanced with more traditional kinds of instruction. They advocate technology as an enhancement and a supplement to the traditional missions of education. “In classroom teaching, [computers] have great value for improving presentation of material, amplifying communication among students and faculty, and expanding access to information.”<sup>127</sup>

From a teacher’s perspective, technology can interfere with the interpersonal dimension of teaching; teachers sometimes view displacement and interruption in a negative light.<sup>128</sup> Social theorist James Beniger describes new technologies as having “dehumanizing” aspects.<sup>129</sup> Teachers also fear their peers may view their use of computers as looking for filler material, casting a negative light upon their talents as teachers. Another common critique of computers in education is the tendency of students to become obsessed with the appearance of computer-based projects and focus less on the content. This tendency is reinforced by teachers who focus on the “professional reports” computers help produce, which can lead students to believe fonts and graphics are more important than sentence structure.<sup>130</sup> Students often put together Power Point presentations on research topics, yet when asked about the subject matter of the presentation, they shrug and say they got the information online.<sup>131</sup>

Equity of access is another problem in educational technology.<sup>132</sup> Many studies have shown technology is often concentrated in areas and schools with more economic resources than others, that there is a “predictable correlation between school districts’ socioeconomic levels and their levels of microcomputer resources.”<sup>133</sup> Douglas Noble, who has done research on the history and politics of educational technology, refers to the “wide disparity of access between rich and poor school districts.”<sup>134</sup> But the problems don’t stop at the schoolhouse doors; they extend to students’ homes. “The biggest assumption,” writes one critic, “is that students and their families will have near-universal access to high-end technologies.”<sup>135</sup> Students from wealthier families are more likely to have a computer at home than are those from poorer families. Similar equity issues exist across different cultures, genders and for special-needs students.<sup>136</sup> Yet, “promoters of computer literacy still talk of a total transformation of education for which all students must be prepared.”<sup>137</sup>

### **Accessing Online Information**

The computer as a standalone machine is indeed powerful, and since the mid-1990s, it has allowed students and teachers access to the Internet, including the World Wide Web’s diverse, expansive learning resources and capabilities. A survey given to introductory-level mass communications students showed a class with the Internet integrated into the course improved student evaluations of the course and the instructor than a section of the same course with only traditional teaching methods and tools.<sup>138</sup>

The Internet was originally a research project sponsored by the government under the guise of the National Science Foundation, funded at a time when the United States was investing in many research and development projects following the Russian launch of Sputnik. In 1970, the first four pieces of what would eventually evolve into the Internet were working. Those four nodes, located at the University of California at Los Angeles, the University of California at Santa Barbara, the University of Utah and the Stanford Research Institute, constituted the first, experimental, \$2.5 million linking together of computers in geographically separated locations.<sup>139</sup> Within a year's time, 23 computer centers were on this network, funded and coordinated by the government under the project name "Arpanet."

**E-mail.** The biggest hit on this early network of computers was electronic mail, or e-mail.<sup>140</sup> While e-mail was never originally intended to be a component of the network, the demand for a messaging system was fierce. For those colleges and universities excluded from the Arpanet, the Usenet news system was developed in 1978 to allow students the ability to exchange views in a newsgroup system designed by two college students, one from Duke University, the other from the University of North Carolina at Chapel Hill.

What people found most attractive about e-mail was similar to the excitement inspired by the telegraph in its earliest days: It broke down the barriers of time and space. Beniger points out that information technologies are useful because they help individuals conducting business from a distance weaken the effects of that space.<sup>141</sup> Giddens expands that notion in his descriptions of time and space. He writes, "One of

the main features of modern technologies of communication is that they no longer allow distance in space to govern temporal distance in mediated interaction.”<sup>142</sup> This is especially applicable to the Internet, because it allows people in remote places across the globe to communicate without worrying about time zones and days of the week — a true conquering of time and space restraints.

While e-mail remains one of the Internet’s simplest — and certainly oldest — technologies, many believe it is one of the most powerful tools available with worldwide connectivity. At its worst, e-mail provides an alternative to “phone tag,” allowing teachers and students to interact when it is convenient.<sup>143</sup> E-mail is a good tool for facilitating more flexible communication for everyone involved in the educational process; student-to-teacher, student-to-student and teacher-to-teacher communication can be significantly enhanced when e-mail is used effectively. At its best, e-mail provides teachers and students with a means to change completely the nature of their relationship.<sup>144</sup> Group work becomes easier to accomplish when e-mail is available to students.<sup>145</sup> The use of e-mail can particularly help facilitate communication between shy students and their teachers, and can also assist students whose native language differs from the instructor’s. “Students who hesitate to speak to professors during office hours or by phone often feel more comfortable communicating online.”<sup>146</sup> That being said, teachers must be aware of, and perhaps prepared to work around, students and fellow faculty members who are uncomfortable communicating by e-mail.<sup>147</sup> Not all students arrive knowing how to use e-mail, and faculty members can help these students become more comfortable

with the technology by encouraging students to ask questions about class topics by e-mail, by distributing and collecting homework via e-mail or by creating a e-mailing list, or a listserv, for a class.<sup>148</sup> E-mail also creates a steady stream of messages requiring attention, and can become an overwhelming burden on already overworked professors and students.<sup>149</sup>

**Web.** The Internet became useful to educators with the advent of the Web, particularly once Mosaic, a predecessor of Netscape, released a graphics-based browser in November 1993. The power, and indeed the challenge, of the Internet has grown daily with the additions of new Web pages and online tools. Now, the Web serves as a global library of information and graphics. The sheer amount of information available on the Web increases daily. In 1993, there were less than 1,000 Web sites online; by the April 1995, it was as high as 45,000 sites.<sup>150</sup> That number has increased exponentially in the intervening years.

As with any technology, the Web presents unique challenges for teachers wanting to use it in the classroom. Perhaps the largest challenge with the Web lies in one of its charms: Anyone can create a Web site and post information online, without regard to its accuracy or appropriateness for a broader audience. Unlike textbooks, which are vigorously reviewed by scholars, teachers and administrators, Web sites exist with little oversight or review. There is no guarantee that information online is correct.<sup>151</sup> This fact requires teachers to develop tools to help students and themselves evaluate Web sites and ensure sites used by students present accurate information.<sup>152</sup>

## Technology as Entertainment

Some argue that because students are familiar with the television as an entertainment medium, using television for educational purposes proves problematic.<sup>153</sup> Most of today's students grew up seeing television as a passive form of entertainment. "Their most dominant impression of television ... is of a brightly lit box that emits images and text to an audience that is largely passive." When watching television, the viewer can switch channels as soon as something becomes boring. Teachers who use technology are looking for quite the opposite effect. This problem becomes particularly difficult in distance education, where often televisions are used to link distance classrooms together synchronously. The same is true for radio and film, which may be looked upon by students with the same attitude. Some teachers thus consider these technologies "somewhat tainted as teaching tools."<sup>154</sup>

Some educators argue not all classes can naturally incorporate technology. For example, many writing teachers reject the idea of television as a useful technology. They are accustomed to using classroom methods that foster close relationships between writers and readers, students and teachers, methods such as workshops, peer groups, conferences and portfolios. They encourage students to work together, and teachers and students to develop and maintain very close relationships. In these classroom environments, writing teachers argue, technology works against the class's goals. The computer in some ways has not been proven ineffective in these classroom settings — yet. Computers and the Internet got their start in an educational context, and have been seen for years as informational and educational tools. Research shows

computers can be effective tools in peer-editing student papers.<sup>155</sup> The computer is still viewed by some as incapable of stimulating critical thinking in students. Schools bill computers as a way to make learning fun, which runs the risk of teaching students that “if you don’t enjoy yourself, you’re not learning.”<sup>156</sup> Yet, a study of college students’ use of e-mail suggested that when using e-mail is perceived as fun, use increases.<sup>157</sup>

### **The Force of Change in the Classroom**

Cuban discusses the “perennial paradox facing public schools: constancy amidst change.”<sup>158</sup> In all educational environments, from public schools to private universities, educators must deal with the dueling forces of constancy and change. If indeed the purpose of education is passing knowledge on to students,<sup>159</sup> technologies that promise to provide individualized instruction and knowledge above what was once available in a classroom become rather attractive to educators and administrators alike.<sup>160</sup>

It is telling to look at the source of pressure for change in the classrooms. Rarely are teachers the ones initiating classroom innovations; more often, reformers are foundation executives, educational administrators and wholesalers “who saw solutions to school problems in swift technological advances.”<sup>161</sup> Yet often, the new technologies have been proven only as effective as a teacher in conveying information to students. What’s more, teachers are the “gatekeepers for instructional technology,” meaning no technology can truly become a part of instruction without

the teacher's consent.<sup>162</sup> Teachers must be involved in the development and implementation of new classroom technologies.<sup>163</sup>

And yet, in the case of interactive television, both the technology and its initial classroom uses were conceived entirely by non-teachers, "just as radio and film had captured the imagination of an earlier generation of reformers in improving instructional productivity."<sup>164</sup> Teachers were rarely consulted, except as script writers or teacher guides, as a sort of "teacher as technician." This is reflective of the "top-down" direction most instances of school change take.<sup>165</sup> One school president writes, "I'd feel a lot better about [outsiders developing educational products] if I could be assured that teachers were intimately involved in the design of the products."<sup>166</sup> While teachers, as members of an organization where compliance with authority is expected, did embrace the new technologies forced upon them by outsiders and administrators, often it was an embrace of the "barest minimum" necessary to convince supervisors the mandate had been executed. But Cuban argues this view of organizational compliance does not fit into the atmosphere of teaching, and further that the poor methods of introducing technologies thus explain the limited use of new technologies.<sup>167</sup> Where educators do embrace technology, often they are responding to pressure from parents, concerned that their children be prepared for what they perceive as "tomorrow's world."<sup>168</sup>

An essay by Tom Loveless, "Why aren't computers used more in schools?" makes this argument:

Industry leaders have long ignored the most important person in the conduct of America's classrooms — the teacher — and have



instead focused their research and development on how individual learners interact with technology. Because they believe that they have discovered better ways of defining the learning experience, these leaders neglect the teacher's central role in instruction and grossly oversimplify the complexities of schools, especially the classroom settings where instruction occurs. It should come as no surprise that teachers and administrators appear obstinate and backward when technology is offered to them for the express purpose of radically changing the character of their work.<sup>169</sup>

Teachers tend to prefer constancy in the classroom.<sup>170</sup> This is reinforced by the culture of teaching, as well as the ways in which most teachers learn their craft. In both, there is an implicit value placed on older, more seasoned teachers providing guidance and wisdom to younger teachers.<sup>171</sup> Indeed, some teaching practices have changed, but teachers tend to embrace changes that solve their problems, not those conceived by outside reformers. Radio, film and television only marginally helped solve problems teachers defined as important.<sup>172</sup> Teachers also tend to embrace change that supports or increases their own authority, rather than undermining it, as some teachers perceive technology to do.

When teachers do accept or even embrace change, especially change from without, it is done at a much slower pace than advocates might want.<sup>173</sup> Teachers believe early adopters, technology salespeople and excited reporters often raise expectations too far too quickly.<sup>174</sup> A more considered implementation of technology allows teachers to control carefully the ways in which technology is used in the classroom. While instructors will readily adopt technologies for their own research, communication and preparation tasks, they are reluctant to do it quickly for instruction.<sup>175</sup> Particularly in higher education, the pressures to reform classrooms and

administrative functions with computers are great. Yet across the map, university budgets are being cut and corporations that employ graduates are questioning the skills and knowledge those graduates possess. One college president says, in this atmosphere, “higher education . . . has neither the resources nor the public privilege to make the kinds of ‘megamistakes’ that industry has made in its eagerness to stay at the forefront of technological advance.”<sup>176</sup> Blenda Wilson, formerly the president of California State University-Northridge, argues universities and colleges must continue to take a more considered approach to integrating technology on campus, ensuring any new technologies are used to impact teaching, learning and the university culture positively.

Teachers also need support. When technologies appear that can legitimately be used as tools, teachers are among the first to ask for them.

But the fact is that time and time again, their hopes have been dashed by the lack of training in how to utilize these techniques, by poor software, by inadequate maintenance, and by fiscal restraints that scuttled school system investments for maintaining the computer programs.<sup>177</sup>

Many teachers, not fully trained on how to use technology to teach, are not comfortable bringing unfamiliar machines into the classroom. Three criteria must be present for teachers to accept technology into their teaching: familiarity, usefulness and control.<sup>178</sup> Familiarity comes with use and training. Usefulness of a technology must be simple and direct. The technology must be controllable to the extent that the instructor can make it do what they wish. If these three conditions are met, teachers will feel more at ease letting technology through the classroom door.

For those who fear or otherwise feel uncomfortable with new technologies, the force with which technology advocates pressure administrators and others to force technology into the classroom seems unstoppable. To these teachers, technology brings “extra work rather than less: endless messages on our machines, demands by students, co-workers and supervisors based on their access to our computers through ... e-mail.”<sup>179</sup> These teachers feel they have lost power and control, because their supervisors or administrators have increased their workload by a technological innovation without any input.<sup>180</sup>

### **Technology as a Means of Control**

Beniger believes change brought on by technology is part of a greater era he calls the Control Revolution. His theory says that as the Industrial Revolution progressively allowed for higher and higher rates of production, an equally greater amount of information was created and needed to be processed. As he puts it, “the Industrial Revolution and the harnessing of inanimate sources of energy to material processes more generally led inevitably to an increased need for control.”<sup>181</sup> The evolution in the way information was processed is what Beniger says makes up the substance of the Control Revolution.

The major technology of the Control Revolution was bureaucracy, or “innovation in bureaucratic structure, particularly the progressive subdivision of operating units, the whole controlled by a growing hierarchy of salaried managers.”<sup>182</sup> This, Beniger argues, “marked the consolidation of control” for companies trying to

manage ever-increasing amounts of information.<sup>183</sup> Beniger places the beginning of the Control Revolution just after the last of the major industrial innovations during the Industrial Revolution, or in the mid-1800s, and it continues today; with the introduction of “micro-processing technologies,” computers and other digital devices, the Control Revolution continues to accelerate.<sup>184</sup>

Beniger says the Control Revolution is revolutionary because of “the development of technologies far beyond the capability of any individual, whether in the form of the massive bureaucracies of the late 19th century or of the microprocessors of the late 20th century.”<sup>185</sup> Beniger believes that was the point. Bureaucracy, he says, tends to pop up “wherever a collective activity needs to be coordinated by several people toward explicit and impersonal goals, that is, to be *controlled*.”<sup>186</sup> To accomplish those goals often involves automation, or the use of machines to replace human functions.<sup>187</sup>

There is evidence that Beniger’s tenets not only apply to education, but that many times in the history of education, administrators have tried to set up educational systems like the bureaucracies Beniger describes. In the early 1900s, academics and administrators “seized upon scientific management as both a philosophy and set of tools with which to transform American schools into productive businesses.”<sup>188</sup> The view of schools as bureaucracies, with teachers as technicians who behave according to the mandates of top-level managers, has had many periods of popularity since the 1920s. Today, politicians and parents can often be heard demanding “accountability” from schools for the money and time spent educating children. College and university

campuses across the nation are experiencing similar pressures to make profits and demonstrate their effectiveness. No one who has ever worked on a college campus could deny the pervasiveness of bureaucracy in American higher education. “The periodic surges of interest in introducing video, film, radio and computers overlap these larger efforts to bureaucratize schooling and rationalize teaching,” Cuban writes.<sup>189</sup> For administrators, the introduction of technology can empower lower-level administrators to make decisions; “those closest to the problems have the ability to solve it” with technology, writes Diana Oblinger, IBM academic programs manager for higher education.<sup>190</sup>

### **Summary**

Politicians, advocates, parents and members of the press can often be heard advocating more computers in schools, but rarely do these cries include any reference to research indicating how people learn and how computers can help more or better learning occur in the classroom. The role of education in America is a subject of some contention; some believe education exists simply to make learning possible, while others believe education has a larger goal of helping students learn to solve problems or achieve control over their lives. Two theories of learning advanced over the years address how people learn new information: directed instruction, which contends knowledge is an impartial body that can be acquired by a learner, and constructivism, which contends knowledge is constructed by the learner based on his or her previous experiences and knowledge. Technology can be used in both directed learning and

constructivist environments; directed learning classrooms often use technologies that behave as tutors, whereas constructivist classrooms more often use technologies that interact with the learner as a tutee. In addition to these two theories of learning are the many different kinds of learning styles present in a typical classroom. Learning styles affect how students receive and interact with instruction. Technology can help teachers address many kinds of learning styles, allowing students to interact one-on-one with a computer.

Historically, proponents of educational technology have argued technologies would radically change education and student learning, and historically, those proponents have been wrong. Radio, film and instructional television were once trumpeted as the saviors of education, but none of these technologies ever lived up to the hype and promise of the reformers. Though computers and online applications differ somewhat from these three earlier technologies, the inflated promises of the computer and the Internet put pressure on educators to change their classrooms dramatically. Yet, change in the classroom is not often something that occurs because of outside pressure; most true classroom reforms have occurred because teachers embraced a new idea and saw it would help students learn or help streamline a teacher's activities. For technology to be effectively implemented in a classroom, teachers must embrace the computer, and in many cases, they have, distinguishing the computer from earlier technologies that did not have a wide base of teacher support.

## Chapter 4: The Challenges of University Teaching

Most of the discussion of teaching and learning has, to this point, focused on education as a whole, from kindergarten through post-graduate coursework. Much of the research on how people learn and how technology impacts that process focuses on younger students, certainly younger than most college freshmen. But higher education presents different challenges to faculty members, including typical college-level class formats, expectations that faculty will do more than teach, and the goals of preparing students for lives as both professionals and responsible citizens. This chapter looks at how technology works within the specific challenges of the university setting.

The most important premise to understand as this chapter begins is the assumption that teachers at all levels, but in particular at the university level, must take responsibility for what and how their students learn.<sup>191</sup> Students can make choices about what and how they learn, to be sure; they can attend or not attend lectures, do their homework or not, and seek answers or wait for them to be provided. Teachers, however, make the choices open to the students, Open University professor Diane Laurillard argues, and thus bear the brunt of the responsibility. University instructors should create an environment that encourages and inspires students to explore topics outside of class.<sup>192</sup> At the same time, university professors must reckon with the changing attitudes of their students as they mature into adulthood; whereas students prior to arriving on a university campus tend to regard learning as a process of memorizing facts that are right or wrong, college students slowly begin to realize that knowledge is a relative concept, different according to each person's perceptions

and prior experiences, and affected by an individual's personal values.<sup>193</sup> In this way, the topics being taught at the university level are influenced by what the learner perceives the instruction to be; "the message of any lesson is what the child makes of it, not what the teacher intends it to be."<sup>194</sup>

### **Challenge of University Class Formats**

The most common classroom format at the university level, particularly for introductory courses, is the lecture course. Large numbers of students must complete core requirements, and it is more efficient to conduct these classes on larger scales, conveying "subject matter and the essentials of a discipline to large groups rather than small ones."<sup>195</sup> Composed of a large classroom often filled with hundreds of students, the course centers on lectures and examinations. Sometimes, smaller groups of students break up into lab or discussion sections, often led by teaching or graduate assistants, but on the whole students are on their own to attend class, take notes and keep up with the coursework. The format presents unique challenges to conscientious teachers:

The lecturer must guide this collection of individuals through territory the students are unfamiliar with, towards a common meeting point, but without knowing where they are starting from, how much baggage they are carrying, and what kind of vehicle they are using.<sup>196</sup>

Instructors of lecture courses rarely have the time or opportunity to come to know each student personally. Those students who speak up in class or visit the professor's office are among a small group of highly motivated students. With such large



classrooms and infrequent meetings, William Smith, professor of journalism at Northeastern University, argues using the Internet is a natural way to initiate closer contact between instructors and students where such contact would traditionally be almost impossible.<sup>197</sup>

The progress through academia relies on the principle of building upon prerequisite knowledge. University programs design curricula that emphasize this knowledge-building process. Upper-level coursework, often conducted in seminar format, assumes students have mastered a certain amount of this prerequisite knowledge. Yet, Laurillard argues, “greater modularity in courses decreases the likelihood that they will have acquired those concepts.”<sup>198</sup> J.T. Johnson, professor of journalism at San Francisco State University, concurs students are often ill-equipped for university-level courses: “the intellectual preparation of undergraduates has declined.”<sup>199</sup>

### **Individualization of Instruction**

In this atmosphere of education en masse and differing levels of prerequisite knowledge, a good instructor must tailor the class to the needs of the students. For many, technology is an effective tool for doing this. The computer is frequently touted as being able to accommodate differing learning styles, backgrounds and needs.<sup>200</sup> Technology can help customize learning activities to individual students by taking into account not only learning style, but also what the student already knows.<sup>201</sup> Technology helps with more than just accommodating the students’ needs;

Laurillard describes the paradox of wanting all students to learn the same thing, yet wanting each to interpret the subject in their unique manner. Technology can help disseminate the same information while giving students an opportunity to make that information their own.<sup>202</sup>

The importance of a student's background in his or her education is often overlooked. Because students do experience learning in different ways, teachers have no way of knowing exactly how their messages are being interpreted by their students. The university atmosphere, where a single class may have 150 or 200 (or more) students, makes this task nearly impossible, even though a student's success depends on being able to relate to the material personally. "The entire pre-history of their academic experience up to the time of a learning session can be implicated in what they do."<sup>203</sup> Some students progress through a course's reading materials and activities briskly, while others need more time to digest new information.<sup>204</sup> Esther Steinberg, who works in the Computer-based Education Research Laboratory and College of Education at the University of Illinois at Urbana-Champaign, argues books can offer this to students. While each student may receive the same book to read, a learner reads at his or her own pace and "learns what she is capable of and motivated to learn."<sup>205</sup> But it is impractical to suggest professors could come to know each student well enough to meet that student's individual learning needs. Reducing teacher-to-student ratios down to 1:4 or 1:5 would be cost-prohibitive. Technology, particularly computer-aided instruction, is the most practical hope educators have to meet this need.<sup>206</sup>

While students may be able to construct knowledge in a way that is more relevant to their existing knowledge and experiences in a technology-rich classroom,<sup>207</sup> it also limits the amount of personal feedback the student can receive.

Writes Steinberg:

Human instructors can be flexible in judging a student's response because they can draw on their large store of knowledge ad hoc. They can accept an answer that is correct even if it is not the one that they anticipated. Instructors know if an answer is partially correct and can provide appropriate feedback.<sup>208</sup>

Computers, she says, are limited in this respect by the ways in which they have been programmed. And, if a student asks a question, the computer may not always be able to parse it and provide an answer. Teachers are important for clarifying, guiding and propelling.<sup>209</sup>

### **Role of the Teacher**

At the university uniquely, teachers work in three distinct areas: teaching, research and scholarship, and service to the community and profession.<sup>210</sup> Of the three, the area that garners promotion and tenure most effectively is not teaching, but a professor's record of publishing original research.<sup>211</sup> Even though universities exist for the education of students, it is scholarship upon which the university seems to place the greatest value. Professors feel themselves pulled in many directions and can often be found operating in many different roles on campus. It is not hard to understand why many college-level teachers feel overwhelmed by the demands of reformers to integrate technology into the everyday classroom environment.

The dynamics of academia can make adopting classroom technologies difficult intellectually and psychologically for those professors who try. Technology challenges the professor's absolute authority on a given topic by shifting the classroom dynamic from a professor-as-lecturer climate to one where the instructor is more often found facilitating discussion and leading students to their own knowledge acquisition.<sup>212</sup> Steven Gilbert, director of technology projects for the American Association for Higher Education, argues technology has already managed to reshape the ways academics think of the canon of knowledge in their fields. They suggest faculty members more so now think of the "knowledge base in their fields as dynamic and dependent upon the interaction of scholars, teachers and learners."<sup>213</sup> One college professor describes the traditional lecture format as a "sage on stage" classroom, which he calls "the metaphor for traditional passive-learning environments."<sup>214</sup> In a technology-rich environment, much of the learning is done through a more visual medium, with students discovering information for themselves. Lee Alley, with Learning and Information Technologies at the University of Wisconsin System, describes his own odyssey as he began preparing for a course in which he was integrating technology. He says this environment casts the "learner onstage, and support staff as stage hands, with the professor directing it all." That, he says, is the archetype for the kind of student-centered learning technology supporters hope to achieve.

Staying abreast of changes in technology and how to solve technical troubles represents a large problem area for the teachers themselves.<sup>215</sup> "Having the

technology is useless if faculty members are unable to take full advantage of it.”<sup>216</sup> Without adequate technical support and resources, faculty members are burdened by yet another responsibility in keeping the computers they use to teach operational. When there is adequate technical support and resources, they must still face the burden of continually learning new skills required to teach their students. Faculty members who are computer savvy have developed their own software applications to augment their classes in almost all disciplines, but they are the exception, not the rule.<sup>217</sup> Designing their own applications allows the professor to tailor the program exactly to his or her needs. An IBM executive predicted these kinds of homegrown programs will eventually be replaced by commercial applications, simply because universities are not set up to market and distribute software.<sup>218</sup> When professors take the time to be innovative with technology, it very rarely results in recognition or promotion from the university.<sup>219</sup>

The most vocal of educational technology supporters argue computers can help teachers save time. An IBM executive, for example, writes: “Instructional software is necessary to create a less labor-intensive model of teaching and learning.”<sup>220</sup> This fallacy is contradicted by abundant research to the contrary. Study after study confirms integrating technology into the classroom usually requires more time from the instructor and more time from the students.<sup>221</sup> Adopters of technology, Gilbert and Green argue, find it difficult to be leaders in using technology to teach without simultaneously adopting new approaches to teaching and learning as well.<sup>222</sup> Rethinking teaching is a natural extension of rethinking the tools used to teach, they

say. This only adds to the preparation time involved for classes. Even those instructors who attempt to integrate technology without dramatically changing their teaching style or techniques report the addition of the technology increases their workload.<sup>223</sup>

### **Academics Are Not Always Teachers**

University-level teachers should know more than the subject matter they are teaching; they must also know the ways in which it can be understood or misunderstood and how individuals experience the subject.<sup>224</sup> Teaching is more than just imparting knowledge, but rather making learning possible.<sup>225</sup> Learning is an activity, of which knowledge is just one component.<sup>226</sup> Even so, there is little research available on student learning at the university level, possibly because, Laurillard argues, there is no teacher-training requirement placed upon university instructors.<sup>227</sup> Research shows learning occurs best when information can be related to something the student already knows.<sup>228</sup> Yet by the very nature of academic knowledge, there are many ways of coming to know a topic, and by extension many ways of failing to know it.<sup>229</sup>

Not only has the subject matter teachers are expected to know — and indeed master — increased, but the sources of that information have exploded exponentially. A particularly enthusiastic account observes: “Disciplinary bulletin boards allow faculty who have never met to share a course syllabus or exchange information about textbooks and teaching resources.”<sup>230</sup> While it is true the Internet facilitates greater

information sharing, in doing so it has the potential to make unmanageable and overwhelming the amount of information an instructor must evaluate in designing and executing a course.

Department chairs, administrators and peers pressure academics to produce original research, present papers at conferences and continually develop new bodies of knowledge for their field. Academics are promoted and given tenure largely on the basis of their research. The tradition of scholarship within the university setting is as old as the university itself — and indeed it should be. Academics, presumably the most learned in their fields, have an obligation to their years of study to deepen the knowledge available to their fields.

Teaching, then, becomes a secondary activity to the scholarship and research upon which so many university departments focus. The incentives for taking advantage of online tools for syllabus swapping and resource sharing, then, are quite low for most university professors. Add to this reality even an ounce of intellectual conceit — not at all uncommon in academics, who have spent, often, their lifetimes acquiring a highly specialized body of knowledge — and it becomes clear why information sharing in higher education does not occur more often. “It’s not easy for a long-time successful college teacher to start knocking on doors asking for advice on teaching. It can raise questions — and even eyebrows,” writes one particularly candid professor.<sup>231</sup>

### **Social Aspects of University Education**

Universities, responding to challenges from for-profit entities offering distance-learning opportunities online, have begun offering their own flavor of distance-learning classes nationwide. While distance-learning classes make available to a broad range of potential students opportunities to take classes and work toward a degree or certification, not all educators are excited about the opportunities presented. One critique is also lodged with instruction involving computers, even in a physically assembled classroom: Education should include one-on-one social characteristics. “The absence of personal interaction by students with their peers, teachers, academic advisors and student affairs personnel,” Myles Brand says, removes the “social dimension of learning.”<sup>232</sup> Brand, who is the president of Indiana University, argues the college classroom, as a social environment, can often spark competition between students, which becomes a strong source of motivation for learning and achievement. What’s more, Brand says, the university provides a unique atmosphere, quite unlike the home or the secondary school, that is capable of assisting young adults in developing maturity and leadership skills they need to succeed after college. “The learning that happens in the course of a college education goes beyond classroom knowledge to confer qualities and attitudes that are best acquired in a climate of shared enterprise.”

Technology in the classroom suffers criticism for being a barrier to this kind of social education. Technology critic and computer-security expert Clifford Stoll says technology steals the “Aha” reaction from teachers as their students see understanding creep across the face.<sup>233</sup> Catherine McHugh Engstrom of Syracuse



University fears technology at the university level discourages students from taking part in extracurricular activities on campus.<sup>234</sup> Stoll predicts:

When it comes time for a letter of recommendation, [the] instructor will be able to write: "I watched student 72143 on my screen and often exchanged e-mail with him. He will make an excellent android."<sup>235</sup>

Beniger discusses how technology is used to increase control. While it is demonstrably true that teachers and administrators both crave control, there is also research indicating technology is a motivator for the learner because it increases his or her control over learning:

Many students are motivated by feeling they are in control of their own learning. ... When students perceive themselves as in control of their learning, the result has been called intrinsic motivation, or being motivated by the awareness that they are learning.<sup>236</sup>

Indeed, many researchers and scholars argue technology provides an increased motivation for students to participate and learn in a classroom environment. "Motivating students to learn, to enjoy learning and to want to learn more has assumed greater importance in recent years," one educator writes.<sup>237</sup> And in fact, educational researcher Robert Gagné found that "gaining the learner's attention is a critical first event in providing optimal conditions for instruction." A survey of journalism and mass communications programs about their use of new media, published in 1998, found that respondents to the survey felt new media in the classroom increase student attention.<sup>238</sup> And yet, the effect a good teacher has on student motivation and enthusiasm is undeniable: A great teacher inspires a student to

work hard at learning, sometimes just with a smile.<sup>239</sup> Technology promoters counter: A great teacher inspires students to work hard at learning while making the technology transparent.<sup>240</sup>

### **Summary**

Higher education has a number of unique qualities that can complicate attempts to introduce technology into the classroom. Faculty members face enormous pressure to operate as scholars, instructors and community servants, each role requiring time and preparation from the faculty member. Adding yet another requirement to the faculty member's already full dossier of activities — such as becoming familiar enough and comfortable enough with technology to use it effectively in the college-level classroom — must be done carefully. Many college-level courses are conducted as large lecture-format classes, where an instructor may never learn each student's name, much less how they learn or what background knowledge they bring to the course. Technology may allow instructors a means of accommodating different learning styles, backgrounds and needs. It can also help improve student-teacher interactions for shy students or those for whom English is not a first language. But a conscientious look at the reality of university-level teaching reveals an incredible burden placed on the faculty. Expected not only to educate an increasing number of students each year, faculty must also produce sizeable bodies of original, published research if they are to be promoted and receive tenure. It is virtually impossible for an excellent teacher to be promoted without

having published scholarly articles, yet faculty with large amounts of published research that have comparatively poorer teaching skills are often successful in being promoted and receiving tenure. Technology cannot make an ineffective teacher more effective, but it can help teachers become more aware of the learning process and take steps to become better instructors.

## **Chapter 5: Technology in Journalism Education**

If college-level instruction presents challenges unique to higher education, journalism education further complicates educating students with its two dueling goals — liberal-arts education and vocational training. Journalism education has throughout the years been divided by two differing philosophies. Academics and editors continually argue about what journalism programs should teach; academics argue journalism students need a strong liberal-arts education with historical and theoretical coursework in journalism curricula, while editors want journalism graduates who have certain skills, not the least of which is the ability to write well. With regard to technology, many professors, instructors and department heads assert that journalism education at its best pays no heed to the changing technologies, but rather instructs students on the basics of good reporting and writing. These educators would argue that technologies change but the basic skills of journalism remain the same. Others within journalism education believe communication technologies inherently change the way people interact and communicate, requiring journalism programs to keep up-to-date on new technologies so graduates understand the complexities and issues inherent in the changing world of communications. These educators believe technology to be a tool as well, but one that must be studied as an integral part of communicating.

Across the country, journalism programs, like many academic disciplines, face increasing difficulty in funding their programs in a climate of higher-education budget cuts, and there is no denying technology does not come cheaply. The New

York City public school system spent \$250 million on technology in the 2001-2002 school year. Though it was just a fraction of the district's \$13 billion budget, that money could have hired 7,800 first-year teachers, bought 5 million textbooks or paid for 10 million hours of tutoring.<sup>241</sup> At the same time administrators are cutting departmental budgets, journalism schools are facing increasing criticism from the media outlets hiring journalism graduates, lamenting the poor preparedness of graduates for real-world work. Journalism program administrators are faced with criticism from many sources: if they focus on teaching students skills, they lose footing with liberal-arts administrators who often regard journalism as a vocational training program; if they focus on liberal-arts education, their students may graduate without having the skills employers want. If journalism programs invest in technology, they sacrifice other resources and activities; if they don't, they fear students will be ill-equipped to enter the workforce. A survey sent to more than 600 college professors in all disciplines found journalism departments are often named as ones that could be cut without significant impact on the quality of the educational institution.<sup>242</sup> The 600 survey participants were selected randomly from the National Directory of Faculty Members; of the 600 contacted, 225 participated.

Amidst these challenging times for journalism programs, many journalism departments are moving toward a curriculum that focuses on media convergence, cross-training journalism students to work in a variety of media with a variety of technology. The amount of information students must learn in these revamped programs proves difficult for accredited programs, bound by accrediting guidelines to

keep journalism coursework to 25 percent of a student's total coursework. Faculty already challenged by their roles as teachers, scholars and community servants now must cram more skills and information into their classes. And they must do it all cheaper and to a larger classroom. This chapter looks at these issues, giving some context to the problem of bringing educational technology into the journalism classroom.

### **Journalism as a Profession**

Scholars and journalists alike have debated journalism's role as a profession for decades — well before any coursework in the subject was offered in the United States. Charles F. Wingate, a New York newspaperman, published a book in 1875, *Views and Interviews on Journalism*. There, he wrote:

During the last 20 years journalism has become prominent, if not preeminent, as a profession. The press is to-day the most potent agency for good or evil; and editors, far more than statesmen, are the guides of current opinion.<sup>243</sup>

Another newspaperman, Eugene M. Camp, delivered an address in 1888 to the Alumni Association of the Wharton School of Finance of the University of Pennsylvania, "Journalists, Born or Made?" His address was so compelling that the university inaugurated a program of professional training for newspaper work in 1893 within the Wharton School of Business.<sup>244</sup> He said:

Journalism is a trade. It ought to be a profession. It is a modern growth without accepted definitions or reliable statistics. What is news? The books do not tell us. What is the annual value? Nobody knows. Even as a trade, journalism has no recognized standard, no

apprenticeship, no prescribed preparation. Those who follow it, got into it, they hardly know how.<sup>245</sup>

Pulitzer's journalism education program was comprised of individuals who believed "journalism is a profession per se, and as such calls for training of the editorial department alone." This philosophy contends journalism is equal to the professions of medicine, law and theology; journalism, to them, is encompassed within the editorial department and does not include departments such as advertising, circulation and general business.<sup>246</sup>

Independent of discussion of journalism's relative merits as a profession, Myron Lieberman once described the characteristics of a profession as such:

1. A unique, definite and essential social service.
2. An emphasis upon intellectual techniques in performing its service.
3. A long period of specialized training.
4. A broad range of autonomy for both the individual practitioners and for the occupational group as a whole.
5. An acceptance by the practitioners of broad personal responsibility for judgments made and acts performed within the scope of professional autonomy.
6. An emphasis upon the service to be rendered rather than the economic gain to the practitioners, as the basis for the organization and performance of the social service delegated to the occupational group.
7. A comprehensive self-governing organization of practitioners.
8. A code of ethics which has been clarified and interpreted at ambiguous and doubtful points by concrete cases.<sup>247</sup>

Paul Dressel, director of institutional research at Michigan State University, argues that journalism as a profession, relative to these eight points, reasonably well fulfills criteria 1, 2, 5 and 6, with criteria 3 and 4 less satisfactorily met, and criteria 7

and 8 even less satisfactorily met.<sup>248</sup> “The body of professional knowledge demanded ... is less clearly defined for journalism than for other professions such as medicine or law,” he writes. He concludes the relative professionalism of journalism depends on the criteria applied, but that strictly speaking, journalism does not qualify as a profession as exemplified by law and medicine.<sup>249</sup>

Another study, which draws on the work of Vollmer and Mills, concludes that a profession is an ideal type of occupation, with the degree of professionalism depending on the extent to which a given occupation possesses the following characteristics:

- (a) a systemic body of theory regarding the professional skills; (b) grant professional authority to their members; (c) have the sanction to act in special areas; (d) possess a regulative code of ethics; and (e) develop a professional culture.<sup>250</sup>

Journalism schools, by virtue of their existence, have lent an air of professionalism to journalism, and their ability to do so increased once journalism schools were more established.<sup>251</sup> In the early days of journalism education, universities were consumed with curriculum development and fighting for respectability and accountability, both for journalism education and for the field itself. Yet, unlike most professions, the only credential a person needs to be a journalist is a pen and paper. Even most journalism graduates earn no more than a bachelor’s degree. Professor of journalism at San Francisco State University J.T. Johnson argues all journalism bachelor’s degrees should be eliminated, making journalism exclusively a graduate-school program. “How many bachelor of medicine



degrees or bachelor or law degrees are granted?” he asks.<sup>252</sup> This action, he says, would give journalism the appropriate air of professionalism necessary, while giving undergraduates a chance to acquire the liberal-arts education they need.

### **Liberal-arts Education or Vocational Training?**

Most early professional education programs, including journalism, historically tended to offer narrowly technical studies.<sup>253</sup> One observer of journalism education wrote:

In the formative period of a professional education program, it may be anticipated that the current professional thinking and needs will dominate the curriculum. In later periods the educational program and those directly involved in it may contribute to a changing conception of the profession.<sup>254</sup>

In fact, the earliest journalism education programs focused mainly on technical and vocational training. This focus was not without its critics. From the beginning, journalism education was criticized by academics and professionals; academics argued there was no value to providing “practically oriented training” at the college level, while working journalists believed the best training was earned on the job.<sup>255</sup> In nearly 100 years of journalism education, this debate has lost none of its fervor.

A relationship of animosity has often existed between newsrooms and journalism education programs. The American Council on Education for Journalism for many years was concerned primarily with bettering the relationship between professionals and educators, with mixed results.<sup>256</sup> The Association of Educators in

Journalism and Mass Communications (AEJMC), which since the 1940s has served as the official accrediting body of journalism and mass communications education programs, limits to 10 percent the number of college credits students can earn for internships.<sup>257</sup>

As journalism programs have shifted away from the early days of vocational training to full-fledged liberal-arts programs, so too have professionals implored journalism programs to graduate students with basic journalism skills: reporting, editing, storytelling. The pressure may be counterproductive; the lack of support from the industry leads many journalism administrators to move programs away from job-training coursework to more theoretical classes.<sup>258</sup> When the industry does speak, it does not speak in unison. “If the industry doesn’t agree on what new skills journalists need, it will be hard for journalism schools to know what to teach.”<sup>259</sup> The very nature of university hiring goes against the industry’s demands for skills in today’s graduates. Universities all but require new professors to have a Ph.D., not the path most professional journalists take to the chalkboard, because they often regard academic journalism as impractical.<sup>260</sup> Academic journalists have a firm grounding in the history of journalism and the issues facing journalism today, such as corporate mergers, expansion of alternate media and convergence, but, professionals wonder, do they know how to write a hard-hitting lede? Can they tell a story? Lee Becker, director of academics for the journalism department at Ohio State University, suggests journalism professors should spend time in newsrooms, honing the very skills their students will need upon graduation.<sup>261</sup> Journalism graduates today have an

abundance of skills acquired from work on student publications, broadcasts and exposure to technology throughout their childhood lives, but they often leave journalism courses not knowing the basic rules of grammar and syntax.<sup>262</sup>

The counterargument is that “journalists, first and foremost, must be strong critical thinkers.”<sup>263</sup> Journalism students must be instructed in geography, history and the human condition to understand the events they will cover. From the beginning of the journalism industry, professionals have recognized no amount of classwork can train a journalist as effectively as a few months on the job will. Subjects such as economics, ethics, literature, politics, culture and technology are prerequisite knowledge for most of today’s journalists.<sup>264</sup> Informed students are what keep democracy working.<sup>265</sup> Furthermore:

Liberal education is incomplete if it does not prepare educated people to address the presence of technology — and more importantly, the presence of the information products of technology in the modern world in an informed and critical way.<sup>266</sup>

Critical thinkers have been taught how to learn, which may be one of the most important skills journalism graduates can have today. Journalism grads must be able to acquire new skills on the job and continually increase their body of knowledge. The ability to learn is more important to the industry than any particular skill a graduate might bring to his or her first job.<sup>267</sup>

This topic shifted from one of intellectual debate to one of pressing importance when the new president of Columbia University, home to one of journalism education’s most prestigious schools of journalism, halted a search for a

new dean of the journalism school in July 2002. Lee Bollinger, Columbia's new president, said he made the decision to halt the search so a task force could examine what the journalism school should be teaching. Bollinger contends the school, which currently offers only a 10-month master's degree program for those wanting to study journalism, was focused too much on the craft of journalism and not enough on substantive issues, "like changes in communications and the role of a free press."<sup>268</sup> Bollinger also says he believes journalism education should be more "intellectually based."<sup>269</sup>

### **Convergence**

Technology and relaxing regulation of the media across the country are major factors contributing to what journalism programs have billed the "convergence" of the media. Relaxed regulations are slowly allowing more newspapers and television stations within the same city to be owned by the same company, a practice that has historically been forbidden by the Federal Communications Corporation. Reporters who once worked strictly in print media now may find themselves writing stories for traditional media and for online publication, talking about their stories in a streaming video broadcast or a TV talk-back interview, and analyzing a story the next day in print again. The distinction between print reporters and broadcast reporters is blurring.<sup>270</sup>

Technology skills are largely driving this rush to teach journalism as media convergence. Those journalists who have technology skills, the reasoning goes, will

be the journalists who are hired and succeed.<sup>271</sup> Many reporters today use the Internet to fact-check stories or keep an eye on the competition. Others will write a lengthier story for their publication's or station's Web site.<sup>272</sup> Using the Internet to report and fact-check stories means journalists must have a firm grounding in critical thinking; because anyone can publish a Web site, information found on the Internet must be verified.<sup>273</sup>

There are professionals who argue cross-training journalism students is counterproductive:

The fully formed, all-purpose, multi-platform, gadget-laden journalism grad is NOT what we're looking to hire. ... Journalism schools must continue to produce graduates who are competent in one craft area: reporting, design, producing, directing, editing.<sup>274</sup>

Johnson says journalism programs as they exist today cannot adequately train students with the skills professionals are demanding.

### **Accreditation**

The establishment of standards and a program of accreditation for professional educational programs certainly gives journalism education a modicum of professionalism.<sup>275</sup> The first organization to offer accreditation for journalism was founded in 1912 as the American Association of Teachers in Journalism. This group is now known as the Association for Educators in Journalism and Mass Communication, or AEJMC. Another association, the American Association of Schools and Departments of Journalism (AASDJ), was founded in 1917. The AASDJ,

composed of only those schools offering accredited professional programs, was the first organization to prepare a set of standards, in the form of rules for membership.<sup>276</sup>

A disagreement in accrediting procedures led, in 1945, to the establishment of the American Society of Journalism School Administrators, which was composed of smaller schools that, for the most part, did not receive accreditation.<sup>277</sup>

The American Council on Education for Journalism, “a product of increasing accord among earlier established groups and professional groups, had become the chief accrediting agency.” Formal accrediting began in 1945; by 1951, 39 institutions offering 106 sequences had been accredited.<sup>278</sup> The AEJMC was sanctioned by the U.S. Department of Education in the 1940s to coordinate accreditation of journalism education programs.<sup>279</sup> Seven aspects of journalism education were of particular interest to the AEJMC:

- (a) adherence to the rule that no more than 25 percent of a journalism student’s college coursework should be in journalism, often referred to as the “75-25” rule; (b) the nonjournalism coursework students take; (c) the requirements within the “25 percent” journalism curriculum; (d) the overall course quality; (e) student success in the fields of communication; (f) the quality of the faculty; and (g) the quality of the facilities.<sup>280</sup>

Because of a disagreement between the AEJMC and two universities, Northwestern University and Boston University, neither of which were accredited as of 1984, the AEJMC standards revision committee recommended changes in 1984 to change the “75-25” rule to “approximately 25 percent.”<sup>281</sup>

These rules for journalism accreditation make it difficult for journalism programs to change in such a way to allow students to acquire more skills and cross-

training. Journalism programs already have a great deal of ground to cover in their coursework, and adding classes in other journalism program disciplines is almost impossible with the 75-25 rule. The same is true when journalism programs talk about adding more coursework dealing with the technology of journalism: There just is not a lot of room left in tight journalism programs.<sup>282</sup> This dilemma harks back to the debate discussed earlier, between professionals, who argue journalism graduates need more practical skills, and academics who, want to give journalism students a solid grounding in the liberal arts. Striking the right balance is key — and very difficult to achieve.<sup>283</sup> This is not just a problem unique to journalism programs. Degree programs across campus feel the pressure of “straining to accommodate both the liberal arts and an expanded disciplinary content within a four-year baccalaureate degree program.”<sup>284</sup>

### **Hypertext and Other Innovations in Writing**

Technology in journalism education can be quite useful, despite the many challenges facing academics who attempt to do it. Many academics suggest the invention of hypertext in the 1960s by Ted Nelson radically changed the way communication took place, in such a way that challenged traditional notions of communication. Hypertext was defined then as “non-sequential writing with reader controlled links.”<sup>285</sup> What made hypertext unique was the way the user interacted, in a very hands-on manner, with the information. No complete narrative exists in

hypertext until the user creates his or her own story, through selecting options that best suit his or her interests.

This form stands in complete contradiction to what has long been the journalistic narrative style, wherein a single, authoritative voice crafts a story fixed in order and story line. Hypertext does not communicate in a single voice, but rather takes into account many perspectives and voices to tell a story. Journalists are taught to report the facts and provide a single account of the truth. Hypertext challenges this value by embracing “notions of contradiction, fragmentation, juxtaposition and pluralism.”<sup>286</sup> The idea that there is no truth to be found, but rather a variety of perspectives and ideas, presents serious challenges to educators who train journalism students to report and write about social reality.

Robert Huesca, associate professor of communication at Trinity University, argues readers have always been active and self-reflective, that it is the journalists, in recognizing the challenges and qualities of these new communication media, who are changing. Journalists of the future must realize readers are active and reflective, and must provide readers with choices that fulfill their reading preferences. Journalists are taught to remember their readers when reporting and writing a story. In the future, journalists will also have to concern themselves with an “understanding of user expectations and information-seeking strategies.”<sup>287</sup> Journalists will not only be concerned with the content of their stories, but also the design of their work.

“Editing other students’ writing is more effective than looking for one’s own mistakes, and that students felt more comfortable editing the work of distant peers



than that of their classmates.”<sup>288</sup> By using computer technology to create a more anonymous peer network, students feel more comfortable offering critiques and suggestions for others’ writing, and are able to provide that criticism in a way that multiplies the value to the writer.<sup>289</sup> Copy editing skills improve with the use of technology.<sup>290</sup>

### **Attitudes Inside Journalism Departments**

A study conducted by four researchers in 1996 sought to discover the attitudes of professors about new-media technology. While the researchers also surveyed students, the findings relating to the faculty’s feelings provide a fascinating road map that might, with further study, give insights to other departments across campus. The study was not intended to be generalized, however; it looked at a single Midwestern university and used a method of sorting that the researchers made explicit was not intended for generalizability. From the research findings emerged four factors, or attitudinal types, groups of people who felt similarly about new media. Those four the researchers named: Champion of Change, Pessimistic Prophet, Laid-Back Liberal and Skeptical Optimist.<sup>291</sup>

The Champion of Change, the research shows, embraces the changes wrought by technology with open arms. He feels excited about the opportunities provided by technology, and believes audiences will be able to provide almost instant feedback to the media. He strongly believes the new media will force educators to revise the ways in which they teach people how to write and work for the media. Finally, the

Champion of Change sees new media as something that is controllable. The Pessimistic Prophet, by contrast, is afraid of new media technology and believes himself to be one of the few who can see technology for what it really is. The Prophet fears new media's ability to give the reader/user ultimate control over what news he or she is exposed to will cause people to become isolated and less aware of the world. The Prophet also believes technology to be uncontrollable.

The Laid-Back Liberal sees new media as problematic but ultimately not as worrisome as the Pessimistic Prophet. He believes those who use new media tend to be active decision-makers, not those who would passively be controlled. "Technology doesn't manipulate — corrupt people in power do," summarizes what the Laid-Back Liberal feels. The Liberal does not fear computers will threaten his future as a journalist. What worries the Laid-Back Liberal is technology's ability to "deepen divisions among the social classes." Conversely, the Skeptical Optimist truly wants to believe technology can improve society and quality of life, but is not convinced it will. He often believes new media technology create a stronger sense of community, but not necessarily narrow the information gap between the rich and the poor. The Skeptic also fears new media will actually decrease the number of viewpoints, where those views are held by individuals who do not have access, for reasons of socioeconomic status, geography or personal preference, to new media technology.

## Summary

Journalism education is, at many institutions of higher learning, at a crossroads; pressures from within the academic community push journalism programs to offer traditional liberal-arts courses, while the journalism industry pushes program administrators for graduates with job-specific skills and experience in writing, reporting and using certain kinds of equipment and technology. The conflict points to a larger debate of whether journalism is a profession or a vocation. This debate challenges the existence of journalism programs, because the debate occurs at a time when universities and colleges are faced with tightening budgets and a need to make cuts. Many academic colleagues from other disciplines believe journalism programs could be cut without a significant impact on the quality of the school. Yet those most strongly in favor of journalism education push for more than the coursework allowed under the “75-25 rule,” or in some cases argue journalism can only be taught adequately as a master’s program. Indeed, the current climate of media convergence means journalists today must be skilled in how different types of media operate. Journalism educators are expected to give students more knowledge and skills than ever, but the rules of accreditation have not changed to reflect changes in the media. Attitudes within journalism education range from those who embrace the new technologies to those who change nothing about their teaching.

## **Chapter 6: How Are Arkansas Colleges and Universities Using Technology in Journalism Education?**

A 1992 study of accredited journalism programs in Arkansas made this observation about the availability of computers for faculty use:

Each faculty member should have his or her own computer. The policy of providing incoming faculty with computers is excellent, however, those already on board should be given the same facilities to enhance their academia and professional endeavors.”<sup>292</sup>

The study was the only of its kind to look at accredited journalism programs in the state, and it focused only briefly on the technology used to teach.

This chapter summarizes and analyzes results of a survey conducted in the spring of 2002 that takes a deeper look at the technology being used in Arkansas by journalism instructors at both accredited and non-accredited programs. In some cases, there is no “journalism program” to speak of, but one or two professors teaching journalism courses within another department, such as communications. How journalism professors and instructors use technology in their instruction directly impacts how their students learn. Journalism graduates must have the ability to learn from technology to succeed. The use of technology for this purpose in the journalism classroom helps students acquire the kind of technological fluency they will need in their careers.

## **Survey Method**

This survey looks at how Arkansas journalism professors and instructors use technology in their classrooms. In the fall of 2001, a review of the Web sites for each college or university in Arkansas was conducted to determine what institutions, both public and private, offered journalism coursework. Eleven schools were identified as having some kind of journalism class available. Where faculty lists were available online, I gathered physical and e-mail addresses for survey distribution. Where faculty lists were not online, I contacted the department chair to get a list of faculty who teach journalism courses. Every effort was made to contact all faculty members in the state who have teaching responsibilities in journalism. A total of 101 faculty members were contacted up to three times to participate. Of those, a total of 36 filled out the survey, a response rate of 35.3 percent. Twenty-four respondents were men and 12 were women.

The survey tool was developed and reviewed to measure what technologies Arkansas journalism faculty members use to teach and in their individual activities. It was then sent by e-mail and regular mail to professors and instructors at Arkansas colleges and universities with journalism programs, departments or classes. Faculty members had three options for completing the survey: they could fill out the survey online, print it and return it by mail, or return the hard copy mailed to them. A copy of the survey and full results can be found in Appendix I.

## **Respondents**

At least one faculty member responded to the survey from each of the 11 institutions identified as having at least one journalism course available. Those institutions are: Arkansas State University (Jonesboro), Arkansas Tech University (Russellville), Henderson State University (Arkadelphia), Harding University (Searcy), John Brown University (Siloam Springs), Ouachita Baptist University (Arkadelphia), Southern Arkansas University (Magnolia), the University of Arkansas (Fayetteville), the University of Arkansas at Little Rock, the University of Arkansas at Pine Bluff and the University of Central Arkansas (Conway). The respondents represent the full spectrum of faculty positions, from instructor to dean. Each respondent said he or she has teaching responsibilities for a range of courses, a compiled list of which can be found in Appendix I.

## **Use of Technologies in Journalism**

The survey sought to identify what technologies journalism faculty members use, both in teaching and outside the classroom. Professors and instructors were also asked to rate their overall comfort with technology, as well as their comfort with individual technologies. Faculty members were asked to identify what computer software and hardware resources are available at their institution, as well as any computer labs or broadcast facilities. Two final questions asked the faculty to relate experiences they have had with technology, and specifically how they feel the

technology impacted the students' learning or excitement about the course. Below is a summary of the actual questions and responses. An analysis of the results follows.

**Question 1: Which of the following technologies have you used to TEACH in the last two years? (Pick all that apply.)**

<b>Technology</b>	<b>Yes (percentage)</b>	<b>No (percentage)</b>
CD-ROMS	63.9	36.1
In-class computer labs with self-directed lessons	50.0	50.0
Interactive, online chats and/or discussions	19.4	80.6
Your own Web site	27.8	72.2
Online tutorials (created by someone else)	19.4	80.6
Online tutorials (created by yourself)	8.3	91.7
Power Point presentation	47.2	52.8
Videoconferencing	8.3	91.7
Videos (VHS / Beta / DVD)	88.9	11.1
Online course builder software or supplement (e.g., WebCT)	22.2	77.8

**Question 2: Which of the following technologies have you attended training for?**

**(Pick all that apply.)**

<b>Technology</b>	<b>Yes (percentage)</b>	<b>No (percentage)</b>
In-class computer labs with self-directed lessons	11.1	88.9
Power Point presentations	33.3	66.7
Videos (VHS / Beta / DVD)	13.9	86.1
Online course builder software or supplement (e.g., WebCT)	19.4	80.6
Your own Web site	27.8	72.2
CD-ROMS	8.3	91.7
Interactive, online chats and/or discussions	2.8	97.2
Online tutorials (created by someone else)	8.3	91.7
Online tutorials (created by yourself)	2.8	97.2
Videoconferencing	8.3	91.7

Questions 3 and 4 asked faculty members to gauge their comfort level with technology. Both questions used the following Likert scale:

1	2	3	4	5
Not at all Comfortable		Comfortable		Very Comfortable

**Question 3: Overall, how comfortable do you feel using technology to teach?**

Mean response: 3.62

Median response: 3



**Question 4: How comfortable do you feel using the following technologies?**

<b>Technology</b>	<b>Mean</b>	<b>Median</b>
CD-ROMs	4.24	5
In-class computer labs with self-directed lessons	3.72	4
Interactive, online chats and/or discussions	2.88	3
Your own Web site	3.06	3
Online tutorials (created by someone else)	3.14	3
Online tutorials (created by yourself)	2.91	3
Power Point presentations	3.51	3
Videoconferencing	2.74	2
Videos (VHS / Beta / DVD)	4.75	5
Online course builder software or supplement (e.g., WebCT)	2.53	2

**Question 5: Which of the following software packages do you use? (Pick all that apply.)**

<b>Technology</b>	<b>Yes (percentage)</b>	<b>No (percentage)</b>
Access / Quattro Pro / Filemaker or other database program	8.3	91.7
E-mail (Eudora, Outlook Express, Netscape Messenger, etc.)	97.2	2.8
Excel or other spreadsheet	38.9	61.1
Freehand / Illustrator or other “draw” program	66.7	33.3
FrontPage, Dreamweaver, Composer or other HTML / Web page builder program	36.1	63.9
Photoshop / Paint Shop Pro / Fireworks or other graphics program	63.9	36.1
Power Point or other presentation program	58.3	41.7
Quark Xpress or PageMaker or other desktop publishing program	50.0	50.0
Word / WordPerfect or other word processing program	97.2	2.8

**Question 6: Which of the following software packages are available for your use at your college/university? (Pick all that apply.)**

<b>Technology</b>	<b>Yes (percentage)</b>	<b>No (percentage)</b>
Access / Quattro Pro / Filemaker or other database program	55.6	44.4
E-mail (Eudora, Outlook Express, Netscape Messenger, etc.)	97.2	2.8
Excel or other spreadsheet	80.6	19.4
Freehand / Illustrator or other "draw" program	69.4	30.6
FrontPage, Dreamweaver, Composer or other HTML / Web page builder program	75.0	25.0
Photoshop / Paint Shop Pro / Fireworks or other graphics program	88.9	11.1
Quark Xpress or PageMaker or other desktop publishing program	86.1	13.9
Word / WordPerfect or other word processing program	94.4	5.6
I don't know.	8.3	91.7

**Question 7: Which of the following technologies / hardware / facilities are available for use at your college / university? (Pick all that apply.)**

<b>Technology</b>	<b>Yes (percentage)</b>	<b>No (percentage)</b>
Broadcast studio	91.7	8.3
Journalism computer lab*	86.1	13.9
Laptops for faculty use	47.2	52.8
Laptops for student use	8.3	91.7
Overhead projectors	97.2	2.8
Overhead projectors with computer hookup	88.9	11.1
Video cameras	94.4	5.6
Video editing equipment	91.7	8.3

\* Mean number of computers available in journalism computer labs: 25.77.

**Question 8: If you have used technology to TEACH journalism, how do you believe it has impacted your students' learning and/or excitement about the course?**

**Question 9: Have you had any experiences using technology to TEACH journalism that you're willing to share? If so, please attach a description.**

Full results compiled in Appendix I.

### **Analysis**

Journalism faculty responding to this survey are overall fairly tentative adopters of technology. Each respondent said he or she uses a computer, but few use technology, personally or in the classroom, in innovative ways, instead relying on time-tested ways of using technology in journalism programs. Only three

technologies are used by 50 percent or more of the faculty participating: video (88.9%), CD-ROMs (63.9%) and in-class labs (50%). Power Point presentations are used by 47.2 percent of the respondents, a relatively high percentage in this study. Generally, the first two educational technologies, along with Power Point presentations, tend to be used by most faculty members as Type I applications, involving the technology as a tutor, with the student passively absorbing information from the machine. The television and CD-ROMs can easily fall victim to the student's tendency to see the technology as entertainment and not as educational. In-class computer labs can be either passive or interactive — or both, depending on the activities completed in the computer lab. A study to ascertain what kinds of activities journalism faculty do in the computer lab might be an area for future study.

Faculty members' hesitancy to adopt technology into their classrooms may have something to do with the amount of training they receive. For only two technologies presented did more than a quarter of the responding faculty members indicate they had received any training at all — Power Point and building a Web site. Many professors and instructors use their own Web sites to supplement class work, including links to relevant Web sites, additional information (or copies of information) about assignments and projects, contact information, office hours, etc. I believe journalism professionals may have some influence on this tendency. The industry continues to ask journalism programs to graduate journalists who have a basic understanding of Web-page creation. Many courses now include a final project that requires students to do research online or present a project on a Web site.

The interest in Power Point presentations is not unique to journalism departments. Many departments across campus give students a basic familiarity with Power Point. Colleges face pressure from professionals to give students skills they will need in their future careers. Instructors believe Power Point slides will captivate students' interest far better than a traditional lecture; the professors' notes are easier to read on a projector than they are scribbled on a chalkboard. Preparing the presentation ahead of time frees up the professor to focus on teaching students, not worrying about standing before a class writing each point on the board. But Power Point is not without its drawbacks. Using Power Point, students interviewed for a story mentioned earlier in this thesis were found to be so concerned with the look of the presentation that they knew little about the subject actually being presented. Cavalier use of Power Point for presentations risks sacrificing student comprehension for the bells and whistles Power Point can offer a lecture. Students often become so absorbed transcribing the slides projected overhead that they stop listening to the lecture and understanding the material.

More interactive technologies, such as chats or discussions, online course builder software packages and videoconferencing, would allow students and instructors to build stronger relationships with all members of the classroom, yet most (97.2%, 80.6%and 91.7%, respectively) of those surveyed have not been trained on how to use these technologies.

It is important to point out that a lack of faculty training does not mean there is no training available; faculty members often have available training on

technologies but do not take advantage of the opportunities. One respondent, who works at a facility on campus that provides computer training and support to faculty, listed many training opportunities and resources for faculty assistance with technology. Yet other respondents from the same university did not report having received more training than respondents from other schools. The problem may be one of awareness; faculty members may not be informed about what training opportunities are available at their schools. Finding the time to attend training can be problematic for faculty members with full course loads, research projects and students to advise. If faculty members already feel generally comfortable with a technology, they may fear attending a course that teaches basic skills would be a waste of their time.

Even though most faculty members use a limited number of technologies to teach and have received very little training, they report feeling comfortable with most technologies surveyed. Only two technologies, online course builder software and videoconferencing, had median comfort levels of 2; these two, along with using interactive chats or discussions and personally created tutorials, had mean comfort levels below 3.0, “comfortable.” This finding is somewhat surprising. It may indicate faculty members surveyed have some knowledge of a technology without feeling entirely comfortable on how to use it. The question was open enough to allow each respondent to determine what “comfortable” meant to them.

Personally, faculty members use a variety of software packages. Almost all faculty members said they use e-mail and word processing; most also use a graphics

program and presentation software, and half use desktop publishing programs. Of the technologies available in this portion of the survey, e-mail and word processing are the ones that have been around the longest, suggesting journalism faculty — at least those responding to the survey — are relatively slow adopters to technology.

Journalism programs across Arkansas, based on the results of the survey, are very well-equipped. Almost every technology mentioned in the survey is available at the majority of the respondents' schools. Applications such as e-mail, word processing, spreadsheets, Web page construction software, graphics software and desktop publishing are available at more than three-quarters of those schools represented in this survey. Almost all schools with faculty members participating have a broadcast studio, journalism computer lab, overhead projectors and computer hookups for overhead projectors, video cameras and video-editing equipment available.

### **Relationships within the data**

To analyze the data and gain some insight on how these factors interrelate, a series of cross-tabulations were generated to answer specific research questions. First, I looked at how training impacted actual use of technologies. I originally hypothesized that teachers would be more likely to use technologies in the classroom for which they had received training. Overall, my hypothesis was not supported. A summary follows of actual responses.



CD-ROMs: A slightly larger number (1) of those trained for CD-ROMs use the technology to teach.

	<b>Trained for CD-ROMs No</b>	<b>Trained for CD-ROMs Yes</b>	<b>Total</b>
<b>Teach with CD-ROMs No</b>	12	1	13
<b>Teach with CD-ROMs Yes</b>	21	2	23
<b>Total</b>	33	3	36

Hypothesis supported: Yes

In class labs: The same number of those trained to use in-class labs use them as do not. The training had no effect on the instructor's usage.

	<b>Trained for in-class labs No</b>	<b>Trained for in-class labs Yes</b>	<b>Total</b>
<b>Teach with in-class labs No</b>	16	2	18
<b>Teach with in-class labs Yes</b>	16	2	18
<b>Total</b>	32	4	36

Hypothesis supported: No

Web sites: Most of those who have attended training on how to build a Web site do not use a Web site in their teaching (7), versus a small number who do (3).

	<b>Trained on building Web sites No</b>	<b>Trained on building Web sites Yes</b>	<b>Total</b>
<b>Teach with my own Web site No</b>	19	7	26
<b>Teach with my own Web site Yes</b>	7	3	10
<b>Total</b>	26	10	36

Hypothesis supported: No

Online tutorials: Those who use online tutorials have almost all never been trained. Of those who have been trained, only one has actually implemented the technology inside the classroom.

	<b>Trained for online tutorials No</b>	<b>Trained for online tutorials Yes</b>	<b>Total</b>
<b>Teach with online tutorials No</b>	27	2	29
<b>Teach with online tutorials Yes</b>	6	1	7
<b>Total</b>	33	3	36

Hypothesis supported: No

Power Point: While more people have been trained to use Power Point, the training still had no visible effect on their decision to use the technology inside the classroom; more instructors who have not been trained on the technology now use it than have those who have received training.

	<b>Trained for Power Point No</b>	<b>Trained for Power Point Yes</b>	<b>Total</b>
<b>Teach with Power Point No</b>	12	7	19
<b>Teach with Power Point Yes</b>	12	5	17
<b>Total</b>	24	12	36

Hypothesis supported: No

Videoconferencing: No respondents said they had been trained on videoconferencing and then implemented the technology.

	<b>Trained for videoconferencing No</b>	<b>Trained for videoconferencing Yes</b>	<b>Total</b>
<b>Teach with videoconferencing No</b>	30	3	33
<b>Teach with videoconferencing Yes</b>	3	0	3
<b>Total</b>	33	3	36

Hypothesis supported: No

Videos: Here, training does seem to have affected use. While the majority of respondents using videos to teach have not received any training on how to do so, of those who have received training, 100% are now using the technology.

	<b>Trained for videos (VHS / Beta / DVD) No</b>	<b>Trained for videos (VHS / Beta / DVD) Yes</b>	<b>Total</b>
<b>Teach with videos (VHS / Beta / DVD) No</b>	4	0	4
<b>Teach with videos (VHS / Beta / DVD) Yes</b>	27	5	32
<b>Total</b>	31	5	36

Hypothesis supported: Yes

Online course software: Training has also seemingly affected use of WebCT-like programs as well, though only slightly. Of those (7) who have received training, slightly more than half (4) are now using the applications in their classrooms.

	<b>Trained for online course builder software No</b>	<b>Trained for online course builder software Yes</b>	<b>Total</b>
<b>Teach with online course builder software No</b>	25	3	28
<b>Teach with online course builder software Yes</b>	4	4	8
<b>Total</b>	29	7	36

Hypothesis supported: Yes

Online tutorials: Training has not affected use of online tutorials; of those (3) who have received training in using the technology, only one is currently using it in the classroom.

	<b>Trained for online tutorials No</b>	<b>Trained for online tutorials Yes</b>	<b>Total</b>
<b>Teach with online tutorials No</b>	27	2	29
<b>Teach with online tutorials Yes</b>	6	1	7
<b>Total</b>	33	3	36

Hypothesis supported: No

Instructor-created tutorials: Only one person reported receiving training on how to create and use their own tutorials, and that person is not currently doing so.

	<b>Trained for my own tutorials No</b>	<b>Trained for my own tutorials Yes</b>	<b>Total</b>
<b>Teach with my own tutorials No</b>	32	1	33
<b>Teach with my own tutorials Yes</b>	3	0	3
<b>Total</b>	35	1	36

Hypothesis supported: No

Comfort with specific technologies was compared with training to use that technology. Level of comfort was measured on a Likert scale, whereas training was a yes/no question. My original hypothesis was that training would make an instructor more comfortable with a specific technology. That hypothesis was largely supported. All values below are mean values.

<b>Comfort with technology (mean)</b>	<b>Received training No</b>	<b>Received training Yes</b>	<b>Hypothesis supported?</b>
<b>CD-ROMs</b>	4.20	4.33	Yes
<b>In-class labs</b>	3.87	2.25	No
<b>Online chats / discussions</b>	2.81	3.0	Yes
<b>My own Web site</b>	2.92	3.22	Yes
<b>Online tutorials</b>	3.13	3.0	No
<b>My own tutorials</b>	2.81	5.0	Yes
<b>Power Point</b>	3.42	3.58	Yes
<b>Videoconferencing</b>	2.63	5.0	Yes
<b>Videos (VHS / Beta / DVD)</b>	4.77	4.60	No
<b>Online course software / supplement</b>	2.15	3.57	Yes

If training does help instructors feel more comfortable with technology, journalism schools should make efforts to offer their faculty members more opportunities to learn new technologies. The key, as discussed earlier, is ensuring faculty members are aware of the training opportunities and that trainers take into account that most faculty members feel fairly comfortable with technology. Training opportunities must recognize faculty members have little time and the instruction must be focused enough to enable instructors to come away from the experience with relevant information on how technologies can assist them in their personal work and teaching.

A cross-tabulation was created to determine if comfort with a specific technology affects an instructor's actual use of that technology to teach. My hypothesis was that professors who use a particular technology to teach would report feeling more comfortable with that technology than those who did not use it. That hypothesis was supported.

<b>Comfort with technology (mean)</b>	<b>Use to teach No</b>	<b>Use to teach Yes</b>	<b>Hypothesis supported?</b>
<b>CD-ROMs</b>	3.23	4.41	Yes
<b>In-class labs</b>	3.24	4.11	Yes
<b>Online chats / discussions</b>	2.24	4.29	Yes
<b>My own Web site</b>	2.42	4.40	Yes
<b>Online tutorials</b>	2.66	4.14	Yes
<b>My own tutorials</b>	2.03	4.33	Yes
<b>Power Point</b>	3.05	3.94	Yes
<b>Videoconferencing</b>	2.48	4.0	Yes
<b>Videos (VHS / Beta / DVD)</b>	4.67	4.75	Yes
<b>Online course software / supplement</b>	1.89	3.50	Yes

This finding makes sense: Faculty members use technologies they feel comfortable with. Using a technology, more definitively than being trained for it or having it available, increases teacher comfort with that technology. If comfort comes from teaching, and teachers use what they are comfortable with, it supports the idea that relevant training would increase faculty members' use of technology.

Finally, the data were analyzed to determine if faculty members who use a particular software package or packages report having higher overall comfort levels with technology. My hypothesis was that faculty who use higher-end programs, such

as desktop publishing packages, graphics software and Web construction software would have higher overall comfort levels with technology than would those who simply used basic packages, such as e-mail, word processing and presentation software. My hypothesis was not supported.

<b>Overall comfort with technology (mean)</b>	<b>Use (personally) No</b>	<b>Use (personally) Yes</b>
<b>Database program</b>	3.15	4.33
<b>E-mail</b>	3.0	3.63
<b>Spreadsheet program</b>	3.36	4.0
<b>Draw program</b>	3.63	3.42
<b>Web construction software</b>	3.35	4.08
<b>Graphics program</b>	3.0	3.96
<b>Presentation software</b>	3.13	3.95
<b>Desktop publishing</b>	3.72	3.50
<b>Word processing</b>	4.0	3.60

My final hypothesis was that availability of certain technologies would encourage — or in the absence of the technology, discourage — professors from using technologies. This hypothesis was only slightly supported; there does not appear to be a direct correlation between availability and use in the crosstabs (see footnote).<sup>293</sup> This could be because professors who independently use and feel comfortable with certain technologies push journalism programs to purchase and make available those technologies to faculty members.



### **Further Analysis**

A few strong findings emerge from the survey data. First, professors use what they know and learn what they use. There is a strong relationship between the use of a technology and comfort levels with that technology. The survey data reveal journalism instructors feel most comfortable with technologies that have been around for a while. CD-ROMs, VHS/DVD movies and in-class computer labs were named the technologies professors feel most comfortable using in their classrooms. Faculty members prefer technologies that they have had longer to become accustomed to using. Journalism professors are not early adopters of technology.

Training, surprisingly, seems to have little to do with the frequency of use; the vast majority of teachers using technologies have not been trained on how to do so effectively. This underscores the idea that university-level teachers are not often given resources to become better teachers. It may also indicate that journalism professors do not seek out training opportunities for these technologies. However, training does affect comfort levels, which is a key factor in determining whether or not instructors will use technology.

### **Open-ended Questions**

What was most interesting in reviewing the 36 surveys returned was the variety of comments provided by respondents to the two open-ended questions. Every issue presented in this thesis was mentioned by respondents, supporting the arguments of this thesis and confirming the issues are very much on journalism

professors' minds. Though the two questions addressed different topics, respondents largely used each question to relay their experiences and feelings about technology. For that reason, the responses were looked at together and parsed for content. The results of that analysis follow.

**Positive impacts of technology.** Ten instructors commented on the positive impacts technology has had on their classrooms. Technology, respondents said, helps students acquire more hands-on knowledge. Students are often familiar with technology and feel comfortable working with it in the classroom. Students are more attentive, interested, motivated and excited about instruction when technology is involved. When a professor uses Power Point, students take better and more accurate notes. Students are able to create projects that mirror those they will complete post-graduation, which gives them excellent, relevant, enjoyable experience. One faculty member said “(technology) makes all the difference in the students’ immediate success or failure in class.”

**Negative impacts of technology.** One respondent said Power Point presentations can be more distracting than helpful; students may not listen carefully because they are transcribing what is on the screen. Another said many technologies actually discourage classroom attendance. Many students use computers to download MP3 files, exchange e-mail and play video games, said one respondent, which may cause problems in the classroom. Faculty must work to ensure the technology does not diminish the “college experience” for students by eliminating peer interaction.

**Student acceptance and expectations.** Nine comments focused on students and their expectations from, comfort with and acceptance of technology in the classroom. One instructor said student acceptance of a class Web page that addresses routine classroom tasks has grown in the seven years it has been used. Another said students expect teachers to use technology, that anything less is “going back to the 80s.” Technology motivates students to explore solutions on their own, said one respondent, applying concepts and examples themselves. One respondent said some students feel overwhelmed by computers, particularly when they have never used a computer or a particular piece of software before.

**Unique challenges in journalism.** Seven respondents commented specifically on the role of technology in journalism programs. One comment said the activities from which students of writing learn the most “are not amenable to an abundance of technologically oriented approaches.” Another self-described “technology Luddite” said the best way to learn writing is to write, and prefers to leave any use of technology to outside activities, such as the student paper. Others spoke highly of the role technology plays in their journalism classrooms. One respondent said students do better in a class when they recognize they are using tools and technologies that they would use on the job. Another said journalism students need to know the basics of digital photography, image editing and layout. A common refrain among respondents was that students must be prepared for work after college.

**Methods.** Many faculty members specifically mentioned methods they use to integrate technology into their classes. One respondent said Power Point provides a

means for keeping students interested in lectures, and said using as content material from books, magazines and downloaded from the Web has been mostly positive. Another said Internet assignments are a component of every course she teaches. One faculty member requires all students to submit a portfolio on a Web site. WebCT works well for one respondent in a large course. Making overheads of students papers with names blacked out is a low-end technology that nevertheless has proven quite effective for one instructor. One respondent made a comment about the use of technology in general, saying technologies such as online chats and course Web sites are “more fitting for distance learning; as a residential campus, we’re all at close proximity.”

**Usefulness of technology.** Many respondents said they felt technology, in the words of one, “is only as good as the teacher and the lesson plan.” Students must still learn, with or without technology. Journalism students need to learn how to write, which depends more on teacher interaction than on any technology, one respondent said. “It isn’t exciting, but it’s what they will be doing when they get out of school.” Another respondent said using technology in the classroom takes up about 40 percent of the class time just to teach the students how to use the equipment.

**Basics of journalism.** Many of these comments implied a need of journalism programs to remain focused on the basics of journalism instruction, which some respondents said outright. “I think we focus way too much on the latest software and not enough on the basics,” wrote one respondent. Technology as a tool is often

abused, said another. Furthermore, as a tool, technology cannot replace good writing and thinking.

**Effects on the teacher.** Respondents were somewhat divided on whether they felt technology made teacher tasks easier or more time consuming. Three respondents said technology simplifies some tasks; graphic presentations, test preparation, Power Point presentations and Web pages used specifically to take care of “housekeeping” tasks were specifically mentioned as activities that are made easier by technology. Three respondents also mentioned increases in their workload because of technology. Said one respondent, “Technology has nearly doubled my teaching load.” Faculty members must now understand the technology in addition to the content, said another. If a faculty member does not take the time to become comfortable with the technology he or she is using in the classroom, “the experience is not likely to be a positive one,” said one respondent.

**Other thoughts.** Many other issues were mentioned in the open-ended questions. Two respondents said technology makes information about the course more convenient for students to access. One faculty member said students enjoy having access to WebCT discussion lists. Two respondents wrote about the ways in which technology has enriched their relationships with their students. One faculty member said it has even brought her closer to her colleagues; she asked another instructor to help reorganize her Web page so it would be more logically arranged.

One respondent addressed the problem of framing education as entertainment, writing, “I believe the concept of entertaining a student to keep their interest is a

disservice to them. Once in the ‘working world,’ they find ... you don’t get paid to have fun, you get paid to do a job.” Two mentioned the need for faculty members to acquire technology skills on their own, not necessarily relying on campus resources. Another cited the lack of time, equipment and technical support to make better use of technologies available.

A full set of all free responses is in Appendix I.

### **Arkansas Journalism Programs By Institution**

The following table compares the 11 institutions whose faculty members participated in this survey.

#### **Legend:**

A = Mean number of technologies instructors at this institution use to teach

B = Mean number of technologies for which instructors at this institution have attended training

C = Mean overall comfort with technology of instructors at this institution

D = Mean number of technologies instructors at this institution use

E = Mean number of (software) technologies reported available at this institution

F = Mean number of computers reported available in this institution’s journalism computer lab

G = Mean number of (hardware) technologies reported available at this institution

ASU = Arkansas State University, Jonesboro

ATU = Arkansas Tech University, Russellville

HSU = Henderson State University, Arkadelphia

HU = Harding University, Searcy

JBU = John Brown University, Siloam Springs

OBU = Ouachita Baptist University, Arkadelphia

SAU = Southern Arkansas University, Magnolia

UA = University of Arkansas, Fayetteville

UALR = University of Arkansas, Little Rock

UAPB = University of Arkansas, Pine Bluff

UCA = University of Central Arkansas

<b>School</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>
<b># poss.</b>	10.0	10.0	5.0	9.0	8.0	-	8.0
<b>ASU</b>	4.5	1.25	3.25	7.0	6.5	42.0	6.5
<b>ATU</b>	4.75	1.25	4.0	5.5	7.75	37.0	5.75
<b>HSU</b>	3.5	4.5	4.0	5.5	7.5	8.0	7.0
<b>HU</b>	7.0	0.5	5.0	7.5	8.0	37.5	6.5
<b>JBU</b>	3.5	1.0	2.5	2.5	8.0	20.0	7.5
<b>OBU</b>	2.75	1.25	3.25	5.25	7.5	12.67	5.25
<b>SAU</b>	2.0	0.0	2.0	2.0	4.0	0.0	4.0
<b>UA</b>	3.3	1.1	3.9	4.0	6.1	17.6	6.0
<b>UALR</b>	2.5	2.5	3.0	3.0	6.5	30.0	6.5
<b>UAPB</b>	3.0	3.0	5.0	3.0	8.0	30.0	6.0
<b>UCA</b>	2.25	0.75	3.25	5.25	5.75	30.0	5.75

Looking at the data by institution, three schools consistently outscore the others: Harding University, Arkansas State University and Henderson State University. Harding University outscores the other 10 schools in almost every category. It is important to note that, as one of two private schools surveyed, Harding may have more funds available to spend on facilities (E,F,G).

### **Reflections on the Survey**

Though the survey tool was looked over by several researchers before being mailed, after reviewing the data there are a few changes I would make if I were to conduct the survey again. First, I would change the Likert scale to force respondents to choose a positive or negative response. One respondent made this suggestion, “Shouldn't your scale be: very comfortable, comfortable, N/A, uncomfortable, very uncomfortable?” Respondents who did not have a feeling with particular technologies left the fields blank; I would have preferred to have a neutral response than a blank one. Second, I would have more thoroughly tested the Web-based survey; one of the fields in the online version returned all No answers, which I suspect was a problem with the form and not indicative of true responses. The question was one of the elements of question 6, asking about what software technologies are available at respondents' schools. All the online surveys returned with the Power Point question unanswered. Though I noticed the error almost immediately, I did not adjust the form so as not to taint the data. Instead, that question was thrown out and not analyzed.



Based on the information gathered in this survey, I would have liked to know more about the individuals responding to the survey. If I were to do the project again, I would ask respondents for more information about their backgrounds, years in higher education and research interests. It would be interesting to compare some of the more technologically savvy faculty members' backgrounds with those who are less eager to adopt technology. I also think it would be interesting to distribute a similar study to students taking courses at the institutions studied, to gauge their feelings about and reactions to technology in the classroom. Such a study would have been too involved for this thesis, but represents a potential area for further study.

### **Summary**

Arkansas's institutions of higher education, particularly public four-year schools, offer a variety of journalism course offerings at 11 different schools. From those schools, 36 faculty members with journalism or mass communication teaching responsibilities participated in a survey to determine how technology is used in journalism courses in the state. The results of the survey show faculty members tend to use familiar, tutor-like computer technologies and applications, with very few using interactive or cutting-edge technologies. Instructors use the technologies they know. Possible explanations for this may be in how well faculty are trained to use technology and their comfort with new technologies. Nevertheless, journalism programs and courses in the state are, based on the survey data, very well equipped with standard computer applications, such as word processing, spreadsheet, database Web page, graphics and layout software applications. Open-ended questions asked of

each respondent asked for general observations about the use of educational technology or technologies in their environments and any relevant personal experiences. The answers to these two questions echoed the issues discussed in chapters 2-5 of this thesis, indicating the topic of this thesis is of concern to journalism educators in the state of Arkansas.

## Chapter 7: Conclusion

For two decades, educators have debated the relative effectiveness of educational computing. For every study that shows computers help students learn more and better, there is another study that shows little significant difference between students who learn with technology and those who do not. Yet the computer has, in many ways, succeeded where other technologies, such as the radio and television, have failed in education; the computer, for all its debate, has been adopted by both administrators and teachers. Unlike the radio and television, a significant number of educators have embraced the computer, finding new and innovative ways to help their students learn. Though there has been pressure from parents, reformers and corporate sales forces to use computers in the classroom, educators have largely made this decision on their own. No technology is a panacea. However, teachers have learned that, when used intelligently, the computer can increase student interest in lessons and provide a source of motivation and excitement in the classroom.

Teachers have also learned computers do not always reduce their workloads and make their jobs easier, as many have promised. For instructors who use technology in the classroom, “gone are the days ... when a teacher could rely on the same handouts, homework or lecture notes from year to year.”<sup>294</sup> Educational technologies have time and time again promised great innovation and reform for education and failed to produce the results reformers insisted would come. A host of factors has caused this failure: teachers feeling intimidated or over pressured; a lack of training, equipment or support; students feeling uncomfortable with the

technologies; administrators, parents and politicians continually adding more requirements, standardized tests and oversight to education in America. Technology will never replace the value of a good teacher. In fact, good teachers are more essential than ever: Teachers make technology useful, relevant and appropriate to a learning environment.

The true promise of educational technology for higher education lies in its power to help faculty members reform their classrooms into better learning environments. Most college-level educators have never been trained to teach. Technology often inspires these educators to understand how learning occurs and reform their classrooms to help students learn better. The success of bringing computers into the classroom rests on the teacher alone; no administrator can ensure educational technology is embraced by teachers. Success comes when faculty do focus on their teaching methods and students' learning, a rarity in higher education today.

In journalism education, administrators and educators intensely debate what the content of journalism coursework should include. They work within accrediting guidelines requiring no more than about 25 percent of the curriculum be comprised of journalism coursework. Within this relatively small allowance, journalism programs struggle to give students both practical skills and a theoretical basis for their careers as journalists. Newsrooms want journalism graduates who have both. They need writers who can think critically, report and write a compelling story; they also need

writers who have a basic understanding of the economic, political, historical and cultural influences on the stories they write.

Journalism programs must give students both. The media industry is changing rapidly with technology. Print journalists are often also Web designers and video technicians. Print writers who once avoided television cameras now give reports on the evening news and second-day interviews to political-affairs programs. The industry demands journalism graduates feel comfortable with these converging media outlets, and many journalism programs are reconfiguring their course requirements so students are exposed to all forms of media writing and technology. But teaching technology skills to students, some journalism educators say, can take away from teaching students the basic reporting and writing skills.

Journalism programs are faced with pressures from within and from without, ranging from falling budgets to these demands from the industry to teach journalism students more. Faculty members are not always given the information or tools that could allow real progress. Administrators are forced to defend every dime spent. Amidst these pressures, the most important person is often forgotten: the student. Technology, when used well, ultimately helps students become more engaged with their learning, their instructors and their peers. Technology can link journalism students to the industry in a way that time-intensive mentor programs and internships often cannot. Technology is not a savior, to be sure, but it is an effective tool.

There is no absolute truth to the questions posed by journalism educators and administrators on these issues. Each philosophy and viewpoint contains elements of

truth that are impossible to ignore; it is difficult to give journalism students the skills and knowledge they need within the confines of the accrediting requirements, but it is critical these students have access to technology. When students learn using technology, they also learn something about technology. Continued exposure to technology gives students the confidence to learn new technologies easily. And when students can learn new technologies easily, they have gained a skill that will serve them well in life, both as journalists and as people. If journalism students graduate with a solid foundation in the basics of writing and reporting and have learned how to learn, they will succeed.

The burden of teaching in education falls to the faculty members, who under the system dominating higher education are rarely encouraged to become better teachers. This system must change. The heightened emphasis placed on research and publishing must be adjusted to reflect the more important task of teaching. Professors should be required to demonstrate their skills in the craft of teaching, in addition to their ability to conduct research and publish articles. Good teachers inspire students. For those who dedicate their lives to the pursuit and dissemination of knowledge, that inspiration is critical.

## Notes

### Chapter 1

<sup>1</sup> Friedman, Ted, "Apple's 1984: The Introduction of the Macintosh in the Cultural History of Personal Computers," presented at the Society for the History of Technology Convention, October 1997.

### Chapter 2

<sup>2</sup> Folkerts, Jean and Dwight L. Teeter Jr., *Voices of a Nation: A History of Mass Media in the United States*, Macmillan College Publishing Company, 1994, pp. 3-5.

<sup>3</sup> *ibid*, p. 20.

<sup>4</sup> Odell, De Forest, *The History of Journalism Education in the United States*, Teachers College, Columbia University, 1935, p. 1.

<sup>5</sup> *ibid*.

<sup>6</sup> *ibid*, p.3.

<sup>7</sup> *ibid*, p. 22.

<sup>8</sup> *ibid*, p. 49.

<sup>9</sup> *ibid*, p. 50.

<sup>10</sup> *ibid*, p. 5.

<sup>11</sup> *ibid*, p. 14.

<sup>12</sup> *ibid*, p. 16.

<sup>13</sup> *ibid*, p. 55.

<sup>14</sup> *ibid*, p. 58.

<sup>15</sup> *ibid*, p. 63.

<sup>16</sup> *ibid*, p. 77.

<sup>17</sup> *ibid*, pp. 84-85.

<sup>18</sup> *ibid*, p. 88.

<sup>19</sup> *ibid*, p. 69.

<sup>20</sup> *ibid*, p. 70.

<sup>21</sup> *ibid*, p. 71.

<sup>22</sup> *ibid*, p. 25.

<sup>23</sup> *ibid*, p. 35.

<sup>24</sup> *ibid*, p. 36.

<sup>25</sup> *ibid*, p. 49.

<sup>26</sup> *ibid*, p. 51.

<sup>27</sup> *ibid*, p. 88.

<sup>28</sup> *ibid*, p. 91.

<sup>29</sup> Becker, Lee B., Jeffrey W. Fruit and Susan L. Caudill, *The Training and Hiring of Journalists*, Ablex Publishing Company, 1987, p. 9.

<sup>30</sup> *ibid*, p. 8.

<sup>31</sup> Dressel, Paul L., *Liberal Education and Journalism*, Institute of Higher Education, 1960, p. 7.

<sup>32</sup> *ibid*, pp. 6-7.

<sup>33</sup> Becker, Lee B., Jeffrey W. Fruit and Susan L. Caudill, *The Training and Hiring of Journalists*, Ablex Publishing Company, 1987, p. 19.

<sup>34</sup> Christ, William G. and Terry Hynes, "The missions and purposes of journalism and mass communication education," *Journalism & Mass Communication Educator*, Summer 1997, pp. 73-100.

<sup>35</sup> AEJMC Vision 2000 Task Force, "The viability of journalism and mass communication units within their universities," paper presented at AEJMC, Atlanta, 1994, p. 6.

### Chapter 3

<sup>36</sup> Caws, Peter, "notes on technology," *GW Forum*, Fall 1996, p. 14.



- <sup>37</sup> Roblyer, M.D. and Jack Edwards, *Integrating Educational Technology into Teaching*, Second Edition, Prentice Hall, 2000, p. 5.
- <sup>38</sup> *ibid*, p. 6.
- <sup>39</sup> Cuban, Larry, *Teachers and Machines: The Classroom Use of Technology Since 1920*, Teachers College, Columbia University, 1986, p. 4.
- <sup>40</sup> Wilson, Blenda J., "Technology and higher education: In search of progress in human learning," *The Educational Record*, Summer 1994.
- <sup>41</sup> Laurillard, Diane, *Rethinking University Teaching*, Routledge, 1993, p. 13.
- <sup>42</sup> Kozma, Robert and Patricia Schank, "Connecting with the 21<sup>st</sup> Century: Technology in Support of Educational Reform," *Yearbook 1998: Learning with Technology, Association for Supervision and Curriculum Development*, 1998, pp. 3-27, p. 3.
- <sup>43</sup> Dwyer, Thomas, "Heuristic strategies for Using Computers to Enrich Education," *The Computer in the School: Tutor, Tool, Tutee*, edited by Robert Taylor, Teachers College Press, New York, 1980, p. 88.
- <sup>44</sup> Biggs, John B., *Information and Human Learning*, Cassell Australia, 1968, p. 103.
- <sup>45</sup> Kozma, Robert and Patricia Schank, "Connecting with the 21<sup>st</sup> Century: Technology in Support of Educational Reform," *Yearbook 1998: Learning with Technology, Association for Supervision and Curriculum Development*, 1998, pp. 3-27, p. 14.
- <sup>46</sup> Biggs, John B., *Information and Human Learning*, Cassell Australia, 1968, p. 87.
- <sup>47</sup> Kozma, Robert and Patricia Schank, "Connecting with the 21<sup>st</sup> Century: Technology in Support of Educational Reform," *Yearbook 1998: Learning with Technology, Association for Supervision and Curriculum Development*, 1998, pp. 3-27, pp. 4-5.
- <sup>48</sup> *ibid*, pp. 11-12.
- <sup>49</sup> Wilson, Blenda J., "Technology and higher education: In search of progress in human learning," *The Educational Record*, Summer 1994.
- <sup>50</sup> Jones, Trevor H. and Rocco Paolucci, "Research framework and dimensions for evaluating the effectiveness of educational technology systems on learning outcomes," *Journal of Research on Computing in Education*, Fall 1999.

<sup>51</sup> Biggs, John B., *Information and Human Learning*, Cassell Australia, 1968, p. 16.

<sup>52</sup> Edson, Lee, *How We Learn*, Time-Life Books, 1975, p. 89.

<sup>53</sup> Roblyer, M.D. and Jack Edwards, *Integrating Educational Technology into Teaching, Second Edition*, Prentice Hall, 2000, p. 49.

<sup>54</sup> *ibid*, p. 50.

<sup>55</sup> *ibid*, p. 50.

<sup>56</sup> *ibid*, p. 51.

<sup>57</sup> *ibid*, p. 53.

<sup>58</sup> *ibid*, p. 51.

<sup>59</sup> *ibid*, p. 53.

<sup>60</sup> *ibid*, p. 53.

<sup>61</sup> *ibid*, p. 54.

<sup>62</sup> Forcier, pp. 27-28; Roblyer, M.D. and Jack Edwards, *Integrating Educational Technology into Teaching, Second Edition*, Prentice Hall, 2000, p. 56.

<sup>63</sup> Roblyer, M.D. and Jack Edwards, *Integrating Educational Technology into Teaching, Second Edition*, Prentice Hall, 2000, p. 56.

<sup>64</sup> *ibid*, p. 57.

<sup>65</sup> *ibid*, p. 59.

<sup>66</sup> *ibid*, p. 60.

<sup>67</sup> *ibid*, p. 67.

<sup>68</sup> *ibid*, p. 60.

<sup>69</sup> Edson, Lee, *How We Learn*, Time-Life Books, 1975, 65; Roblyer, M.D. and Jack Edwards, *Integrating Educational Technology into Teaching, Second Edition*, Prentice Hall, 2000, p. 61.

<sup>70</sup> Edson, Lee, *How We Learn*, Time-Life Books, 1975, p. 69.

- <sup>71</sup> Roblyer, M.D. and Jack Edwards, *Integrating Educational Technology into Teaching, Second Edition*, Prentice Hall, 2000, p. 61.
- <sup>72</sup> *ibid*, p. 62.
- <sup>73</sup> Alley, Lee R., "Technology precipitates reflective teaching: An instructional epiphany," *Change*, Mar/April 1996.
- <sup>74</sup> Roblyer, M.D. and Jack Edwards, *Integrating Educational Technology into Teaching, Second Edition*, Prentice Hall, 2000, p. 67.
- <sup>75</sup> Cuban, Larry, *Oversold and Underused*, Harvard University Press, 2001, pp. 14-15.
- <sup>76</sup> Roblyer, M.D. and Jack Edwards, *Integrating Educational Technology into Teaching, Second Edition*, Prentice Hall, 2000, p. 68.
- <sup>77</sup> *ibid*, p. 68.
- <sup>78</sup> Maddux, Cleborne D., D. LaMont Johnson and Jerry W. Willis, *Educational Computing: Learning with Tomorrow's Technologies, Second Edition*, Allyn & Bacon, 1997, p. 18.
- <sup>79</sup> *ibid*, pp. 20-21.
- <sup>80</sup> *ibid*, p. 18.
- <sup>81</sup> *ibid*, p. 22.
- <sup>82</sup> *ibid*, p. 19.
- <sup>83</sup> Suppes, Patrick, "The Teacher and Computer-assisted Instruction," *The Computer in the School: Tutor, Tool, Tutee*, edited by Robert Taylor, Teachers College Press, New York, 1980, p. 233.
- <sup>84</sup> Biggs, John B., *Information and Human Learning*, Cassell Australia, 1968, p. 49.
- <sup>85</sup> *ibid*, p. 98.
- <sup>86</sup> Elasmr, Michael G., and Matt E. Carter, "Use of e-mail by college students and implications for curriculum," *Journalism & Mass Communication Educator*, Summer 1996.
- <sup>87</sup> Landry, Julie, "Is our children learning?" *Red Herring*, August 2002, p. 41.

- <sup>88</sup> Bork, Alfred, "Interactive Learning," *The Computer in the School: Tutor, Tool, Tutee*, edited by Robert Taylor, Teachers College Press, New York, 1980, p. 64.
- <sup>89</sup> Edson, Lee, *How We Learn*, Time-Life Books, 1975, p. 90.
- <sup>90</sup> *ibid*, p. 91.
- <sup>91</sup> Cuban, Larry, *Teachers and Machines: The Classroom Use of Technology Since 1920*, Teachers College, Columbia University, 1986, p. 4.
- <sup>92</sup> Postman, Neil. "Education Review—The New Technology: Three Views." *The Washington Post Book Review*, November 1, 1992, p. 1.
- <sup>93</sup> Cuban, Larry, *Teachers and Machines: The Classroom Use of Technology Since 1920*, Teachers College, Columbia University, 1986, p. 1.
- <sup>94</sup> *ibid*, p. 19.
- <sup>95</sup> *ibid*, p. 21.
- <sup>96</sup> *ibid*, pp. 21-22.
- <sup>97</sup> *ibid*, p. 20.
- <sup>98</sup> *ibid*, p. 25.
- <sup>99</sup> *ibid*, p. 25.
- <sup>100</sup> *ibid*, p. 24.
- <sup>101</sup> *ibid*, p. 26.
- <sup>102</sup> *ibid*, p. 9.
- <sup>103</sup> *ibid*, p. 11.
- <sup>104</sup> *ibid*, p. 12.
- <sup>105</sup> *ibid*, pp. 16-17.
- <sup>106</sup> *ibid*, p. 27.
- <sup>107</sup> *ibid*, p. 29.
- <sup>108</sup> *ibid*, p. 33.

- <sup>109</sup> *ibid*, p. 34.
- <sup>110</sup> *ibid*, pp. 74-75.
- <sup>111</sup> *ibid*, pp. 75-77.
- <sup>112</sup> *ibid*, p. 83. See also Taylor, Robert, *The Computer in the School: Tutor, Tool, Tutee*, Teachers College Press, New York, 1980.
- <sup>113</sup> Goldberg, Debbie. "Education Review – From Blackboard to Keyboard." *The Washington Post*, November 1, 1992, p. 4.
- <sup>114</sup> Cuban, Larry, *Oversold and Underused*, Harvard University Press, 2001, p. 15.
- <sup>115</sup> Kazemek, Frances, E., "Losing wisdom in information," *Education Week*, Dec. 4, 1996, p. 40.
- <sup>116</sup> Gilbert, Steven W. and Kenneth C. Green, "Moving Information Technology into the Classroom," *Technology and Higher Education*, National Education Association of the United States, 1997, pp. 25-56, p. 25.
- <sup>117</sup> *ibid*, p. 26.
- <sup>118</sup> *ibid*, p. 29.
- <sup>119</sup> Landry, Julie, "Is our children learning?" *Red Herring*, August 2002, p. 37.
- <sup>120</sup> Gilbert, Steven W. and Kenneth C. Green, "Moving Information Technology into the Classroom," *Technology and Higher Education*, National Education Association of the United States, 1997, pp. 25-56, p. 28.
- <sup>121</sup> Landry, Julie, "Is our children learning?" *Red Herring*, August 2002, p. 38.
- <sup>122</sup> Roblyer, M.D. and Jack Edwards, *Integrating Educational Technology into Teaching, Second Edition*, Prentice Hall, 2000, p. 14.
- <sup>123</sup> Gilbert, Steven W. and Kenneth C. Green, "Moving Information Technology into the Classroom," *Technology and Higher Education*, National Education Association of the United States, 1997, pp. 25-56, p. 36.
- <sup>124</sup> Taylor, Robert, *The Computer in the School: Tutor, Tool, Tutee*, Teachers College Press, New York, 1980, pp. 3-4.
- <sup>125</sup> Roblyer, M.D. and Jack Edwards, *Integrating Educational Technology into Teaching, Second Edition*, Prentice Hall, 2000, pp. 13-14.

- <sup>126</sup> Wilson, Blenda J., "Technology and higher education: In search of progress in human learning," *The Educational Record*, Summer 1994.
- <sup>127</sup> Brand, Myles, "The wise use of technpology," *The Educational Record*, Fall 1995.
- <sup>128</sup> Cuban, Larry, *Teachers and Machines: The Classroom Use of Technology Since 1920*, Teachers College, Columbia University, 1986, p. 61.
- <sup>129</sup> Beniger, James R., *The Control Revolution*, Harvard University Press, 1986, 59.
- <sup>130</sup> Stoll, Clifford, *High-Tech Heretic: Why computers don't belong in the classroom and other reflections by a computer contrarian*, Doubleday (NY), 1999, p. 7.
- <sup>131</sup> Landry, Julie, "Is our children learning?" *Red Herring*, August 2002, p. 37.
- <sup>132</sup> Engstrom, Catherine McHugh and Kevin W. Kruger, *Using Technology to Promote Student Learning Opportunities for Today and Tomorrow*, Jossey-Bass Publishers, Summer 1997, p. 25.
- <sup>133</sup> Roblyer, M.D. and Jack Edwards, *Integrating Educational Technology into Teaching, Second Edition*, Prentice Hall, 2000, p. 19.
- <sup>134</sup> Noble, Douglas, "Computer Literacy and Ideology," *The Computer in Education: A Critical Perspective*, Teachers College, 1984, p. 66.
- <sup>135</sup> Kozma, Robert and Patricia Schank, "Connecting with the 21<sup>st</sup> Century: Technology in Support of Educational Reform," *Yearbook 1998: Learning with Technology*, Association for Supervision and Curriculum Development, 1998, pp. 3-27, p. 23.
- <sup>136</sup> Roblyer, M.D. and Jack Edwards, *Integrating Educational Technology into Teaching, Second Edition*, Prentice Hall, 2000, pp. 19-21.
- <sup>137</sup> Noble, Douglas, "Computer Literacy and Ideology," *The Computer in Education: A Critical Perspective*, Teachers College, 1984, p. 66.
- <sup>138</sup> Hester, Joe Bob, "Using a Web-based interactive test as a learning tool," *Journalism & Mass Communication Educator*, Spring 1999, pp. 35-41.
- <sup>139</sup> Campbell-Kelly, Martin and William Aspray, *Computer: A History of the Information Machine*, BasicBooks, 1996, pp. 292-293.
- <sup>140</sup> *ibid*, p. 294.
- <sup>141</sup> Beniger, James R., *The Control Revolution*, Harvard University Press, 1986.

- <sup>142</sup> Cassell (ed), p. 179.
- <sup>143</sup> Gilbert, Steven W. and Kenneth C. Green, "Moving Information Technology into the Classroom," *Technology and Higher Education*, National Education Association of the United States, 1997, pp. 25-56, p. 28.
- <sup>144</sup> *ibid*, p. 36.
- <sup>145</sup> Elasmr, Michael G., and Matt E. Carter, "Use of e-mail by college students and implications for curriculum," *Journalism & Mass Communication Educator*, Summer 1996.
- <sup>146</sup> Brand, Myles, "The wise use of technpology," *The Educational Record*, Fall 1995.
- <sup>147</sup> Singer, Jane B., David Craig, Chris W. Allen, and Virginia Whitehouse, "Attitudes of professors and students about new media technology," *Journalism & Mass Communication Educator*, Summer 1996.
- <sup>148</sup> Elasmr, Michael G., and Matt E. Carter, "Use of e-mail by college students and implications for curriculum," *Journalism & Mass Communication Educator*, Summer 1996.
- <sup>149</sup> Stoll, Clifford, *High-Tech Heretic: Why computers don't belong in the classroom and other reflections by a computer contrarian*, Doubleday (NY), 1999, p. 98.
- <sup>150</sup> Johnson, J.T., "New education for journalists," *Nieman Reports*, Fall 1995.
- <sup>151</sup> Stoll, p. 39; Engstrom, Catherine McHugh and Kevin W. Kruger, *Using Technology to Promote Student Learning Opportunities for Today and Tomorrow*, Jossey-Bass Publishers, Summer 1997, p. 25.
- <sup>152</sup> Lee, Byung S. and Shelton A. Gunaratne, "Integration of Internet resources into curriculum and instruction," *Journalism & Mass Communication Educator*, Summer 1996.
- <sup>153</sup> Racine, Sam J. and Denise Dilworth, "Using interactive television to teach professional communicators: Overcoming perceptions and negotiating first impressions," *Journal of Business and Technical Communication*, vol. 14, issue 3, July 2000.
- <sup>154</sup> Cuban, Larry, *Teachers and Machines: The Classroom Use of Technology Since 1920*, Teachers College, Columbia University, 1986, p. 61.
- <sup>155</sup> Conte, Christopher, *The Learning Connection: Schools in the Information Age*, published by The Benton Foundation, 1997, p. 15.

<sup>156</sup> Stoll, Clifford, *High-Tech Heretic: Why computers don't belong in the classroom and other reflections by a computer contrarian*, Doubleday (NY), 1999, pp. 6, 12.

<sup>157</sup> Elasmr, Michael G., and Matt E. Carter, "Use of e-mail by college students and implications for curriculum," *Journalism & Mass Communication Educator*, Summer 1996.

<sup>158</sup> Cuban, Larry, *Teachers and Machines: The Classroom Use of Technology Since 1920*, Teachers College, Columbia University, 1986, p. 1.

<sup>159</sup> *ibid*, p. 3.

<sup>160</sup> *ibid*, p. 4.

<sup>161</sup> *ibid*, p. 5.

<sup>162</sup> *ibid*, p. 37.

<sup>163</sup> Cuban, Larry, *Oversold and Underused*, Harvard University Press, 2001, p. 101, 137.

<sup>164</sup> Cuban, Larry, *Teachers and Machines: The Classroom Use of Technology Since 1920*, Teachers College, Columbia University, 1986, p. 36.

<sup>165</sup> *ibid*, pp. 54-55.

<sup>166</sup> Wilson, Blenda J., "Technology and higher education: In search of progress in human learning," *The Educational Record*, Summer 1994.

<sup>167</sup> Cuban, Larry, *Teachers and Machines: The Classroom Use of Technology Since 1920*, Teachers College, Columbia University, 1986, p. 56.

<sup>168</sup> Noble, Douglas, "Computer Literacy and Ideology," *The Computer in Education: A Critical Perspective*, Teachers College, 1984, p. 69.

<sup>169</sup> Johnson, J.T., "New education for journalists," *Nieman Reports*, Fall 1995.

<sup>170</sup> Cuban, Larry, *Teachers and Machines: The Classroom Use of Technology Since 1920*, Teachers College, Columbia University, 1986, p. 63.

<sup>171</sup> *ibid*, p. 65.

<sup>172</sup> *ibid*, p. 67.



<sup>173</sup> Cuban, Larry, *Oversold and Underused*, Harvard University Press, 2001, pp. 134-135, 153.

<sup>174</sup> Gilbert, Steven W. and Kenneth C. Green, "Moving Information Technology into the Classroom," *Technology and Higher Education*, National Education Association of the United States, 1997, pp. 25-56, p. 45.

<sup>175</sup> Cuban, Larry, *Oversold and Underused*, Harvard University Press, 2001, p. 103.

<sup>176</sup> Wilson, Blenda J., "Technology and higher education: In search of progress in human learning," *The Educational Record*, Summer 1994.

<sup>177</sup> *ibid.*

<sup>178</sup> Baroudi, Carol and John Levine, "Technophobia," *Technology and Higher Education*, National Education Association of the United States, 1997, pp. 178-180.

<sup>179</sup> Dutson, Thomas E., "Technophobia: Counterpoint," *Technology and Higher Education*, National Education Association of the United States, 1997, p. 190.

<sup>180</sup> *ibid.*, p. 192.

<sup>181</sup> Beniger, James R., *The Control Revolution*, Harvard University Press, 1986, p. 175.

<sup>182</sup> *ibid.*, 255.

<sup>183</sup> *ibid.*, 23.

<sup>184</sup> *ibid.* 427.

<sup>185</sup> *ibid.*, 185.

<sup>186</sup> *ibid.*, 279.

<sup>187</sup> *ibid.*, 295.

<sup>188</sup> Cuban, Larry, *Teachers and Machines: The Classroom Use of Technology Since 1920*, Teachers College, Columbia University, 1986, p. 86.

<sup>189</sup> *ibid.*, p. 88.

<sup>190</sup> Oblinger, Diana G., "High tech takes the high road: New players in higher education," *The Educational Record*, Winter 1997.

## Chapter 4

- <sup>191</sup> Laurillard, Diane, *Rethinking University Teaching*, Routledge, 1993, p. 1.
- <sup>192</sup> Engstrom, Catherine McHugh and Kevin W. Kruger, *Using Technology to Promote Student Learning Opportunities for Today and Tomorrow*, Jossey-Bass Publishers, Summer 1997, p. 18.
- <sup>193</sup> Laurillard, Diane, *Rethinking University Teaching*, Routledge, 1993, p. 43.
- <sup>194</sup> Biggs, John B., *Information and Human Learning*, Cassell Australia, 1996, p. 25.
- <sup>195</sup> Cuban, Larry, *Oversold and Underused*, Harvard University Press, 2001, pp. 118-119.
- <sup>196</sup> Laurillard, Diane, *Rethinking University Teaching*, Routledge, 1993, p. 3.
- <sup>197</sup> Smith, William E., "Computer-mediated communication: An experimental study," *Journalism Educator*, Winter 1994.
- <sup>198</sup> Laurillard, Diane, *Rethinking University Teaching*, Routledge, 1993, p. 31.
- <sup>199</sup> Johnson, J.T., "New education for journalists," *Nieman Reports*, Fall 1995.
- <sup>200</sup> e.g., Steinberg, Esther R., *Computer-Assisted Instruction: A Synthesis of Theory, Practice and Technology*, Lawrence Erlbaum Associates, Publishers, 1991, p. 2; Gilbert, Steven W. and Kenneth C. Green, "Moving Information Technology into the Classroom," *Technology and Higher Education*, National Education Association of the United States, 1997, pp. 25-56, p. 25; Bork, Alfred, "Interactive Learning," *The Computer in the School: Tutor, Tool, Tutee*, edited by Robert Taylor, Teachers College Press, New York, 1980, pp. 59-60.
- <sup>201</sup> Steinberg, Esther R., *Computer-Assisted Instruction: A Synthesis of Theory, Practice and Technology*, Lawrence Erlbaum Associates, Publishers, 1991, p. 2.
- <sup>202</sup> Laurillard, Diane, *Rethinking University Teaching*, Routledge, 1993, p. 3.
- <sup>203</sup> *ibid*, p. 34.
- <sup>204</sup> Bork, Alfred, "Interactive Learning," *The Computer in the School: Tutor, Tool, Tutee*, edited by Robert Taylor, Teachers College Press, New York, 1980, p. 58.
- <sup>205</sup> Steinberg, Esther R., *Computer-Assisted Instruction: A Synthesis of Theory, Practice and Technology*, Lawrence Erlbaum Associates, Publishers, 1991, pp. 12-13.

- <sup>206</sup> Suppes, Patrick, "The Teacher and Computer-assisted Instruction," *The Computer in the School: Tutor, Tool, Tutee*, edited by Robert Taylor, Teachers College Press, New York, 1980, p 234.
- <sup>207</sup> Steinberg, Esther R., *Computer-Assisted Instruction: A Synthesis of Theory, Practice and Technology*, Lawrence Erlbaum Associates, Publishers, 1991, p. 18.
- <sup>208</sup> *ibid*, pp. 8-9.
- <sup>209</sup> Dwyer, Thomas, "Heuristic strategies for Using Computers to Enrich Education," *The Computer in the School: Tutor, Tool, Tutee*, edited by Robert Taylor, Teachers College Press, New York, 1980, p. 92.
- <sup>210</sup> Christ, William G. and Terry Hynes, "The missions and purposes of journalism and mass communication education," *Journalism & Mass Communication Educator*, Summer 1997.
- <sup>211</sup> Cuban, Larry, *Oversold and Underused*, Harvard University Press, 2001, p. 174.
- <sup>212</sup> Steinberg, Esther R., *Computer-Assisted Instruction: A Synthesis of Theory, Practice and Technology*, Lawrence Erlbaum Associates, Publishers, 1991, p. 7.
- <sup>213</sup> Gilbert, Steven W. and Kenneth C. Green, "Moving Information Technology into the Classroom," *Technology and Higher Education*, National Education Association of the United States, 1997, pp. 25-56, p. 37.
- <sup>214</sup> Alley, Lee R., "Technology precipitates reflective teaching: An instructional epiphany," *Change*, Mar/April 1996.
- <sup>215</sup> Roblyer, M.D. and Jack Edwards, *Integrating Educational Technology into Teaching, Second Edition*, Prentice Hall, 2000, p. 22.
- <sup>216</sup> Brand, Myles, "The wise use of technpology," *The Educational Record*, Fall 1995.
- <sup>217</sup> Wilson, Blenda J., "Technology and higher education: In search of progress in human learning," *The Educational Record*, Summer 1994; Cuban, "Oversold and Underused," pp. 103, 121.
- <sup>218</sup> Oblinger, Diana G., "High tech takes the high road: New players in higher education," *The Educational Record*, Winter 1997.
- <sup>219</sup> Panici, Daniel A., "New media and the introductory mass communications course," *Journalism & Mass Communication Educator*, Spring 1998.

- <sup>220</sup> Oblinger, Diana G., "High tech takes the high road: New players in higher education," *The Educational Record*, Winter 1997.
- <sup>221</sup> e.g., Brand, Myles, "The wise use of technology," *The Educational Record*, Fall 1995; Alley, Lee R., "Technology precipitates reflective teaching: An instructional epiphany," *Change*, Mar/April 1996.
- <sup>222</sup> Gilbert, Steven W. and Kenneth C. Green, "Moving Information Technology into the Classroom," *Technology and Higher Education*, National Education Association of the United States, 1997, pp. 25-56, p. 44.
- <sup>223</sup> Smith, William E., "Computer-mediated communication: An experimental study," *Journalism Educator*, Winter 1994.
- <sup>224</sup> Laurillard, Diane, *Rethinking University Teaching*, Routledge, 1993, p. 3.
- <sup>225</sup> *ibid*, p. 13.
- <sup>226</sup> *ibid*, p. 16.
- <sup>227</sup> *ibid*, p. 14.
- <sup>228</sup> e.g., Steinberg, Esther R., *Computer-Assisted Instruction: A Synthesis of Theory, Practice and Technology*, Lawrence Erlbaum Associates, Publishers, 1991, p. 18; Laurillard, Diane, *Rethinking University Teaching*, Routledge, 1993, pp. 34-35; Alley, Lee R., "Technology precipitates reflective teaching: An instructional epiphany," *Change*, Mar/April 1996.
- <sup>229</sup> *ibid*, p. 30.
- <sup>230</sup> Gilbert, Steven W. and Kenneth C. Green, "Moving Information Technology into the Classroom," *Technology and Higher Education*, National Education Association of the United States, 1997, pp. 25-56, p. 35.
- <sup>231</sup> Alley, Lee R., "Technology precipitates reflective teaching: An instructional epiphany," *Change*, Mar/April 1996.
- <sup>232</sup> Brand, Myles, "The wise use of technology," *The Educational Record*, Fall 1995.
- <sup>233</sup> Stoll, Clifford, *High-Tech Heretic: Why computers don't belong in the classroom and other reflections by a computer contrarian*, Doubleday (NY), 1999, p. 20.
- <sup>234</sup> Engstrom, Catherine McHugh and Kevin W. Kruger, *Using Technology to Promote Student Learning Opportunities for Today and Tomorrow*, Jossey-Bass Publishers, Summer 1997, p. 25.

<sup>235</sup> Stoll, Clifford, *High-Tech Heretic: Why computers don't belong in the classroom and other reflections by a computer contrarian*, Doubleday (NY), 1999, p. 93.

<sup>236</sup> Roblyer, M.D. and Jack Edwards, *Integrating Educational Technology into Teaching, Second Edition*, Prentice Hall, 2000, p. 13.

<sup>237</sup> *ibid*, p. 12.

<sup>238</sup> Panici, Daniel A., "New media and the introductory mass communications course," *Journalism & Mass Communication Educator*, Spring 1998.

<sup>239</sup> Biggs, John B., *Information and Human Learning*, Cassell Australia, 1968, p. 104; Landry, p. 41.

<sup>240</sup> Racine, Sam J. and Denise Dilworth, "Using interactive television to teach professional communicators: Overcoming perceptions and negotiating first impressions," *Journal of Business and Technical Communication*, vol. 14, issue 3, July 2000.

## Chapter 5

<sup>241</sup> Landry, Julie, "Is our children learning?" *Red Herring*, August 2002, p. 41.

<sup>242</sup> Fedler, Fred, Carey, Arlen and Tim Counts, "Journalism's status in academia: A candidate for elimination?" *Journalism & Mass Communication Educator*, Summer 1998.

<sup>243</sup> Odell, De Forest, *The History of Journalism Education in the United States*, Teachers College, Columbia University, 1935, p. 29.

<sup>244</sup> *ibid*, p. 46.

<sup>245</sup> *ibid*, p. 40.

<sup>246</sup> *ibid*, p. 93.

<sup>247</sup> Dressel, Paul L., *Liberal Education and Journalism*, Institute of Higher Education, 1960, pp. 31-32.

<sup>248</sup> *ibid*, p. 32.

<sup>249</sup> *ibid*, p. 33.

- <sup>250</sup> Becker, Lee B., Jeffrey W. Fruit and Susan L. Caudill, *The Training and Hiring of Journalists*, Ablex Publishing Company, 1987, p. 20.
- <sup>251</sup> Dressel, Paul L., *Liberal Education and Journalism*, Institute of Higher Education, 1960, p. 33.
- <sup>252</sup> Johnson, J.T., "New education for journalists," *Nieman Reports*, Fall 1995.
- <sup>253</sup> Dressel, Paul L., *Liberal Education and Journalism*, Institute of Higher Education, 1960, p. 6.
- <sup>254</sup> *ibid*, p. 31.
- <sup>255</sup> Becker, Lee B., Jeffrey W. Fruit and Susan L. Caudill, *The Training and Hiring of Journalists*, Ablex Publishing Company, 1987, p. 9.
- <sup>256</sup> Dressel, Paul L., *Liberal Education and Journalism*, Institute of Higher Education, 1960, p. 35.
- <sup>257</sup> Becker, Lee B., Jeffrey W. Fruit and Susan L. Caudill, *The Training and Hiring of Journalists*, Ablex Publishing Company, 1987, p. 14.
- <sup>258</sup> Becker, Lee B. and James M. Cox Jr., "Grading the J-schools," *Presstime*, September 2000.
- <sup>259</sup> South, Jeff and June Nicholson, "Cross-training: In an age of news convergence, schools move toward multimedia journalism," *Quill*, July/August 2002, p. 12.
- <sup>260</sup> Christ, William G. and Terry Hynes, "The missions and purposes of journalism and mass communication education," *Journalism & Mass Communication Educator*, Summer 1997.
- <sup>261</sup> Becker, Lee B. and James M. Cox Jr., "Grading the J-schools," *Presstime*, September 2000.
- <sup>262</sup> Becker, Lee B. and James M. Cox Jr., "Grading the J-schools," *Presstime*, September 2000.
- <sup>263</sup> Kunkel, Thomas, "Journalism requires wide exposure," *Quill*, July/August 2002, p. 17.
- <sup>264</sup> Christ, William G. and Terry Hynes, "The missions and purposes of journalism and mass communication education," *Journalism & Mass Communication Educator*, Summer 1997.

- <sup>265</sup> Cuban, Larry, *Oversold and Underused*, Harvard University Press, 2001, p. 156.
- <sup>266</sup> Panici, Daniel A., "New media and the introductory mass communications course," *Journalism & Mass Communication Educator*, Spring 1998.
- <sup>267</sup> Thelen, Gil, "Convergence is Coming," *Quill*, July/August 2002, p. 16.
- <sup>268</sup> Arenson, Karen W., "Columbia President Suspends Search for New Dean of Journalism School," *New York Times*, July 24, 2002.
- <sup>269</sup> Farrell, Elizabeth F., "Columbia U.'s President Halts Search for a Journalism Dean While Reviewing School's Role," *The Chronicle of Higher Education*, July 25, 2002.
- <sup>270</sup> Scott, Sandra Davidson, "The technological challenge for curriculum and instruction," *Journalism & Mass Communication Educator*, Summer 1995.
- <sup>271</sup> *ibid.*
- <sup>272</sup> Huesca, Robert, "Reinventing journalism curricula for the electronic environment," *Journalism & Mass Communication Educator*, vol. 55, issue 2, Summer 2000.
- <sup>273</sup> Johnson, J.T., "New education for journalists," *Nieman Reports*, Fall 1995.
- <sup>274</sup> Thelen, Gil, "Convergence is Coming," *Quill*, July/August 2002, p. 16.
- <sup>275</sup> Dressel, Paul L., *Liberal Education and Journalism*, Institute of Higher Education, 1960, p. 34.
- <sup>276</sup> *ibid*, p. 34.
- <sup>277</sup> *ibid*, p. 35.
- <sup>278</sup> *ibid*, p. 35.
- <sup>279</sup> Becker, Lee B., Jeffrey W. Fruit and Susan L. Caudill, *The Training and Hiring of Journalists*, Ablex Publishing Company, 1987, p. 10.
- <sup>280</sup> *ibid*, p. 10.
- <sup>281</sup> *ibid*, p. 10.
- <sup>282</sup> Lee, Byung S. and Shelton A. Gunaratne, "Integration of Internet resources into curriculum and instruction," *Journalism & Mass Communication Educator*, Summer 1996.

<sup>283</sup> Christ, William G. and Terry Hynes, "The missions and purposes of journalism and mass communication education," *Journalism & Mass Communication Educator*, Summer 1997.

<sup>284</sup> Wilson, Blenda J., "Technology and higher education: In search of progress in human learning," *The Educational Record*, Summer 1994.

<sup>285</sup> Huesca, Robert, "Reinventing journalism curricula for the electronic environment," *Journalism & Mass Communication Educator*, vol. 55, issue 2, Summer 2000.

<sup>286</sup> *ibid.*

<sup>287</sup> *ibid.*

<sup>288</sup> Conte, Christopher, *The Learning Connection: Schools in the Information Age*, published by The Benton Foundation, 1997, p. 15.

<sup>289</sup> Smith, William E., "Computer-mediated communication: An experimental study," *Journalism Educator*, Winter 1994.

<sup>290</sup> Lee, Byung S. and Shelton A. Gunaratne, "Integration of Internet resources into curriculum and instruction," *Journalism & Mass Communication Educator*, Summer 1996.

<sup>291</sup> Singer, Jane B., David Craig, Chris W. Allen, and Virginia Whitehouse, "Attitudes of professors and students about new media technology," *Journalism & Mass Communication Educator*, Summer 1996.

## **Chapter 6**

<sup>292</sup> Sparks, Mary, Elizabeth Leebron, and Billy Ross, *Observations on Journalism/Mass Communications Programs in Arkansas*, published by the Arkansas Department of Higher Education, July 1992, 18

## **Chapter 7**

<sup>293</sup> The following cross-tabulations analyze the relationship between software availability and software use reported by respondents to the survey. My hypothesis



was that use would be higher where software was available. This hypothesis was only partially supported, suggesting there is little or no relationship between availability and use.

	<b>Database program available at my school No</b>	<b>Database program available at my school Yes</b>	<b>Total</b>
<b>Use a database program No</b>	15	18	33
<b>Use a database program Yes</b>	1	2	3
<b>Total</b>	16	20	36

Hypothesis supported = No

	<b>E-mail available at my school No</b>	<b>E-mail available at my school Yes</b>	<b>Total</b>
<b>Use e-mail No</b>	0	1	1
<b>Use e-mail Yes</b>	1	34	35
<b>Total</b>	1	35	36

Hypothesis supported = Yes

	<b>Spreadsheet program available at my school No</b>	<b>Spreadsheet program available at my school Yes</b>	<b>Total</b>
<b>Use a spreadsheet program No</b>	6	16	22
<b>Use a spreadsheet program Yes</b>	1	13	14

<b>Total</b>	7	29	36
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Hypothesis supported = No

	<b>Draw program available at my school No</b>	<b>Draw program available at my school Yes</b>	<b>Total</b>
<b>Use a draw program No</b>	9	15	24
<b>Use a draw program Yes</b>	2	10	12
<b>Total</b>	11	25	36

Hypothesis supported = No

	<b>Web page program available at my school No</b>	<b>Web page program available at my school Yes</b>	<b>Total</b>
<b>Use a Web page program No</b>	8	15	23
<b>Use a Web page program Yes</b>	1	12	13
<b>Total</b>	9	27	36

Hypothesis supported = No

	<b>Graphics program available at my school No</b>	<b>Graphics program available at my school Yes</b>	<b>Total</b>
<b>Use a graphics program No</b>	2	11	13

<b>Use a graphics program Yes</b>	2	21	23
<b>Total</b>	4	32	36

Hypothesis supported = Yes

	<b>Desktop publishing program available at my school No</b>	<b>Desktop publishing program available at my school Yes</b>	<b>Total</b>
<b>Use a desktop publishing program No</b>	5	13	18
<b>Use a desktop publishing program Yes</b>	0	18	18
<b>Total</b>	5	31	36

Hypothesis supported = Yes

	<b>Word processing program available at my school No</b>	<b>Word processing program available at my school Yes</b>	<b>Total</b>
<b>Use a word processing program No</b>	0	1	1
<b>Use a word processing program Yes</b>	2	33	35
<b>Total</b>	2	34	36

Hypothesis supported = Yes

<sup>294</sup> Roblyer, M.D. and Jack Edwards, *Integrating Educational Technology into Teaching, Second Edition*, Prentice Hall, 2000, pp. 11-12.



**Appendix I: Survey of Arkansas College/University Journalism Faculty**

This survey is being sent to you, a journalism faculty member at an Arkansas college or university, to inquire about how you use technology in your teaching. Please fill out all questions completely and feel free to add any additional comments at the end of the survey. Your identity will remain confidential. You may be contacted for further information.

Thank you for your assistance.

Name: \_\_\_\_\_

Title: \_\_\_\_\_

College/University: \_\_\_\_\_

E-mail address: \_\_\_\_\_

Name(s) of journalism course(s) taught: \_\_\_\_\_

\_\_\_\_\_

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**1. Which of the following technologies have you used to TEACH in the last two years? (Pick all that apply.)**

- CD-ROMs
- In-class computer labs with self-directed lessons
- Interactive, online chats and/or discussions
- Your own Web site
- Online tutorials (created by someone else)
- Online tutorials (created by yourself)
- Power Point presentation
- Videoconferencing
- Videos (VHS / Beta / DVD)
- Online course builder software or supplement (e.g., WebCT)

**2. Which of the following technologies have you attended training for?**  
(Pick all that apply.)

- In-class computer labs with self-directed lessons
- Power Point presentations
- Videos (VHS / Beta / DVD)
- Online course builder software or supplement (e.g., WebCT)
- Your own Web site
- CD-ROMs
- Interactive, online chats and/or discussions
- Online tutorials (created by someone else)
- Online tutorials (created by yourself)
- Videoconferencing

**3. Overall, how comfortable do you feel using technology to teach?**

5	4	3	2	1
Very comfortable		Comfortable		Not at all comfortable

#### 4. How comfortable do you feel using the following technologies?

Scale:

	5 Very comfortable	4	3 Comfortable	2	1 Not at all comfortable
<b>CD-ROMs:</b>	5	4	3	2	1
<b>In-class computer labs with self-directed lessons:</b>	5	4	3	2	1
<b>Interactive, online chats and/or discussions:</b>	5	4	3	2	1
<b>Your own Web site:</b>	5	4	3	2	1
<b>Online tutorials (created by someone else):</b>	5	4	3	2	1
<b>Online tutorials (created by yourself):</b>	5	4	3	2	1
<b>Power Point presentations:</b>	5	4	3	2	1
<b>Videoconferencing:</b>	5	4	3	2	1
<b>Videos (VHS / Beta / DVD):</b>	5	4	3	2	1
<b>Online course builder software or supplement (e.g., WebCT):</b>	5	4	3	2	1

**5. Which of the following software packages do you currently use? (Pick all that apply)**

- Access/QuattroPro/Filemaker or other database program
- E-mail (Eudora, Outlook Express, Netscape Messenger, etc.)
- Excel or other spreadsheet
- Freehand/Illustrator or other “draw” program
- FrontPage, Dreamweaver, Composer or other HTML/Web page builder program
- Photoshop/Paint Shop Pro/Fireworks or other graphics program
- Power Point or other presentation program
- QuarkXpress or PageMaker or other desktop publishing program
- Word/Word Perfect or other word processing program
- I don't use a computer.
- I don't know.

**6. Which of the following software packages are available for your use at your college/university? (Pick all that apply)**

- Access/QuattroPro/Filemaker or other database program
- E-mail (Eudora, Outlook Express, Netscape Messenger, etc.)
- Excel or other spreadsheet
- Freehand/Illustrator or other “draw” program
- FrontPage, Dreamweaver, Composer or other HTML/Web page builder program
- Photoshop/Paint Shop Pro/Fireworks or other graphics program
- Power Point or other presentation program
- QuarkXpress or PageMaker or other desktop publishing program
- Word/Word Perfect or other word processing program
- I don't know.

**7. Which of the following technology/hardware/facilities are available for your use at your college/university? (Pick all that apply)**

- Broadcast studio
- Journalism computer lab (with \_\_\_\_\_ computers)
- Laptops for faculty use
- Laptops for student use
- Overhead projectors
- Overhead projectors with computer hookup
- Video cameras
- Video editing equipment



**8. If you have used technology to TEACH journalism, how do you believe it has impacted your students' learning and/or excitement about the course?**

**9. Have you had any experiences using technology to TEACH journalism that you're willing to share? If so, please attach a description.**

**Classes respondents teach (number of respondents):**

Mass Comm./Mass Media (11)	Audio Production
Media Law (9)	Broadcast Advertising
Reporting & Writing (9)	Broadcast News Writing
Advanced Reporting (7)	Community Newspaper
Photojournalism / Photography (7)	Computer-Assisted Publishing
Editorial Writing (5)	Creative Strategy in Advertising
Featuring Writing (4)	Creative Video Editing
History of Journalism (4)	Direct Marketing
News Editing (4)	Documentary Film Production
PR Principles (4)	Fundamentals of Journalism
Broadcast Journalism (3)	Government & Media
Public Relations Writing (3)	Internet Communications
Publication Design (3)	Intro to Advertising
Advertising Principles (2)	Intro to Telecommunications
Computer-Assisted Reporting (2)	Literature of Journalism
Electronic Studio & Field Production (2)	Magazine Editing & Production
Ethics in Journalism (2)	Media & Public Policy
Intro to Film (2)	Media & Society (graduate)
Investigative Reporting (2)	Multimedia Publishing
Magazine Writing (2)	Nonfiction Writing
Media Technology (2)	Online Reporting
News Design (2)	Print Advertising
Press & Propaganda (2)	Public Affairs Reporting
Print Media Applications (2)	Research Methods
Sports Journalism (2)	Student Press Law
Advanced TV Production	Studio Production & Writing
Advertising Copywriting	Web Design
	Women in Journalism

### Survey: Responses to Questions 1-7

1. Which of the following technologies have you used to TEACH in the last two years? (Pick all that apply.)

#### CD-ROMs

	Frequency	Percent	Cumulative Percent
No	13	36.1	36.1
Yes	23	63.9	100.0
Total	36	100.0	

#### In-class computer labs with self-directed lessons

	Frequency	Percent	Cumulative Percent
No	18	50.0	50.0
Yes	18	50.0	100.0
Total	36	100.0	

#### Interactive, online chats and/or discussions

	Frequency	Percent	Cumulative Percent
No	29	80.6	80.6
Yes	7	19.4	100.0
Total	36	100.0	

#### In-class computer labs with self-directed lessons

	Frequency	Percent	Cumulative Percent
No	29	80.6	80.6
Yes	7	19.4	100.0
Total	36	100.0	

#### Your own Web site

	Frequency	Percent	Cumulative Percent
No	26	72.2	72.2
Yes	10	27.8	100.0
Total	36	100.0	

#### Online tutorials (created by someone else)

	Frequency	Percent	Cumulative Percent
No	29	80.6	80.6
Yes	7	19.4	100.0
Total	36	100.0	

**Online tutorials (created by yourself)**

	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
<b>No</b>	33	91.7	91.7
<b>Yes</b>	3	8.3	100.0
<b>Total</b>	36	100.0	

**Power Point presentation**

	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
<b>No</b>	19	52.8	52.8
<b>Yes</b>	17	47.2	100.0
<b>Total</b>	36	100.0	

**Videoconferencing**

	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
<b>No</b>	33	91.7	91.7
<b>Yes</b>	3	8.3	100.0
<b>Total</b>	36	100.0	

**Videos (VHS / Beta / DVD)**

	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
<b>No</b>	4	11.1	11.1
<b>Yes</b>	32	88.9	100.0
<b>Total</b>	36	100.0	

**Online course builder software or supplement (e.g., WebCT)**

	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
<b>No</b>	28	77.8	77.8
<b>Yes</b>	8	22.2	100.0
<b>Total</b>	36	100.0	

**2. Which of the following technologies have you attended training for?**  
(Pick all that apply.)

**In-class computer labs with self-directed lessons**

	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
<b>No</b>	32	88.9	88.9
<b>Yes</b>	4	11.1	100.0
<b>Total</b>	36	100.0	

**Power Point presentations**

	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
<b>No</b>	24	66.7	66.7
<b>Yes</b>	12	33.3	100.0
<b>Total</b>	36	100.0	

**Videos (VHS / Beta / DVD)**

	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
<b>No</b>	31	86.1	86.1
<b>Yes</b>	5	13.9	100.0
<b>Total</b>	36	100.0	

**Online course builder software or supplement (e.g., WebCT)**

	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
<b>No</b>	29	80.6	80.6
<b>Yes</b>	7	19.4	100.0
<b>Total</b>	36	100.0	

**Your own Web site**

	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
<b>No</b>	26	72.2	72.2
<b>Yes</b>	10	27.8	100.0
<b>Total</b>	36	100.0	

**CD-ROMs**

	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
<b>No</b>	33	91.7	91.7
<b>Yes</b>	3	8.3	100.0
<b>Total</b>	36	100.0	

#### **Interactive, online chats and/or discussions**

	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
<b>No</b>	35	97.2	97.2
<b>Yes</b>	1	2.8	100.0
<b>Total</b>	36	100.0	

#### **Online tutorials (created by someone else)**

	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
<b>No</b>	33	91.7	91.7
<b>Yes</b>	3	8.3	100.0
<b>Total</b>	36	100.0	

#### **Online tutorials (created by yourself)**

	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
<b>No</b>	35	97.2	97.2
<b>Yes</b>	1	2.8	100.0
<b>Total</b>	36	100.0	

#### **Videoconferencing**

	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
<b>No</b>	33	91.7	91.7
<b>Yes</b>	3	8.3	100.0
<b>Total</b>	36	100.0	

### 3. Overall, how comfortable do you feel using technology to teach?

	Frequency	Percent	Cumulative Percent
<b>1</b>	1	2.8	2.8
<b>2</b>	4	11.1	13.9
<b>3</b>	14	38.9	52.8
<b>4</b>	6	16.7	69.4
<b>5</b>	11	30.6	100.0
<b>Total</b>	36	100.0	

Mean: 3.62

Median response: 3

### 4. How comfortable do you feel using the following technologies?

CD-ROMs

	Frequency	Percent	Cumulative Percent
<b>n/a</b>	3	8.3	8.3
<b>1</b>	1	2.8	11.1
<b>2</b>	0	0	11.1
<b>3</b>	8	22.2	33.3
<b>4</b>	6	16.7	50.0
<b>5</b>	18	50.0	100.0
<b>Total</b>	36	100.0	

In-class computer labs with self-directed lessons

	Frequency	Percent	Cumulative Percent
<b>n/a</b>	3	8.3	8.3
<b>1</b>	1	2.8	11.1
<b>2</b>	0	0	11.1
<b>3</b>	8	22.2	33.3
<b>4</b>	6	16.7	50.0
<b>5</b>	18	50.0	100.0
<b>Total</b>	36	100.0	

## Interactive, online chats and/or discussions

	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
<b>n/a</b>	3	8.3	8.3
<b>1</b>	5	13.9	22.2
<b>2</b>	9	25.0	47.2
<b>3</b>	11	30.6	77.8
<b>4</b>	3	8.3	86.1
<b>5</b>	5	13.9	100.0
<b>Total</b>	36	100.0	

## Your own Web site

	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
<b>n/a</b>	2	5.6	5.6
<b>1</b>	7	19.4	25.0
<b>2</b>	6	16.7	41.7
<b>3</b>	9	25.0	66.7
<b>4</b>	4	11.1	77.8
<b>5</b>	8	22.2	100.0
<b>Total</b>	36	100.0	

## Online tutorials (created by someone else)

	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
<b>n/a</b>	2	5.6	5.6
<b>1</b>	2	5.6	11.1
<b>2</b>	7	19.4	30.6
<b>3</b>	15	41.7	72.2
<b>4</b>	5	13.9	86.1
<b>5</b>	5	13.9	100.0
<b>Total</b>	36	100.0	

## Online tutorials (created by yourself)

	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
<b>n/a</b>	3	8.3	8.3
<b>1</b>	6	16.7	25.0
<b>2</b>	8	22.2	47.2
<b>3</b>	10	27.8	75.0
<b>4</b>	2	5.6	80.6
<b>5</b>	7	19.4	100.0
<b>Total</b>	36	100.0	



## Power Point presentations

	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
<b>1</b>	2	5.6	5.6
<b>2</b>	5	13.9	19.4
<b>3</b>	12	33.3	52.8
<b>4</b>	8	22.2	75.0
<b>5</b>	9	25.0	100.0
<b>Total</b>	36	100.0	

## Videoconferencing

	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
<b>n/a</b>	2	5.6	5.6
<b>1</b>	5	13.9	19.4
<b>2</b>	12	33.3	52.8
<b>3</b>	9	25.0	77.8
<b>4</b>	2	5.6	83.3
<b>5</b>	6	16.7	100.0
<b>Total</b>	36	100.0	

## Videos (VHS/Beta/DVD)

	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
<b>n/a</b>	1	2.8	2.8
<b>3</b>	2	5.6	8.3
<b>4</b>	5	13.9	22.2
<b>5</b>	28	77.8	100.0
<b>Total</b>	36	100.0	

## Online course builder software or supplement (e.g., WebCT)

	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
<b>n/a</b>	3	8.3	8.3
<b>1</b>	6	16.7	25.0
<b>2</b>	13	36.1	61.1
<b>3</b>	9	25.0	86.1
<b>4</b>	3	8.3	94.4
<b>5</b>	2	5.6	100.0
<b>Total</b>	36	100.0	

**5. Which of the following software packages do you currently use? (Pick all that apply)**

Access/QuattroPro/Filemaker or other database program

	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
<b>No</b>	33	91.7	91.7
<b>Yes</b>	3	8.3	100.0
<b>Total</b>	36	100.0	

E-mail (Eudora, Outlook Express, Netscape Messenger, etc.)

	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
<b>No</b>	1	2.8	2.8
<b>Yes</b>	35	97.2	100.0
<b>Total</b>	36	100.0	

Excel or other spreadsheet

	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
<b>No</b>	22	61.1	61.1
<b>Yes</b>	14	38.9	100.0
<b>Total</b>	36	100.0	

Freehand/Illustrator or other “draw” program

	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
<b>No</b>	24	66.7	66.7
<b>Yes</b>	12	33.3	100.0
<b>Total</b>	36	100.0	

FrontPage, Dreamweaver, Composer or other HTML/Web page builder program

	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
<b>No</b>	23	63.9	63.9
<b>Yes</b>	13	36.1	100.0
<b>Total</b>	36	100.0	

Photoshop/Paint Shop Pro/Fireworks or other graphics program

	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
<b>No</b>	13	36.1	36.1
<b>Yes</b>	23	63.9	100.0
<b>Total</b>	36	100.0	

Power Point or other presentation program

	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
<b>No</b>	15	41.7	41.7
<b>Yes</b>	21	58.3	100.0
<b>Total</b>	36	100.0	

QuarkXpress or PageMaker or other desktop publishing program

	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
<b>No</b>	18	50.0	50.0
<b>Yes</b>	18	50.0	100.0
<b>Total</b>	36	100.0	

Word/Word Perfect or other word processing program

	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
<b>No</b>	1	2.8	2.8
<b>Yes</b>	35	97.2	100.0
<b>Total</b>	36	100.0	

I don't use a computer.

	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
<b>No</b>	0	0	0
<b>Yes</b>	36	100.0	100.0
<b>Total</b>	36	100.0	

I don't know.

	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
<b>No</b>	0	0	0
<b>Yes</b>	36	100.0	100.0
<b>Total</b>	36	100.0	

**6. Which of the following software packages are available for your use at your college/university? (Pick all that apply)**

Access/QuattroPro/Filemaker or other database program

	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
<b>No</b>	16	44.4	44.4
<b>Yes</b>	20	55.6	100.0
<b>Total</b>	36	100.0	

E-mail (Eudora, Outlook Express, Netscape Messenger, etc.)

	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
<b>No</b>	1	2.8	2.8
<b>Yes</b>	35	97.2	100.0
<b>Total</b>	36	100.0	

Excel or other spreadsheet

	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
<b>No</b>	7	19.4	19.4
<b>Yes</b>	29	80.6	100.0
<b>Total</b>	36	100.0	

Freehand/Illustrator or other “draw” program

	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
<b>No</b>	11	30.6	30.6
<b>Yes</b>	25	69.4	100.0
<b>Total</b>	36	100.0	

FrontPage, Dreamweaver, Composer or other HTML/Web page builder program

	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
<b>No</b>	9	25.0	25.0
<b>Yes</b>	27	75.0	100.0
<b>Total</b>	36	100.0	

Photoshop/Paint Shop Pro/Fireworks or other graphics program

	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
<b>No</b>	4	11.1	11.1
<b>Yes</b>	32	88.9	100.0
<b>Total</b>	36	100.0	

Power Point or other presentation program  
Data invalid, thrown out for this question.

QuarkXpress or PageMaker or other desktop publishing program

	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
<b>No</b>	5	13.9	13.9
<b>Yes</b>	31	86.1	100.0
<b>Total</b>	36	100.0	

Word/Word Perfect or other word processing program

	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
<b>No</b>	2	5.6	5.6
<b>Yes</b>	34	94.4	100.0
<b>Total</b>	36	100.0	

I don't know.

	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
<b>No</b>	33	91.7	91.7
<b>Yes</b>	3	8.3	100.0
<b>Total</b>	36	100.0	

**7. Which of the following technology/hardware/facilities are available for your use at your college/university? (Pick all that apply)**

Broadcast studio

	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
<b>No</b>	3	8.3	8.3
<b>Yes</b>	33	91.7	100.0
<b>Total</b>	36	100.0	

Journalism computer lab (with \_\_\_\_\_ computers)

	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
<b>No</b>	5	13.9	13.9
<b>Yes</b>	31	86.1	100.0
<b>Total</b>	36	100.0	

Mean number of computers available: 25.77

## Laptops for faculty use

	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
<b>No</b>	19	52.8	52.8
<b>Yes</b>	17	47.2	100.0
<b>Total</b>	36	100.0	

## Laptops for student use

	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
<b>No</b>	33	91.7	91.7
<b>Yes</b>	3	8.3	100.0
<b>Total</b>	36	100.0	

## Overhead projectors

	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
<b>No</b>	1	2.8	2.8
<b>Yes</b>	35	97.2	100.0
<b>Total</b>	36	100.0	

## Overhead projectors with computer hookup

	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
<b>No</b>	4	11.1	11.1
<b>Yes</b>	32	88.9	100.0
<b>Total</b>	36	100.0	

## Video cameras

	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
<b>No</b>	2	5.6	5.6
<b>Yes</b>	34	94.4	100.0
<b>Total</b>	36	100.0	

## Video editing equipment

	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
<b>No</b>	3	8.3	8.3
<b>Yes</b>	33	91.7	100.0
<b>Total</b>	36	100.0	

**Question 8: If you have used technology to TEACH journalism, how do you believe it has impacted your students' learning and/or excitement about the course?**

“It is a tremendous convenience to my students to have their materials online. It also simplifies graphic presentations on tests and the like.”

“I've used my Web page for nearly 7 years and acceptance has grown. Most students like having access to info whenever they want it. Some don't like the fact that I use the Web page to replace some of the "housekeeping" in class -- explaining in detail some exercises that are explained on the Web. Students have liked WebCT discussion lists.”

“Technology has nearly doubled my teaching load. I have to teach technology AND journalism. So I am doing less journalism than I did eight years ago and more technology. I think students are missing out on the basics, such as writing and design, in favor of technology.

The fear of technology has made students less enthusiastic about courses. They are starting from scratch often and, frankly, computer software gives them just one more chance to be overwhelmed by something.

In the last few years, it has gotten better. High schools are doing a better job preparing our students. That fear of technology is still out there, though.”

“I have used technology very selectively in teaching courses--mainly PowerPoint presentations to deliver information in the more theoretical classes (such as media law and p.r.). With respect to the variety of writing classes, my flint-hearted philosophy that students mainly learn by DOING assignments, most of which are not amenable to an abundance of technologically oriented approaches.”

“The technology is only as good as the teacher and the lesson plan--it is a facilitator, nothing more.”

“Honestly, I believe the impact has been slight at best. Technology may offer a world of possibilities, but the student still must do the exact same thing---learn.

We can make it more exciting, but we can't put it in a student's head. And I believe the concept of entertaining a student to keep their interest is a disservice to them. Once in the "working world" they find that WORK is a 4-letter word. You don't get paid to have fun, you get paid to do a job.

The point is this. I support the use of technology. Myself, I use it everyday. But beyond the use of technology as a tool, teaching results are only as good as the student's desire to learn. And if that desire is based on having fancy equipment rather than a pencil and paper, they're destined for failure.

In the end, journalism students (or com students in general) need experience, practice and feedback. These things depend more on the teacher than any technology.

Give writing assignments, assess them, discuss them, rewrite them. It isn't exciting, but it's what they will be doing when they get out of school.”

“Students expect the use of technology today. To do anything less is going back to the 80s.”

“In two courses I teach software used for graphic design and page layout. If students are using the software/hardware to create a project to which they are dedicated and in which they are engaged — they become very excited and do exploring on their own. They seek ways to solve design problems.

When I use technology to teach ABOUT design or software, it is somewhat less interesting for them; they clearly want to engage the tech themselves. But the “up” side is that new projection technology allows me to use up-to-date examples in class. In the past I used to have to rely on the same slides, etc, every year.”

“Students love to work hands-on, and being able to use the technology as they learn is very motivating for them. I find that such courses are a learning experience for all of us.”

“Students like to see specific examples and applications of theoretical concepts. Also students like to be able to apply concepts and examples themselves on computers.”

“I've introduced Digital Audio Workstations to my students in the past year to edit their radio news stories. Then they burn the finished product to a CD and play it at the radio station as part of their weekly newscast. It's been an excellent learning experience for them and they've enjoyed it.”

“I believe using PowerPoint has helped them to take better, more accurate notes. I also believe that videos can sometime help explain a lesson that I am explaining.”

“Adds one more avenue to add information. Allows students to access data online, outside of class.”

“Videos are always an interesting contribution, but sometimes PowerPoint presentations are more of a distraction. The students may not listen, because they are so intent on writing down what is on the screen.”

“Students are very receptive to technology in the classroom. It is wonderful to be able to illustrate a point through video and other visual examples. Software is also important in giving Journalism students the skills and materials to obtain a job in the field. However, I think that technology should not supercede the essential and basic information that students need to understand. When teaching "hands-on" courses that have layout and design software, students immediately want to design without



understanding the important principles. I think it is important as educators that we not fall prey to feeling obligated to merely teach students software and to have technology come between students and the college experience. Web classes are important and have a definite use, but they offer a completely different college experience.”

“I have noticed that I spend about 40 per cent of the time teaching the students how to use the equipment and then we can do the lesson plan.”

“Some of the latest software programs help them in seeing what is in use in the field. In using VHS or CDs I can show the work of other photographers and give them something to aspire to. Many students do better in class when they know they are working in real world materials.”

“Technology such as software based image editing is a MUST for teaching anything having to do with digital photography. Adobe Photoshop is the standard for image editing and enhancement.

Quark Xpress is the de facto standard for layout. Both of these are stressed heavily in my classes. Email processes as well as file transfer processes are also stressed.”

“more attention from students, more interaction, helping understanding”

“It makes all the difference in the students' immediate success or failure in class and also prepares them, of course, to be competitive in the job market after they graduate.”

“Very little impact. ASU undergrad. students seem to come to university with widely varying degrees of tech experience, even though they are surrounded by it now. Their primary tech interests are their cell phones and email to converse with friends. They use computers to check their grades and type papers -- unless they're broadcast production majors. They don't THINK about technology unless it doesn't work.”

“I think it had increased their interest and greatly enhanced their opportunities to learn.”

“Most of the technology I use is equipment that will be used in newsrooms. Otherwise, I use some technology for convenience, but I hesitate to make extensive use of technology because I believe many applications discourage class attendance.”

“The technology, which I use quite frequently, always adds element of interest and excitement to the instruction. The faculty member must know the technology and not just simply expect J students to learn it on their own-- while at the same time keeping the focus on the course content and process rather than the technology itself.”

“I think it adds an important dimension to teaching and in some cases can be extremely useful. Students are increasingly familiar with technology and comfortable in using it, and for some of them it works very well and adds to their ability to benefit from the course and to get beyond the typical lecturer-student relationship.”

“I teach technology, so it's very important to integrate technology into the classroom. The students typically respond well.”

“I am a technology Luddite. Technology is overrated. To learn to write one writes. That's what we do. My students learn and use all the technology on the student paper and in other classes. With me, they learn the old-fashioned way. But it must work -- the paper wins awards and they get jobs.”

“It depends on how well it is used as well as the content of the technology. If the person operating the equipment is "uncomfortable" or "inept" then the experience is not likely to be a positive one.”

**Question 9: Have you had any experiences using technology to TEACH journalism that you're willing to share? If so, please attach a description.**

“All the courses I teach involve students' learning computer applications. Therefore, strictly speaking, I cannot answer to using tech TO teach since it's tech that I DO teach. But I have observed an exponential increase in students' expertise in all matters internet over my six+ years teaching. We have gone from students reporting fear or dislike of computers to students reporting neat and/or vicious tricks done with email filters. Many students now have websites, compared to only a few even three years ago. Liz, the internet hit in 1993, when today's student had just entered junior high. They've learned this stuff AS CHILDREN, and so learned it in a different way than students did in, say, 1997, when they learned it as college freshmen. They learned it with a different part of the brain, in the part of the brain that learns language. They think like computers now. It's interesting.”

“I discovered early on that the way the Web pages are set up is very important. I was getting many complaints about students not knowing what was expected of them. Everything was on the Web, but I had another teacher look at the Web page and she helped me see that it was not arranged well. Now I think it's pretty logical.

I've been corresponding with students via e-mail for seven years and I am really sold on it. I have had students say things to me via e-mail that I know they wouldn't say in person (some good, some bad!). I had one young woman say she had been date-raped and she had never told anyone about it. It broke the ice so that we could talk in person.”

“I once attended a web-design seminar that offered training in several areas. The workshop offered no hands-on web-design training that I sought, so I attended a Photoshop workshop sponsored by the same company. I didn't agree with the teacher's approach, and answered some questions for him. I was offered a part-time job doing Photoshop seminars. My point is that I am a first-generation teacher of technology. No one was there to teach me, or anybody else. Please note I have never received any technology training, yet I am ahead of several technology trainers because I have done this for several years.

I learned quark and Photoshop on my own because there were no teachers in 94-97. But I learned on my own. With the pace of change, I don't think we can keep up; however, we can teach some basics and we can teach our students to be able to think for themselves in order that they can keep up once they're in the job market.

I think we focus way too much on the latest software and not enough on the basics.

I am on a panel discussing teaching technology at the AEJMC winter meeting next month and I am the education coordinator for the national press photographers association. I also still work as a copy editor and page designer for the Memphis Commercial Appeal. I can share insights as a working journalist as well as as an educator.”

“When it works, classroom technology is great. When it doesn't work, everyone is frustrated and time is wasted. The best advice for anyone setting up a "smart" classroom is to have the technology implemented by a professional consultant; i.e., do NOT have it installed by a campus office.”

“This probably isn't the type of experiences you want me to share, but here is an interesting result of using real world technology.

One day (per week) of class is devoted to writing scripts. A typical assignment might include a fact sheet from which the students would write a story.

After an entire semester of writing and feedback, handouts that show exact examples, persistent corrections of problem areas, the final writing assignment yielded the following.

Of 32 students:

5 did well or acceptable, the rest still could not format the script properly. 3 were clueless as to nearly all aspects of the assignment. Several students still could not save to a floppy, Nearly a third of the class was unable to write a decent lead and 1 student simply copied the fact sheet nearly verbatim.

Still, the students with the poorest results complained the loudest about their scores. These students have managed to get through classes by a variety of means other than learning. Delete the students who should not be in higher ed and the rest will do better. More time can be devoted to those students who really wish to learn. Technology can then be devoted to learning projects rather than downloading MP3 files, playing video games, taping frat parties and any number of non academic activities.

Technology is a tool, just like any other tool. It can be used effectively or abused, often it's the latter.

One thing is for certain, as in any business, eliminate the waste and you become more profitable. It's a matter of policy.

Now, I'm getting down off that soapbox!"

"I can't think of any I've had that stand out among those my other colleagues use."

"The CD-ROMs that accompany textbooks often have not been helpful because their creators seem to focus on some material I do not find that important. Also, the sample tests on these CD-ROMs often are multiple choice tests, and I do not use objective tests in my classes."

"I use PowerPoint for workshops, of material I've scanned from books and magazines or downloaded from the web to help keep the audience interested and to keep the material as up-to-date as possible.

The experiences have been mostly positive."

"All my students are required to layout materials involving photographs, in both semester classes, in a photo story assignment and in designing a CD cover. They also submit a portfolio to me via a web site.

Many of these have been very high quality and would be publishable as stand alone packages in many newspapers and as CD covers."

"We have used computer labs for years in some of our courses. I just don't happen to teach those courses. I have considered using PowerPoint in my classes, but I have not yet implemented it. Some of my students have used it for presentations. Our department is beginning to implement some of the other types of technology listed in your survey, but we tend to think some of the technology, such as online chats and course web sites, are more fitting for distance learning. As a residential campus, we're all at close proximity. I'd rather have a student call me directly, even at home, than refer to my web site. That said, I do give internet assignments in all my courses and I recognize that it's vital for the students to learn to use technology while they are here."

"Most experiences have been positive, but none stand out as being particularly worth sharing. You didn't ask this in your survey, but I thought I would share the following in case you wanted to add "other comments" to your study. I feel comfortable enough using the latest technology and welcome the latest innovations. My greatest problems are not having the time to become as proficient as I would like to be with the technology, and not having the equipment and technical support to make the best use of it."

“To many schools "have" technology and never really use it or present it for extensive student access. This is a must for effective deployment. However, a faculty member should never let the technology become the course. The technology is only a tool. Nothing ever replaces good writing, thinking, and news sense. The technology will change during any career and we have to teach the student to think and adapt first. We must remember, though, that the faculty member who fail to understand and utilize relevant technology also fails his or her own students.”

“I'm using WebCT in my Media and Society class and it seems to be working very well and is definitely being used by some students.

I also use video in my classes with some regularity and find that it is a good complement to regular lectures and discussions and students seem to enjoy the change of pace and often find that the use of video is a way to illustrate points that would not otherwise have as much meaning, particularly since my courses deal with the media.

I also give a variety of assignments that involve using the Internet to obtain information, including assignments that involve visiting web sites of media organizations.”

“I'm certain I don't do anything unique, but one thing I do that seems to work well is make overheads of student papers (covering names) and then have students critique the papers in class via overhead projector. They claim to learn a lot by seeing their work on the board. And their writing does seem to improve.”

## Bibliography

- AEJMC Vision 2000 Task Force, "The viability of journalism and mass communication units within their universities," paper presented at AEJMC, Atlanta, 1994.
- Alley, Lee R., "Technology precipitates reflective teaching: An instructional epiphany," *Change*, Mar/April 1996.
- Arenson, Karen W., "Columbia President Suspends Search for New Dean of Journalism School," *New York Times*, July 24, 2002.
- Baroudi, Carol and John Levine, "Technophobia," *Technology and Higher Education*, National Education Association of the United States, 1997, pp. 177-184.
- Becker, Lee B. and James M. Cox Jr., "Grading the J-schools," *Presstime*, September 2000, p. 41.
- Becker, Lee B., Jeffrey W. Fruit and Susan L. Caudill, *The Training and Hiring of Journalists*, Ablex Publishing Company, 1987.
- Beniger, James R., *The Control Revolution*, Harvard University Press, 1986.
- Biggs, John B., *Information and Human Learning*, Cassell Australia, 1968.
- Bork, Alfred, "Interactive Learning," *The Computer in the School: Tutor, Tool, Tutee*, edited by Robert Taylor, Teachers College Press, New York, 1980, p. 58.
- Brand, Myles, "The wise use of technology," *The Educational Record*, Fall 1995.
- Campbell-Kelly, Martin and William Aspray, *Computer: A History of the Information Machine*, BasicBooks, 1996, pp. 292-293.
- Caws, Peter, "notes on technology," *GW Forum*, Fall 1996.

Christ, William G. and Terry Hynes, "The missions and purposes of journalism and mass communication education," *Journalism & Mass Communication Educator*, Summer 1997, pp. 73-100.

Conte, Christopher, *The Learning Connection: Schools in the Information Age*, published by The Benton Foundation, 1997.

Cuban, Larry, *Teachers and Machines: The Classroom Use of Technology Since 1920*, Teachers College, Columbia University, 1986.

Cuban, Larry, *Oversold and Underused*, Harvard University Press, 2001.

Dressel, Paul L., *Liberal Education and Journalism*, published by the Institute of Higher Education, 1960.

Dutson, Thomas E., "Technophobia: Counterpoint," *Technology and Higher Education*, National Education Association of the United States, 1997, pp. 185-197.

Dwyer, Thomas, "Heuristic strategies for Using Computers to Enrich Education," *The Computer in the School: Tutor, Tool, Tutee*, edited by Robert Taylor, Teachers College Press, New York, 1980, p. 92.

Edson, Lee, *How We Learn*, Time-Life Books, 1975.

Elasmar, Michael G., and Matt E. Carter, "Use of e-mail by college students and implications for curriculum," *Journalism & Mass Communication Educator*, Summer 1996.

Engstrom, Catherine McHugh and Kevin W. Kruger, *Using Technology to Promote Student Learning Opportunities for Today and Tomorrow*, Jossey-Bass Publishers, Summer 1997.

Farrell, Elizabeth F., "Columbia U.'s President Halts Search for a Journalism Dean While Reviewing School's Role," *The Chronicle of Higher Education*, July 25, 2002.

Fedler, Fred, Carey, Arlen and Tim Counts, "Journalism's status in academia: A candidate for elimination?" *Journalism & Mass Communication Educator*, Summer 1998, pp. 31-39.

Folkerts, Jean and Dwight L. Teeter Jr., *Voices of a Nation: A History of Mass Media in the United States*, Macmillan College Publishing Company, 1994.

Forcier, Richard C., *The Computer as an Educational Tool: Productivity and Problem Solving*, Second Edition, Prentice Hall, 1999.

Gilbert, Steven W. and Kenneth C. Green, "Moving Information Technology into the Classroom," *Technology and Higher Education*, National Education Association of the United States, 1997, pp. 25-56.

Goldberg, Debbie. "Education Review – From Blackboard to Keyboard." *The Washington Post*, November 1, 1992.

Gunaratne, Shelton A. and Byung S. Lee, "Integration of Internet resources into curriculum and instruction," *Journalism & Mass Communication Educator*, Summer 1996.

Hester, Joe Bob, "Using a Web-based interactive test as a learning tool," *Journalism & Mass Communication Educator*, Spring 1999, pp. 35-41.

Huesca, Robert, "Reinventing journalism curricula for the electronic environment," *Journalism & Mass Communication Educator*, vol. 55, issue 2, Summer 2000, pp.4-15.

Johnson, J.T., "New education for journalists," *Nieman Reports*, Fall 1995.

Jones, Trevor H. and Rocco Paolucci, "Research framework and dimensions for evaluating the effectiveness of educational technology systems on learning outcomes," *Journal of Research on Computing in Education*, Fall 1999.

Kazemek, Frances, E., "Losing wisdom in information," *Education Week*, Dec. 4, 1996, p. 40.



Kozma, Robert and Patricia Schank, "Connecting with the 21<sup>st</sup> Century: Technology in Support of Educational Reform," *Yearbook 1998: Learning with Technology*, Association for Supervision and Curriculum Development, 1998, pp. 3-27.

Kunkel, Thomas, "Journalism requires wide exposure," *Quill*, July/August 2002, pp. 17-18.

Landry, Julie, "Is our children learning?" *Red Herring*, August 2002, pp. 37-41.

Laurillard, Diane, *Rethinking University Teaching*, Routledge, 1993.

Lee, Byung S. and Shelton A. Gunaratne, "Integration of Internet resources into curriculum and instruction," *Journalism & Mass Communication Educator*, Summer 1996.

Loveless, Tom. "Why Aren't Computers Used More in Schools?" *Educational Policy*, December 1, 1996, 448-467.

Maddux, Cleborne D., D. LaMont Johnson and Jerry W. Willis, *Educational Computing: Learning with Tomorrow's Technologies*, Second Edition, Allyn & Bacon, 1997.

Noble, Douglas, "Computer Literacy and Ideology," *The Computer in Education: A Critical Perspective*, Teachers College, 1984.

Oblinger, Diana G., "High tech takes the high road: New players in higher education," *The Educational Record*, Winter 1997, pp. 30-37.

Odell, De Forest, *The History of Journalism Education in the United States*, Teachers College, Columbia University, 1935.

Panici, Daniel A., "New media and the introductory mass communications course," *Journalism & Mass Communication Educator*, Spring 1998, pp. 52-63.

Postman, Neil. "Education Review — The New Technology: Three Views." *The Washington Post Book Review*, November 1, 1992, p. 1.

Racine, Sam J. and Denise Dilworth, "Using interactive television to teach professional communicators: Overcoming perceptions and negotiating first impressions," *Journal of Business and Technical Communication*, vol. 14, issue 3, July 2000, pp. 348-371.

Roblyer, M.D. and Jack Edwards, *Integrating Educational Technology into Teaching*, Second Edition, Prentice Hall, 2000.

Scott, Sandra Davidson, "The technological challenge for curriculum and instruction," *Journalism & Mass Communication Educator*, Summer 1995.

Singer, Jane B., David Craig, Chris W. Allen, and Virginia Whitehouse, "Attitudes of professors and students about new media technology," *Journalism & Mass Communication Educator*, Summer 1996.

Smith, William E., "Computer-mediated communication: An experimental study," *Journalism Educator*, Winter 1994.

South, Jeff and June Nicholson, "Cross-training: In an age of news convergence, schools move toward multimedia journalism," *Quill*, July/August 2002, pp. 10-15.

Sparks, Mary, Elizabeth Leebron, and Billy Ross, *Observations on Journalism/Mass Communications Programs in Arkansas*, published by the Arkansas Department of Higher Education, July 1992.

Steinberg, Esther R., *Computer-Assisted Instruction: A Synthesis of Theory, Practice and Technology*, Lawrence Erlbaum Associates, Publishers, 1991.

Stoll, Clifford, *High-Tech Heretic: Why computers don't belong in the classroom and other reflections by a computer contrarian*, Doubleday (NY), 1999.

Suppes, Patrick, "The Teacher and Computer-assisted Instruction," *The Computer in the School: Tutor, Tool, Tutee*, edited by Robert Taylor, Teachers College Press, New York, 1980.

Sutherland, Patrick J. and Robert K. Stewart, "How accredited programs use the World Wide Web," *Journalism & Mass Communication Educator*, Spring 1999, pp. 16-22.

See also Taylor, Robert, *The Computer in the School: Tutor, Tool, Tutee*, Teachers College Press, New York, 1980.

Thelen, Gil, "Convergence is Coming," *Quill*, July/August 2002, p. 16.

Wilson, Blenda J., "Technology and higher education: In search of progress in human learning," *The Educational Record*, Summer 1994.