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1998 • B. Aubrey Fisher Memorial Lecture

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# Information and Knowledge On-line: Teaching and Learning in the Communication Age



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## *Teaching and Learning in the Communication Age*

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**L**oretta grew up in the hocking hills of Ohio. Her friends and relations were all “hill folk.” Loretta’s father and most of the adults she knew growing up in the first two decades of this century all worked in the coalmines. She went to school in Murray City, a bend in the road in southeastern Ohio where her other nine brothers and sisters attended school as well. She graduated from high school in 1929 and finally admits to having a bit of trouble with math. But at the time, she mastered what it was that the Murray City public school had to offer — four books worth. During her senior year she had an English book, a business/bookkeeping book, a chemistry book, and a history book; all of which she had to buy, along with paper to write on. She and her classmates spent an entire school year working their way through the information that was in these books; they memorized and recited formulas, poems, and important dates in history. Loretta, who eventually became my mother-in-law, was an educated young woman.

At a recent gathering of our “Monday Night Group” Gabe Singer brought his new bookbag. He’s in his first year of high school. The bag holds 35 pounds of books that he is using this term— and that was without his biology book. The old backpack that had served him well last year and still has lots of miles left on it — in the trash heap. It wasn’t big enough to hold all of his books for the current grading period for his college prep curriculum.

In a recent visit to the University bookstore I found that one of our undergraduate sophomore courses required nine books for a ten-week quarter.

Quite a contrast in how different times and learning environments treat information and its acquisition. Education in Loretta’s day was about mastering known bodies of knowledge — filling-up the student with information — the mind conceived as an empty bucket. For Gabe and his contemporaries it appears that we treat students and their brains as sieves — pouring increasing amounts of information through the holes — knowing that most of the content will pass on through.

- What is happening here?
- What do we know about learning in the information age?
- What role should communication scholars play in the transformation of student learning environments?

### **What’s happening? — Information Abundance**

The information explosion is not a myth. As the literate population has grown, so too has what is available to be read. My lectures about the information age are filled with quotes and aphorisms from the mass media regarding the dizzying rate at which information is generated:



- Humankind's information doubles at least once every five years.
- By the year 2000, 97 percent of what is known will have been discovered or invented since today's college sophomore was born.
- The current half-life of an engineer's knowledge is five years.
- If the trajectory of information generation continues at its present pace, by the year 2020 information available to humankind will double every 73 days.

**More people are able to communicate in more ways and have access to more information than at any time in human history.**

Granted what counts as "information" includes both Shakespeare's plays and insurance forms. Nonetheless, it is hardly controversial to say that we more often find ourselves overwhelmed with information rather than comforted by it. As Nobel Prize winner Herbert Simon noted, "a wealth of information creates a poverty of attention" (Simon, 1997).

Not only has the amount of information become unwieldy and nearly incomprehensible, so too has the speed with which it is generated. The rate of invention for communication technology has a remarkable history. There is evidence that pre-historic humans were using technology to express themselves at least 45,000 years ago (Marshack, 1999). Some 20,000 years later, the paintings on the walls of the caves in France at Lascaux were left by a society that had stories to tell about their beliefs and their relationships with other animals. Too bad the alphabet hadn't yet been invented so we could understand more clearly what these images mean. It was around 3,500 BCE that evidence indicates that there were humans (the Sumerians) that could write. Just think, it took humans nearly 41,500 years to invent this important communi-

cation technology (writing), a length of time nearly unfathomable today. Assuming that the average human life was 30 years, that is about 1,300 lifetimes for humankind to develop from a speaker to a speaker and a writer. The printing press was invented in the middle of the 15th century, some 5,000 years after evidence that we could write — or another 167 lifetimes.

The pattern and speed of invention and change in communication technology in the current century reveals quite a different picture. More innovation to help us extend our world with communication technology has occurred in this last 100 years than through the 450 centuries that separate us from our earliest ancestors. Bill Gates' (1999) new book reflects the new conception of time: *Business @ The Speed of Thought: Using a Digital Nervous System*. The pace of change is accelerating as we live and try to make sense of it. More people are able to communicate in more ways and have access to more information than at any time in human history. But the rate of change for communication technology is not paralleled by a similar rate of change in economic principles, or the rate at which people can read or become wise, nor, for that matter, in how the seven deadly sins are played out. Randal Tobias, former executive with AT&T, put it in perspective when he noted that if the same rate of change that has occurred in networked computing had occurred in the automobile industry, we could buy a Lexis for \$2.00 and it could travel at the speed of light for 1,500 miles on a thimble of gas (Tabscott, 1996).

The implication for higher education and communication scholarship is that information overload is the operative mode in which we as students and teachers find ourselves. Assumption: ***Strategies and methods for learning in an era of information abundance require different approaches than can be provided by institutions and processes that were designed for a time of information scarcity.***

Here is my simple thesis: digital communication technologies, particularly networked computing, are participating in the alteration of

fundamental human communication and learning processes. Communication scholars should provide leadership in helping higher education to understand and transform itself into a learning institution for the 21st Century. There are two aspects of this large problem that require a rationale and action. We should:

- provide our students with skills in using digital communication tools;
- transform the context for student learning from a didactic information distribution metaphor to a problem based, chaos generating, and information using metaphor.

Let me first provide a bit of personal history and context for why I have come to believe that skill training and chaos-fostering activity is an appropriate road for dealing with the vicissitudes of learning in the communication age.

### Thom's Personal Journey

When I left the University of Wisconsin in the early 1970s as a freshly minted Ph.D., I set out to become a communication researcher. I remember telling my wife, Jan, during some of our private moments, and in my typically corny way, that I really wanted to "make a significant contribution to the field of communication knowledge." So, I wrote research papers and joined the "Young Turks" of the '70s. My first convention paper was at the Western States Communication Association conference in 1971. The critic on my panel was not overly impressed with my paper, and I was a bit chagrined. According to this critic (who shall remain nameless, though I assure you I remember) the research was not very close to making a significant contribution of any kind. The next panel included someone called B. Aubrey Fisher. His critic thought that his work in small groups was headed in the same direction as mine, toward the "not contributing" end of communication scholarship. Aub and I shared a "New York Minute" in the hall commiserating over this before we learned that along with aspiring scholarship in communication we also shared a

love for limericks. Before the night was over, "Aye, Aye, Aye, Aye, in China they do it for Chile" was wafting through the hotel halls. We managed to find each other at nearly every convention after that to celebrate our love for both research and a good time. I am honored to be giving the B. Aubrey Fisher Memorial Lecture. His influences have been with lots of us for a long time.

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During the 1980s there were three things that happened that led me to the ideas and issues that shape my thinking regarding communication technology and learning: I purchased my first Apple Computer; my family and I lived in Ireland for a year; Jan received her master's degree in Education. The gaining of computer knowledge and skill and the international experience started to shape my thinking regarding an information explosion, and the political, economic aspects of the information rich and the information poor. Jan introduced me to a host of learning theorists and theories, including the work of Howard Gardner and the concept of multiple intelligences and of multiple learning styles. I was on my way to understanding how the networked computer and communication technology could be used in contradictory but mutually helpful ways.

This account of my personal history ends with the current decade of the 1990s, much of which I spent with the Center for Advanced Study in Telecommunications (CAST) at Ohio State. During this period I wrote a briefing paper for the Ohio Board of Regents regarding a state level policy for technology and higher education and became embroiled in the politics of diffusion of digital communication technology. This period crystallized my thinking regarding change, higher education, learning, and interac-

tive technologies. It focused my ideas and actions about communication as an infrastructure of society that led to my litany on the topic: *to understand digital communication technology, is to understand the interdependencies of communication markets, communication technologies and communication policies.* Diffusion of digital communication technology is about:

- what things cost, who owns what, and what technology most people are using (markets);
- invention of new tools for distribution, storage, and creation of messages (technologies); and
- the politics of communication in the private and public sphere (policy).

**Responsible uses of digital communication technology require knowledge and skill that no one person can possibly possess.**

Diffusion of digital communication technology is about both continuity and change. As an essentially human process, the adoption of new methods and tools in complex organizations like colleges and universities, will be disruptive and challenging to the status quo. As Steve Gilbert has noted, it will be a “slow revolution” (1996).

Responsible uses of digital communication technology require knowledge and skill that no one person can possibly possess. Collaboration is a necessary condition for learning with technology. I firmly believe that making a difference with digital communication technology for learning requires at least somebody else, usually many more. The 1990s were the time that another “Utah Connection,” Steve Acker, and I partnered on numerous projects. Steve (who sees night when I see day) and I have developed several courses and approaches to learning with technology that act as our emergent laboratories for learning about the role of digital technology and student learning. The centerpiece is our

course, Communication 140: “Living in the Information Age” <http://jac.sbs.ohiostate.edu/co140sp99/archive.htm>. We have also embarked on a larger project “MassCommOn-Line”, an on-line, continuously updated, multimedia, interactive course and set of resources that introduce students to the markets, technologies, and policies of the mass media and emerging interactive personalized media. We expect it to be available for adoption in 2000.

## Why Skills?

The adoption of digital communication technologies into organizations and existing cultures of practice comes with an inherent tension. On the one hand digital technology is used for efficiency — doing old things more cost effectively, faster, safer, with fewer mistakes, relieving the drudgery that comes from patterned, repetitious, boring human work and activity. At the same time, new intelligent machines, particularly those that are intimately tied to human communication processes, require creativity to help find new ways for thinking about and doing things. Efficiency and Creativity are dialectically opposed in social organizations, colleges included. It is this tension that helps us to understand the process by which organizations transform themselves with the aid of new communication technologies. Shoshana Zuboff (1988) labeled these processes automating and informing when she studied the adoption of intelligent machines in industrial and service organizations. I prefer the terms *efficiency* and *creativity*, for they seem to juxtapose the forces for change in contemporary higher education.

Characteristics of digital interactive technologies do more than improve efficiencies of current processes (transferring messages by the billions); they can change the nature of what is being done, because they provide a new context for accomplishing work. This is particularly true if the work happens to be intellectual work. The necessary condition of this transformation, according to Zuboff (1988) and others (see

Nonaka & Takeuchi, 1995) is actual hands-on experience and the development of skill. It is not only the reading of lots of information that makes the Internet and the World Wide Web communicatively important or a powerful facilitator of change in the academy. Rather, it is the multimedia nature of messages and the interactive message production capabilities of the web that are transforming the shape of knowledge. The production of content requires tools and practice. It requires understanding of rules of reading on-line, of storing on-line information, of privileging and qualifying on-line information, of representing facts and opinions in words, pictures, graphs, audio and video. It requires thinking about content in such a way that facts are always current because an author can regularly update them. And it requires thinking about student produced work that is more than the assimilation of knowledge deemed important by others.

The nature of teaching and learning, along with assumptions about the character of knowledge, are part of a lively debate among educators and policy makers. Conventional perspectives support a view of education that resembles the transmissional model of communication in that the teacher, or educational institution, is the creator (or at least controller) of a message, knowledge, and the student is the recipient of that knowledge. Learning occurs when the students acquire the prescribed facts and skills making up a particular content area. The information learned by students is objective, not open to interpretation, so evidence of their learning can be provided through their performance on exams. The teacher serves the role of the gatekeeper controlling the access and distribution of information to the students.

### **Transforming the Context for Student Learning**

Cognitive research and constructivist theories of learning challenge traditional, transmissional assumptions about education. When information was a scarce resource, the pass-along method of knowledge distribution was appropriate. Teachers learned what was impor-

tant and transmitted it to students who learned it and took tests to prove that they “knew” what they had been taught. The history of the didactic, transmission model of learning is an interesting one (Maxwell and McCain, 1997). It was the product of the industrial age that sought to extend learning to all citizens rather than only the wealthy and privileged. This transmissional view of higher education permeates most every college and university — it is best characterized as an instructional model where the dis-

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tribution of content is performed by a lecturing professor. Lectures typically happen in a room designed with modern teaching aids (chalkboard and chalk). The professor lectures to rows of chairs, usually bolted to the floor, filled with students who take notes about what the professor says, so that the learners can study the notes to demonstrate mastery of the material on an objective test.

A dialogical view suggests a different understanding of knowledge, that starts with the premise that knowledge is something humans acquire through actively creating and organizing their own experiences. Teaching involves providing content, structuring activities, facilitating group work, and creating a culture of thinking and thoughtfulness (Tishman, Jay, and Perkins, 1993; Brown, 1995). Learning occurs through interaction or dialogue among all participants. Learning depends on teachers situating what is to be taught in terms of the students’ experiences, and together they come to mutual understanding, to create new knowledge (Dewey, 1938; Friere, 1993; Jones, Valdez, Nowakowski, & Rasmussen, 1995; Marshall, 1992; Means,

1994; Maxwell & McCain, 1997). This constructivist view of learning reflects the ideas of Delia (1987) and Kelly (1955) in suggesting that cognitive constructs develop through interaction and the way individuals create meaning, construct knowledge, and make sense of their world. Within the constructivist framework, the notion of involvement and personal experience influences one's beliefs and expectations. Assessment within the dialogical approach is based on performance; students are assessed by their ability to demonstrate their knowledge and skills.

The constructivist perspective has tremendous implications for understanding the nature of learning. As such, the dialogical model recognizes knowledge as being socially created through the interaction among teachers and learners and is based upon their previous knowledge, dispositions, and experiences. The students are encouraged to be active explorers, not passive recipients. Instructors coach, facilitate, and model engaged learning. Learning content consists of the building blocks of information and knowledge making up the traditional disciplines, however, these are taken one step further as stu-

**A curriculum is project-based with students working collaboratively to solve problems of relevance to them and their world.**

dents are encouraged to apply their knowledge to real-life authentic tasks. A curriculum is project-based with students working collaboratively to solve problems of relevance to them and their world. The goal of this model is to help students develop not only basic skills, but also higher order thinking skills, such as critical thinking, problem solving, and communication skills. Evidence of student learning, the basis of assessment, comes in the form of a finished project or presentation, and most often an artifact-representing students' efforts. In much of our work with students on-line, we seek to improve stu-

dent self-efficacy with digital tools as an indirect indicator of empowerment (McCain, Morris, Green, Al-Najran, 1999).

## **Explicit and Tacit Knowledge About Digital Communication**

Is the social activity of teaching and learning in which individuals create and share meaning really different if the information is digital rather than analog? In my view the answer is, yes! Digitized environments not only make teaching and learning activities more efficient, they also can transform the nature of teaching and learning through the creative capabilities of communication technologies. Not only do communication technologies expand the learning content available (thus expediting the distribution of printed information), they introduce an element of currency and accessibility to the content being studied. This feature has the potential to transform teaching and learning — making it more life-like, more interesting, and relevant. Not only do digital technologies expand the circle of learners (thus increasing the efficiency for interactivity), the immediacy of this enhanced exposure, in terms of space and time, can result in broadened horizons, deeper learning experiences, and an appreciation for diversity not realized with traditional text and place-bound interaction.

The informing or creative capabilities of digital communication also can lead to developing tacit knowledge. As opposed to explicit knowledge, tacit, or implicit understanding is not easily articulated and is deeply rooted in action, experience, social values and symbols (Nonaka & Takeuchi, 1995). Tacit knowledge is the stuff for which words won't work. According to Nonaka and Takeuchi, tacit knowledge includes the unspoken rules of culture. It is what you know that can be understood only through hands-on experience. Words seldom capture the smell of sea-air or the sound of wind in a sail. No written description of the WWW communicates the experience of a MOO or a MUD. Until someone spends time with email,

they think it is like sending a letter. “Newbies” to the web are much more likely to print out text copies of mail messages than are those with more time on-line where they have experienced and gained a tacit understanding of email communication. Learning and teaching on-line posses lots of dilemmas. Perhaps the most important thing a teacher and student needs to know about learning on-line is the range of the possible in the on-line contextual environment. Knowing about any context requires experience with it. Knowing how to use new communication technologies creatively to improve and enhance student learning, requires spending time on-line in order to gain an understanding of the tacit ways content, teachers and learners interact with digital content.

## Digital Differences

Communication technology’s creative capabilities extend beyond efficiencies to shifting notions of space and time in ways never before experienced. This challenges the taken-for-granted aspects of when and where things can and should be done. Because of this, they are useful tools for facilitating, encouraging, and even demanding organizational and structural change. This change involves different ways of doing things, of conceiving about things, of imagining and expecting things, and of preserving things as they are. Digital technology takes information and breaks it down into its smallest components. By transforming an analog signal into discrete pieces, digitalization makes it possible to manipulate information, text, graphics, software code, audio, and video in ways never before thought of, thus its informing, transforming, creative capabilities.

The “bit revolution” as Negroponte (1995) refers it to, means that conceptualization of the possible in communication markets, technology and policy are up for grabs. Copyright, for example, “is a Gutenberg artifact.” (p.58). There are several things which digitalization does to information and messages which fundamentally

change its nature from being one of matter (atoms) to being one of bits. First, bits can be mixed together nearly effortlessly; music, text, moving images can be stored, arranged, edited, enhanced, and compressed in an infinite variety of ways with only modest skill. Multimedia is the name for the data which include audio, video and text. In digital form these data and the potential combinations that they afford the user and producer of information, are nearly infinite. The integrative form of multimedia is essentially

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**The integrative form of multimedia is essentially different from the book, movie, and record form which preceded it.**

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different from the book, movie, and record form which preceded it. Both teachers and students manipulate information bits, only teachers manipulate information atoms.

The other seemingly innocuous property of digital information is that it creates a new kind of bit — a bit which provides information about itself. There is meta-information about every bit — a header which is transparent to the audience, but which lets the user’s computer know about the data. These instructions allow for intelligent use of fragments of messages, starting with something as mundane as what track is playing on a CD player. This new kind of bit, allows for a television program to be not only a program which includes sounds and pictures, but also carries with it a computerized description of itself. For teachers and students, this new ability to create new forms and arrangements of information has never been so profound (Negroponte, 1995).

Use of digital communication technology in teaching and learning activities can provide a mechanism for developing a deeper level of understanding of a process or technique by creating a means for experiencing it first hand. Interactive technologies provide students and teachers the ability to more closely experience real applications, be they viewing a speech in



the House of Commons, interacting with scholars studying camera angles, or creating a personal web site on the Internet. When individuals do something rather than discuss or read about it, they learn more. The creative capabilities of digital communication technology create an environment for supporting and encouraging the development of such tacit knowledge in ways that mere efficient distribution of content cannot. Digital communication technologies are not something that can be understood by reading about them, any more than riding a bike can be understood by reading about bikes, or gardening understood through books, or the thrill of a kiss captured through the written word alone. Understanding of digital communication technology requires action-centered experiences that are about both efficiency and creativity.

### Transmission or Dialogue?

To be sure, digital communication technologies can be used to support either a transmissional or a dialogical view of teaching and learning. Those policy makers, administrators, and teachers comprising the social structure make the choice, but clearly the more exciting possibilities

**Most contemporary academic administrators have little tacit understanding of teaching and learning with technology that they brought with them to the managing process.**

of digital interactive media favor the dialogical model. Access to computers with network connectivity provides students an open window to collect all types of facts, ideas, and tools to apply to their projects that a teacher never may have considered. Through the Internet, individuals can efficiently peruse the world's most acclaimed museums, view texts from libraries all over the world, or join a newsgroup on any imaginable topic. Workstations with desktop publishing software and multimedia capabilities enable students to create and produce professional-looking

documents and products. Essentially, digital communication technology does the same thing for students as it does for other users of intellectual works—significantly alters the gatekeeping function. It allows for much more access to ideas and information than was afforded in the traditional classroom and fosters an atmosphere where students are both users and producers of intellectual work.

### University Administration's Digital Conundrum

Using communication technology in the teaching learning context is indeed resulting in creative new environments for student learning. It is a learning environment that has managers in higher education in a bind, and most administrators don't know it yet. The pressures of budgets and the potential for digital communication technology and distance education to "save money" has most Deans and Deanlets (associate, assistant, vice deans) in a disconnect with contemporary teachers and learners in this regard. Administrators in higher education, appear to be consumed by the need to be efficient and "fill up the pail of knowledge" they are hard pressed to see the creative and "informating" aspects of learning with technology that emerge when intelligent users publish their work. This is so partly because contemporary administrators understand the web as a management tool, rather than a teaching and learning tool. Most contemporary academic administrators have little tacit understanding of teaching and learning with technology that they brought with them to the managing process. Instead, contemporary administrative folks have a tacit understanding of transmissional media and didactic teaching of content, for that is what their experience as student and professor taught them.

In order to maximize the potential for digital communication technologies, one must develop a tacit as well as explicit knowledge of their capabilities. This challenges us to use digital communication technologies to accomplish tasks

that are meaningful to learners and that make a difference for a larger audience than a classroom-trapped instructor. The need to work collaboratively with others requires our pluralistic journeys to look for multiple ways through the chaos. Experience is essential to recognizing digital communication technologies' capability to creatively and efficiently transform communication learning processes.

On a personal note, in my thirty some years in academe, nothing has been so provocative, so exciting, so gratifying as the transformation of learning that accompanies students' uses of digital communication technologies. One of the reasons we academics are what we are, is because we were good at being students. Why not find a way to stay in school? As students we all met success in the past. As transformers of the way learning about communication and the world around us can and should occur, we need to be successful in the future. Our discipline and our students need our leadership and example.

Loretta needs help in expanding her reading. Gabe needs help in prioritizing and integrating enormous amounts of information. We know that at the very least, we all need practice and timing. It will take skill and understanding. It will include both efficiency and creativity. It requires working with others. It challenges us to celebrate diversity. It requires that we accept chaos. It makes us all wear our learning shirts. Our intellectual legacy is replete with advice that we should think first and act second. In this transformation period of cyberspace, the challenge for us is **to act our way into a new way of thinking.**

## References

Brown, R. G. (1993). *Schools of Thought: How the politics of literacy shape thinking in the classroom*. San Francisco: Jossey - Bass Publishers.

Delia, J. (1987). Interpersonal cognition, message goals, and organization of communication: recent constructivist research. In D. L. Kincaid (Ed.), *Communication theory: Eastern and western perspectives*, (pp. 255-274). San Diego, CA: Academic Press.

Dewey, J. (1938). *Experience and education*. New York: Collier Books.

Friere, P. (1989). *Pedagogy of the oppressed*. New York: Continuum.

Gates, B with Hemingway, C. (1999). *Business @the Speed of Thought: Using a Digital Nervous System*, New York: Warner Books.

Gilbert, S. (1996). Making the most of a slow revolution. *Change*, March/April, 1023.

Jones, B., Valdez, G., Nowakowski, J., & Rasmussen, C. (1995). *Plugging in*. Oakbrook, IL: North Central Regional Educational Laboratory.

Kelly, G. (1955). *The psychology of personal constructs*. New York: North.

Marshack, A. (1999). The art and symbols of ice age man. In David Crowley and Paul Heyer, eds. (1999) *Communication in history: Technology, culture, society*. 3rd ed., New York: Longman.

Marshall, H. (1992). Seeing, redefining, and supporting student learning. In H. Marshall (Ed.). *Redefining student learning*, 1-32. Norwood, NJ: Ablex Publishing Corp.

Maxwell, L., & McCain, T. (1997). Gateway or gatekeeper: Implications of copyright and digitalization on education. *Communication Education*, 46, 141-157.

McCain, T., Morris, S., Green, C., Al-Najran, T. (1999). To do is to empower: relationships between experience with networked computing, efficacy, and attitudes toward life on-line. Paper presented at National Communication Association Convention, Chicago, Illinois.

Means, B. (1994). Using technology to advance educational goals. In B. Means (Ed.). *Technology and education reform*, (pp. 1-22). San Francisco, CA: Jossey-Bass.

Nonaka, I., & Takeuchi, H. (1995). *The knowledge-creating company*. New York: Oxford University Press.

Simon, H. (1997). Designing organizations for an information-rich world, In Donald Lamberton, ed. *The economics of communication and information*. Cheltenham, U. K.: Edward Elgar.

Tabscott, D (1996). *The digital economy: Promise and peril in the age of networked intelligence*. New York: McGraw Hill.

Tishman, S., Jay, E., & Perkins, D. (1993). Teaching thinking dispositions: From transmission to enculturation. *Theory into Practice*, 32, 147-153.

Zuboff, S. (1988). *In the age of the smart machine: The future of work and power*. New York: Basic Books.

## B. Aubrey Fisher

B. Aubrey Fisher served as a faculty member in the Department of Communication at the University of Utah from 1971 to 1986. He began his professional career as a high school teacher and radio announcer in South Dakota. After receiving his Master's and Ph. D. degrees from the University of Minnesota, he spent four years on the faculty at the University of Missouri.

Professor Fisher was a prominent scholar in interpersonal communication and communication theory. His published work includes three books and more than thirty-five articles and book chapters. He was considered one of the most notable and influential communication scholars of his time. He held numerous offices in professional organizations, including president of the Western Speech Communication Association, president of the International Communication Association, and editor of the *Western Speech Communication Journal*.

The B. Aubrey Fisher Memorial Lecture was established by the Department of Communication in 1986 to recognize Professor Fisher's outstanding achievements and to provide a forum for presenting original research and theory in communication.

## Thomas A. McCain

Thomas A. McCain is Professor of Journalism and Communication at The Ohio State University. He joined the faculty at Ohio State in 1973 and founded the Center for Advanced Study in Telecommunications (CAST) in 1990, serving as Director until 1997. Professor McCain received his B.S. degree from Wisconsin State University at Oshkosh, the M.S. degree from Marquette University, and the Ph.D. degree from the University of Wisconsin. He was an Assistant Professor at Illinois State University from 1970 to 1973, and Visiting Lecturer at the National Institute for Higher Education, Dublin, Ireland, 1984-85.

Dr. McCain is the author of more than 175 scholarly papers, journal articles and book chapters that have examined the relationships between communication technology and society. He is former editor of *Journal of Broadcasting & Electronic Media* and editor of *The 1,000 Hour War: Communication in the Gulf*, published by Greenwood Press. Professor McCain's current writing explores the capabilities of emerging communication technologies and their potential impact on the processes of human learning. He and his colleague, Stephen Acker, have recently signed a publishing contract with Wadsworth Publishing for a new "text" that integrates a learning site on the World Wide Web.

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