

ISSUES

IN CHRISTIAN EDUCATION

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*The Information Technology Revolution:
Are We Ready?*

ISSUES

IN CHRISTIAN EDUCATION

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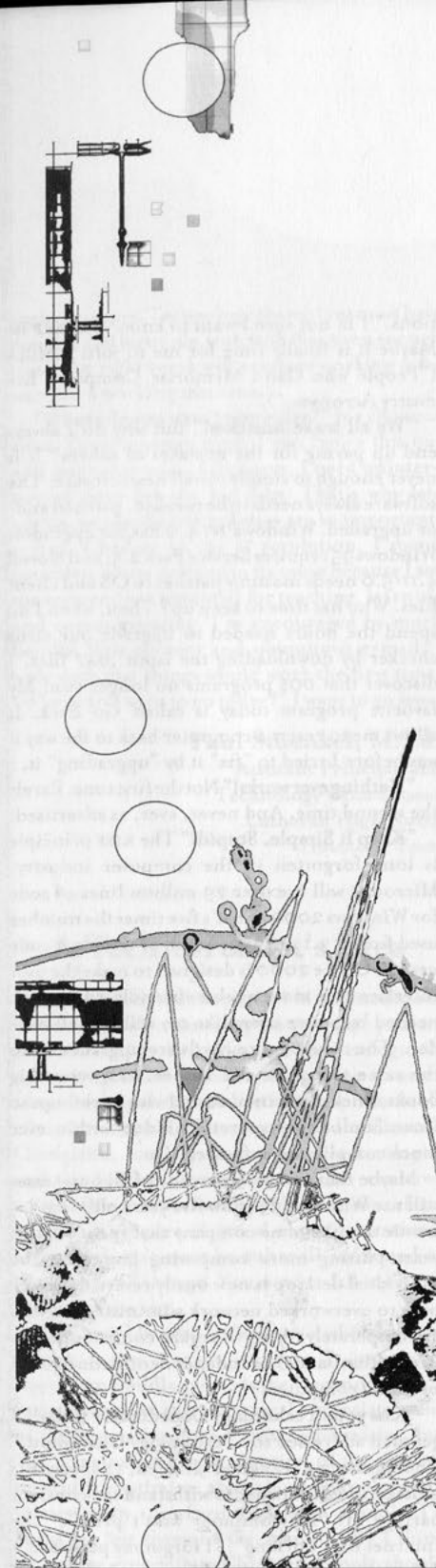
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reflections

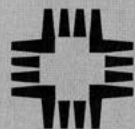
CONCORDIA UNIVERSITY was founded in 1894, making this the 106th year of sharing the Good News that Jesus Christ is our Savior. Soon this institution of Christian higher education will be serving students in three centuries, the 1800s, the 1900s, and the 2000s. The first building, Founders Hall, is still a part of the campus where instructors and students continue to teach and learn.

How things have changed in 105 years. What reactions would students and faculty members of the late 1800s have if they could visit the Concordia campus today? Change is occurring everywhere, and at a quickening pace. Recently I read that information available to humankind will double every 73 days. The new Leadership Education Center, located next to Founders Hall, will soon be a learning environment for Concordia's students, replacing Becker Hall after 92 years of service.

As we enter a new century it seems most appropriate that an edition of *Issues in Christian Education* considers the information technologies revolution and what effect it has and will continue to have on the proclamation of the Gospel of Jesus Christ in Synod's congregations and schools. Learning via information technologies has been described as one of the great advancements of our time. With teachers and learners no longer restricted by location, possibilities for the church and Christian educators to integrate the new technologies in their ministries await being discovered. While information technologies enable the church and its educators to explore teaching and learning in new and diverse ways, questions and issues also emerge. With all of the excitement and possibilities in the use of technology, is there a danger that too great an emphasis will be placed on the means of learning at the expense of the message? Will Christians be giving up an emphasis on the Gospel message by promoting what someone has called an "on-line religion"?

Technology is a wonderful blessing from God, but technology is not our savior. The biblical base of the theme of this academic year at Concordia University, "Jesus Christ is the same yesterday, today and forever" (Hebrews 13:8), reminds us of the unchanging message proclaimed for 105 years. Enjoy this edition of *Issues*, and may God guide and direct us in using technology to tell one and all of Jesus Christ, our Savior.

Orville C. Walz, President



Information Technology, God's Gift

No matter where one turns today, the individual is exposed to the pervasiveness of technology. People carry cell phones, high definition television is now a reality on the American scene, the stock market rises and falls with traders buying technology stocks on the Internet, and the new technologies have come to education and the church as well. This edition of *Issues in Christian Education* explores the potential of what the new digital age means to education and the church.

Millions of dollars have been spent so schools all across the nation could be "wired," enabling students to get on the "net." Many schools, kindergarten through graduate school, offer greater connectivity to their students by providing or requiring laptop computers.

These tools do indeed hold great promise for education and the individuals who use them. At the same time, many questions deserve attention such as: "Does all this technology increase learning? How might the church use the new technologies to reach more people with the Gospel?"

The church has always used communication technology to spread the Gospel. Johannes Gutenberg's first product from his printing press was the Bible. The printed page became the medium of mass communication. With the advent of radio in the 1920s, scores of religious broadcasts could be heard, and our own church body produced *The Lutheran Hour*. Later, as television became the dominant communication technology, churches again used the new medium. We have witnessed Billy Graham crusades on television, and Bishop Fulton Sheen drew large television audiences. Our Synod brought the Gospel to many with the television program, *This is the Life*.

The new technologies have moved from mass communication to personal communication. Computers and the Internet have permitted people to interact with one another regardless of time and space. Paul Soukup, a professor at Santa Clara University, refers to the new technology as "on-line religion." The Internet has provided a means for people to exchange ideas and discuss religious issues in ways that have never been possible.

In which direction are these new tools headed, and how may they benefit the church? Some churches use the Internet as a means to evangelize. These churches have a Web presence and share information about themselves and their theological positions, and they also Web cast their worship services. The International Lutheran Hour Ministries offers Real Audio of

Lutheran Hour broadcasts, daily devotions and textual information. Educational institutions offer classes for credit on-line, affording pastors, teachers, deacons and laity opportunities to expand their learning without being on a campus. This permits the learner to remain with one's family, continue work-related responsibilities and to reduce costs.

A variety of technologies are employed to equip workers to carry on the Great Commission. In particular, the article by Dr. D. Ray Halm explores the use of the Concordia University Education Network (CUENet). CUENet has already made major strides in the offering of instruction to the schools of the Concordia University System and several Lutheran high schools.

We need to view technology as a gift of God to be used for His purposes of sharing the Gospel message with those who have not heard it and to equip those who will share it. The mission statement at Concordia University, Nebraska, is to equip students for "servant leadership to the church and world." Our theme for this year, "Serving through the Centuries," is based on Hebrews 13:8, "Jesus Christ is the same yesterday and today and forever." Technologies may change. How we deliver the message may change. But the message of the Gospel never changes.

Ray Huebschman, Ed.D.
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A View from the E-Trenches

Today's Information Technology Revolution cannot be denied. Some thoughts from a Lutheran high school technology coordinator who struggles with this ITR daily include:

"It's not just a job, it's an adventure!" It's a BNA (Brave New Age)! Just when I thought I was up on all the latest TLA's (Three Letter Acronyms), I received an e-mail from TechRepublic telling me that "half of all application spending at corporate IT departments is for ERP implementa-

tions." I'm not sure I want to know what ERP is! Maybe it is finally time for me to join PCMCIA ("People who Can't Memorize Computer Industry Acronyms").

"We all make mistakes!" But why do I always end up paying for the mistakes of others? It is never enough to simply install new software. The software always needs to be tweaked, patched and/or upgraded. Windows NT 4.0 has four upgrades; Windows 95 requires Service Pack 2.5; and Novell 4.11/5.0 needs monthly patches to OS and client files. Who has time to keep up? Then, when I do spend the hours needed to upgrade our virus checker by downloading the latest .DAT files, I discover that DOS programs no longer run! My favorite program today is called *Go Back*. It allows me to revert a computer back to the way it was before I tried to "fix" it by "upgrading" it.

"Nothing ever works!" Not the first time. Rarely the second time. And never, ever, as advertised.

"Keep It Simple, Stupid!" The KISS principle is long forgotten in the computer industry. Microsoft will use over 29 million lines of code for Windows 2000. That's five times the number used for NT 3.1 in 1993. Much of the bloat code used in Office 2000 is designed to make the user interface even more newbie-friendly, while tools needed by power users like me will be well hidden. The result: more hardware upgrades to do the same things we did before, and more big books, thick magazines, and all-day workshops so I can "unlock the secrets" hidden within ever more complicated software.

Maybe that's why 54 percent of all businesses still use Windows 95 (now five years old). Isn't it ironic that the same company that spent 10 plus years putting more computing power on the individual desktop is now busily reverting power back to overworked network administrators who are desperately trying to regain control of hundreds (thousands) of independently configured personal computers?

"Kiss your Technology Coordinator today!" I get mail addressed to "Technology Champion." That makes me feel good. Indeed, IT specialists must be tough in order to withstand the constant barrage of: "My computer won't print"; "the Internet isn't working"; "I forgot my password"; "when you have time, could you . . ."; "I think I have a virus"; my report was on that disk!"; and "the network is down!" Tech coordinators must be strong to carry 1,000-page manuals and 15-

inch monitors. Technology champions must have courage and fortitude, with faith that given enough time, the right tweak will produce working software on a working machine.

"Where do you want to go today?" It's all about time. Given enough time, I can figure this out and make that work. Of course, I need uninterrupted time for the big jobs. That's why late nights, weekends and holidays are so important.

Yes, I believe in the IT revolution. I spend countless hours devoted to its cause because I see the tremendous potential for teaching, learning and communicating. I'm encouraged by much helpful Web content and ubiquitous e-mail. I only wish that things would work the first time. "Where do I want to go today?" I want to go home!

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A Technorealist's Plea

Technophile or technophobe? Most discussions of educational technology assume that you are one or the other. Either you are a technologically savvy, progressive educator, embracing an overwhelmingly positive and historically inevitable educational revolution; or you are a Luddite and Gradgrind, too lazy to learn new technologies and too wedded to outdated, teacher-centered models of education to allow them in your classrooms. If you are skeptical about educational technology, you must be either ill-informed or resistant to all change. You need to fall in line or get out of the way.

The trouble with this neat dichotomy, of course, is that it is not accurate. It ignores an important middle ground, the "technorealists." I place myself in this category. I appreciate many of the ways technology makes my life easier, but I'm nonetheless deeply skeptical of the current unbridled optimism about how technology will miraculously transform American schools. I'll focus on just three of the reasons why I think educators, especially in Christian schools, should be technorealists, skeptical and critical about embracing technological solutions to educational problems.

First, even if you accept the most optimistic claims of technology's "true-believers" about the benefits of educational technology, a crucial question remains: "What are we prepared to give up to grant various technologies a larger place in education?" In a world of finite resources for education (in Lutheran schools often rather "more finite" than for others) embracing technology inevitably means sacrificing something else. Will what we gain be worth what we lose? In a provocative cover story in *The Atlantic Monthly* (July, 1997), Todd Oppenheimer recounts examples of schools across the country sacrificing funding for art, music and physical education programs in order to fund computer purchases. In a 1996 poll, U. S. teachers listed computer and media skills as more essential for students than knowledge of biology, chemistry, physics, European history, and literature. Most appallingly, Oppenheimer reports that Americans favor spending on computers over a range of priorities including training and hiring teachers, reducing class sizes, and expanding hours of instruction. I fear that, in our headlong rush to embrace technology, we may discover we have surrendered pieces of the educational experience we ought to value greatly.

Second, as we consider the role of technology in our classrooms, we need to resist the temptation to confuse information with knowledge. Computers and other forms of educational technology tend to be very good at distributing information. I appreciate how the Internet allows me to find out quickly what movies are showing locally, how the Minnesota Golden Gophers fared this weekend, or when Ralph Waldo Emerson wrote *The American Scholar*. But none of that information (even if we assume it's all accurate) constitutes knowledge, much less wisdom. Our students have seldom suffered from too little access to information; even the tiny library (smaller than my office) of the two-room Lutheran school I attended as a child held more information than I could assimilate in eight years. Our challenge as teachers is to give our students not merely access to information but the ability to think critically about it in order to derive genuine understanding. This goal takes on greater importance in the "Information Age," but it is also made more

difficult by how easily students can connect to impressive looking, but often utterly unreliable, sources of information. A document titled *Principles of Technorealism*, endorsed by some major figures in the field of information technology, states the point well: "We must not confuse the thrill of acquiring or distributing information quickly with the more daunting task of converting it into knowledge and wisdom. Regardless of how advanced our computers become, we should never use them as a substitute for our own basic cognitive skills of awareness, perception, reasoning and judgment (www.technorealism.org).

Finally, we must remember that technology is never neutral. New technologies inevitably alter not just our lesson plans or presentation format but the fundamental nature of our ministry as teachers. We need to proceed cautiously to be sure that the technologies we embrace do not drive us away from the principles we hold most dear. Teaching is, above all, relational. I've seen the truth of this over and over: my students learn best when my passion for the material and my concern for them as individuals coalesce to make their learning meaningful. Mike Rose, describing his own transformation from vocational track underachiever to UCLA faculty member, captures this crucial impact of the teacher-student relationship: "Maybe nothing was 'intrinsically interesting.' Knowledge gained its meaning, at least initially, through a touch on the shoulder" (*Lives on the Boundary*, 102). More importantly, as a Christian teacher committed to shaping both the mind and the conscience of my students, to helping them love God with both heart and mind, I'm concerned that our increasing reliance on technology may reduce the moments of deepest human contact between teachers and their students. For it is in our moments of shared humanity, whether puzzling over a literary text together or sharing burdens not included in the curriculum, that we have the greatest opportunity to touch our students' lives, to be "Jesus with skin on" for them.

Technology will not go away, and I would not be happy if it did. I am not suggesting that we reject all it has to offer, but that we apply a healthy dose of skepticism, carefully weighing the material, philosophical, and spiritual costs before embracing the latest claims for educational technology.

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MATTHEW DUNN

The Digital Revolution: Challenges for the Church

SHOULD THERE BE A SIGN outside sanctuary spaces: "Please Turn Off Cell Phone Before Worshipping"? (What if you are a heart surgeon with a critical patient?) Should students at a church college be restricted from browsing the entire Internet? (What about the entire nation of China?) Do pastors need PDAs (Personal Digital Assistants)? Are Web kiosks acceptable in the narthex? (With or without advertising?) Can synthesizers make beautiful music? Can prayer be conducted via chat? Can I e-mail these questions to the Synod? (What's the address?)

MATTHEW DUNN ATTENDED CONCORDIA UNIVERSITY, SEWARD, NEBRASKA, IN 1980 AND 1981 AND EARNED A BACHELOR OF ARTS DEGREE AT COLORADO STATE UNIVERSITY, A MASTER OF FINE ARTS DEGREE AT THE UNIVERSITY OF TEXAS AT AUSTIN, AND A PH.D. IN DIGITAL MEDIA AT THE UNIVERSITY OF WASHINGTON. AFTER TEACHING THEATRE AT THE HIGH SCHOOL AND UNIVERSITY LEVELS, HE WORKED FOR THE MICROSOFT CORPORATION FOR NINE YEARS AND RECENTLY ACCEPTED A POSITION AS CIO/SENIOR VICE PRESIDENT OF THE INTRAWEST CORPORATION, VANCOUVER, BRITISH COLUMBIA. HE LIVES WITH HIS WIFE AND TWO CHILDREN IN BELLINGHAM, WASHINGTON.

Information technology is on people's minds. Anxieties about the impending January date rollover ("Y2K"), elation and speculation about Internet businesses, career worries, social and demographic changes and, not least of all, plain old-fashioned "how will I ever keep up with all of this" thoughts are but a few of the twinges manifesting the profound readjustments under way. Balancing these concerns are ideas and excitement about the things that are possible. The U.S. Patent Office, for one, is buried under the largest-ever influx of applications. The volume of information and knowledge is exploding, as is the volume of 'bugs' and errors.

If we focus on the anxiety side of the balance, there is a tendency to hope this will all go away. The church could, I suppose, take the position that this is all just another "secular shift." I do not think that is very advisable. In this article, I will sketch out *why*, beginning with this provocation: information technology is on people's minds because it is *about* people's minds. For that reason, it cannot be ignored or waited out. For that reason, it is an opportunity and a challenge which the church cannot avoid.

I will begin by sketching out the dominant themes of current technological developments and will extrapolate some of the likely scenarios for the near future. Then I will take a look at the challenges and opportunities these imply for the church. Finally, I will try to avoid

conclusions and recommendations, and instead lay out some provocations and perspectives for further discussion and action.

The Digital Revolution

First, let's identify what we are talking about. "Technology" is a loaded word, particularly to Americans. It has a constantly sliding populist definition, a near-mythological national status, and a fairly poor conceptual value as commonly used. Consider the last first: what, in the most abstract sense, is 'technology'? Technology is the human activity of conceiving, making, and using artifacts for utilitarian ends.¹ An "artifact" is literally an artificial product, an entity which does not occur naturally. "Utilitarian" refers to motive; some person has some practical need or desire which can be met with an artifact. There is a tendency to think of technologies as 'things,' but this is not strictly true. For example, software isn't a 'thing'; it has no perceptible existence. Neil Postman has argued that grades are a technology.² We could add that hymnals and Bibles, classes and church schedules are also technologies. (Neckties, of course, are not, since there is clearly no utilitarian value!)

The national "status" of technology is more slippery to describe, but succinctly, America appears to have a collective belief that we can advance our nation and/or solve national problems with inventions. Great chunks of government funds are spent on technologies from practical to speculative, with little question that *some* good is likely to come of it. Edison, Graham Bell, and Gates have high niches in the national Pantheon. This national mind-set (usually unquestioned) creates a near-automatic valuation of "technology as good." This attitude is manifested most insidiously in the area of education; few D.C.-based prescriptions for educational reform go unaccompanied by technological remedies.

The populist definition of technology is perhaps the most important in the degree to which it shapes our decisions and actions. When "technology" is used in ordinary conversation, it tends to refer to a *current* artifact or system of artifacts which is in common use but whose workings are not commonly understood. (Chalk and chalkboard, pencils and hymnals are technologies. They are not ordinarily the subjects of discussion and tension, though.) In the 19th century, "technology" was manufacturing and industrial technologies; in the 1920s and 1930s, telephones and automobiles; in the 1950s, atomic and Cold War weapons; in the 1960s, space, and so on. Currently, digital technologies—computers and networks most prominently—are at the center of the populist definition.

Technological Themes

To be fair, the technologies that currently preoccupy us are mind-bogglingly complex. By some accounts, the Internet (on which every machine can talk to every other machine) now constitutes the most complex mechanism created by man. For another example, Microsoft Corporation's development effort for Windows 2000 (an operating system) is a larger engineering project than the building of the Hoover Dam.³ These technologies cannot be explained, especially not in the length of an article. Nor can their effects be cataloged, especially in such an early stage of development. Henry Ford did not invent or anticipate gridlock and freeways, after all. But the chief directions of technology today are, I think, surprisingly easy to characterize. Infrastructure, technology, and commerce are all pointed at the unspoken goal of making all information digital and putting it all on a (the) network.

In defense of the broad claims of this unspoken goal, consider the ramifications of

key technology trends. Computing power doubles in power and halves in price every 18 months ("Moore's Law"⁴). Digital storage is currently doubling (cost-per-bit) every year. Network bandwidth (information transmittable per second) is currently quadrupling every year in the U.S.⁵ Although knowledge and capability are advancing rapidly in many non-digital fields, nothing else is going at this combined clip just now. There is a sense of historical inevitability implied by changes of such magnitude. We can and will build a network that lets us store, manipulate, and get at an ever-expanding amount of digital information from nearly anywhere.

Practically speaking, what might that mean? A great deal—some things scary, some exciting. A few down-to-earth examples may help focus the discussion back to the challenges and opportunities for the church.

Free long distance calls? Telephone calls are moving to digital networks; the same bandwidth that serves up Web pages can serve up Grandma's voice. Grandma's voice does not take up many bits, though. Voice traffic is rapidly becoming a minor use of the telecommunications network, and the number of voices in the country (and world) is directly related to the population! Given this, it is very likely (inevitable) that the cost of voice traffic will become so small that per-minute billing will stop making sense; flat per-month charges will likely become the norm. (This is already common in the wireless phone market, with no distinction between local and long-distance calls.)

Post offices? Wireless phones are already annoyingly common, and it is going to get worse before it gets invisible. The computing power of today's PC will easily fit in tomorrow's pocket. Tomorrow's wireless network can handle the bits that make up voices, text and pictures. Worst of all, it is likely to be surpris-

ingly affordable. Getting calls and e-mail and browsing the Web from the comforts of your own pew are on the horizon. Again, the wireless phone market is already foreshadowing this.

Me, Inc.? Information infrastructures and resources once were the province of business. But the magnitude and complexity of personal information are exploding, as are the tools and systems to manage them. I suspect we will find that our house of information, like our physical house, requires time and attention. The information infrastructure around a single person is likely to resemble what we presently think of as a business-type infrastructure. (Early evidence for this includes personal Web pages, electronic banking, personal computers and PDAs.)

The Internet will disappear. Although it will not exactly look like it does now, the Internet is here to stay, and, more importantly, it is going to be everywhere. I suspect it will disappear in a generation or two in the sense of being an entity worth commenting on. We generally do not discuss the electrical grid, sewer system, or even telephone system unless something goes wrong. We generally expect them to be there. So, too, with the Internet, whose protocols and technologies will start invading just about every informational device. For example, General Motors plans to equip its cars with satellite-based Internet access starting this year.⁶

These are just a few speculations about developments, and they are not even the snow on the iceberg. They highlight a few of the areas of personal impact and suggest some of the issues that the church will need to confront.

Faith.com

I would separate the issues information technology presents to the church into two sets.

The first set constitutes the business-type decisions that the church faces regarding its own use of information technologies to run its businesses (congregations, schools, etc.) The second set is the collection of issues raised by the social and personal changes these technologies are creating for church members and non-members. The first set, although not simple, is more readily summarized.

Although the church is not about business, it does in fact run many business-like operations. There are the businesses of operating individual congregations as well as the Synod and affiliated organizations. There is the business of operating schools and universities, and the business of ministries. Much of the impetus for information technology development has been the desire for increased business efficiency. Where there are no fundamental conflicts with the objectives of the church, it seems pretty sensible to say, "Fine, let's make our businesses more efficient." That is easier said than done, however. Technologizing a business involves complex choices and large-scale expenses.

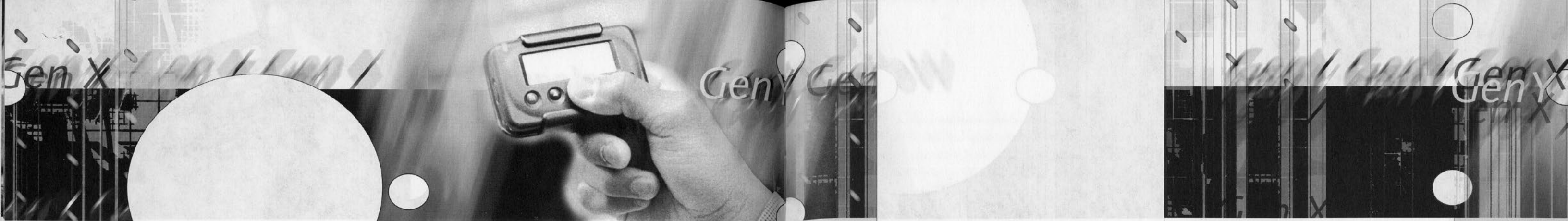
My experience in the technology industry tends to suggest that the most important thing for the Synod to do is to grapple actively with the problem. Congregations are already buying PCs and putting up Web sites and e-mail servers. In effect, there are grassroots technologize-our-business movements afoot already in the church. Many American businesses went through the same process, as individual departments and subsidiaries went their own direction technologizing in lieu of centralized direction. Unfortunately, such ad hoc retooling is needlessly expensive. Those same corporations are now making more central decisions about technology while incorporating the wisdom and energy of the grassroots. One typical indicator is the creation of a chief information officer and similar positions. In effect, the organization has to recognize that information technol-

ogy requires top level decisions, while also working with a biblical understanding of community and church polity.

The second set of issues is probably more complex and likewise requires the attention of the entire church. The social, economic and institutional consequences of the information technologies that have crystallized at the end of this century will not be clear for several generations, if ever. Therefore, I will make some simplistic conjectures about their influence based on the attributes of the technologies and the patterns of past technology adaptation. Our ability to grapple with information glut will be challenged. Our use of space and time is likely to change. We will adapt and invent social customs to guide and inform the place of information technologies in our lives.

Adaptation and invention of social customs for information technologies are already under way. Fine restaurants have already begun to ban cell phone use, but telephone conversations in what would have been unlikely places (golf courses, streets, cars) are common. Receiving and sending electronic mail from home are likewise acceptable, and notably, probably inevitable. A doctor can (presently) carry a pager into church. Teenagers doing the same might raise eyebrows. (Some schools have in fact banned the devices.)

Clearly, some of these adaptations are required by the use patterns that fall out of the nature of the technologies themselves. The pragmatic purpose behind many information technologies is the alteration of spatial and temporal restrictions. The World Wide Web does not have a prime time, or in fact, any sort of cyclical time, much to the delight of on-line businesses. Shopping, they have found, can be a profitable nocturnal activity. Electronic mail is place-less; the recipients of a message do not know where senders are physically located,



although they usually know when the messages were sent. Voice-mail has greatly expanded and cluttered the use of telephones, particularly in business, in relation to the social cycles of time. Business hours are less of a restriction on message-passing than before. ATMs changed the location and time of banking, and probably have encouraged spending. (Note, though, the interesting shift in the past five years away from universal ATM access to for-fee ATM access. The ATMs owned by your bank are free for you; you can use a competitor's, but both institutions will charge you.)

For the sake of fairness, let's consider that what we see as unprecedented levels of change may in fact be (relatively speaking) just evolutionary adaptations. Some argue that the social changes wrought by technology in the mid-to-late 19th century were far greater. Steam power, railroads and telegraphs made the earth circumnavigable in 80 days and communication-bound in mere hours. Our ancestors only a few generations ago went from a world powered and paced by muscle (where transportation and communication were effectively bound) to an urbanized grid with a skeleton of steel and nerves of copper. They adapted; we will adapt. But just as their world-shaking technologies had unanticipated effects such as mobile societies, gridlock and growth of media power, so will ours.

The Role of the Church

The central question to me appears to be: "What is the place of the church in this process of adaptation?" Accepting the notion that information technologies are going to change people's lives, probably in fundamental ways, the church is faced with a delicate generations-long process of defining and keeping its place in that new life order. Here, perhaps, the best guide is history.

The Protestant Reformation can be seen as a response to technology-driven changes. The rise of literacy spurred by the availability and affordability of print made fundamental revisions to church practices inevitable. The adaptation in this case was wrenching, resulting in a fundamental revision from Church (Catholic) to churches. Possession of a vernacular-language Bible was seen no longer as a heretical offense punishable by death but as a key means of carrying out the evangelical mission. To stretch the point a little, another way of viewing the Reformation is as a conflict of the technology of language rather than printing. One result, in other words, was a church that speaks and writes in the language of the people. The best-selling book in the world continues to be the Bible.

To reflect the challenge and the opportunity for the church, consider the power of the vernacular. Information technologies create new ways of writing and speaking. If they are useful in reaching members and non-members, why should not the church adapt them to serve the Great Commission? Can the church take the wisdom gleaned from past adaptations and manage this one still better?

As a technologist, I have some pragmatic suggestions and provocations. The challenges presented by these technologies are generational. Like introducing a new hymnal, any changes in practice elicit the question, "Why do we need to do this?" asked usually by those more established and comfortable. I would respond that technological changes need to be done *because* they are generational. We need to speak to Gen X and Gen Y in their own language. I would also point out an unusual opportunity: let Gen X and Gen Y help the church with these challenges. A number of experiments in U.S. schools found that students teaching teachers how to use computers is a mutually beneficial arrangement. There are

people young and otherwise in congregations and synodical positions who have already adopted information technologies. Seize on their input rather than ignoring it.

My second provocation is to beware the values of technology. There is a tendency to think technology is value-free. It is not. A blank chalkboard represents some possibilities and negates others. A *personal* computer also creates and negates possibilities. Indeed, one of the chief values of information technology is an emphasis on the *individual* as the most fundamental (or valuable) unit. These and similar assumptions deserve thoughtful examination, probably in a chat session!

My third provocation is quite simple: "Why not?" I have yet to see a sermon accompanied by PowerPoint slides, but why not? I have yet to receive a daily e-mail from a pastor or the Synod, but why not? The church made early use of the printing press; Luther himself, by some accounts, was surprised at the dispersion of this university-level debate. Likewise, the time is ripe to seize the opportunities to speak, to listen and to extend outreach in distance and time afforded by information technology.

Challenges Facing Church Educators

The final provocation focuses on education and is really an inevitable issue given the premise that information technology is about people's minds. Many, probably most, of the people who serve the church in one way or another do so as educators of some sort. For educators, these are truly the best and worst of times.

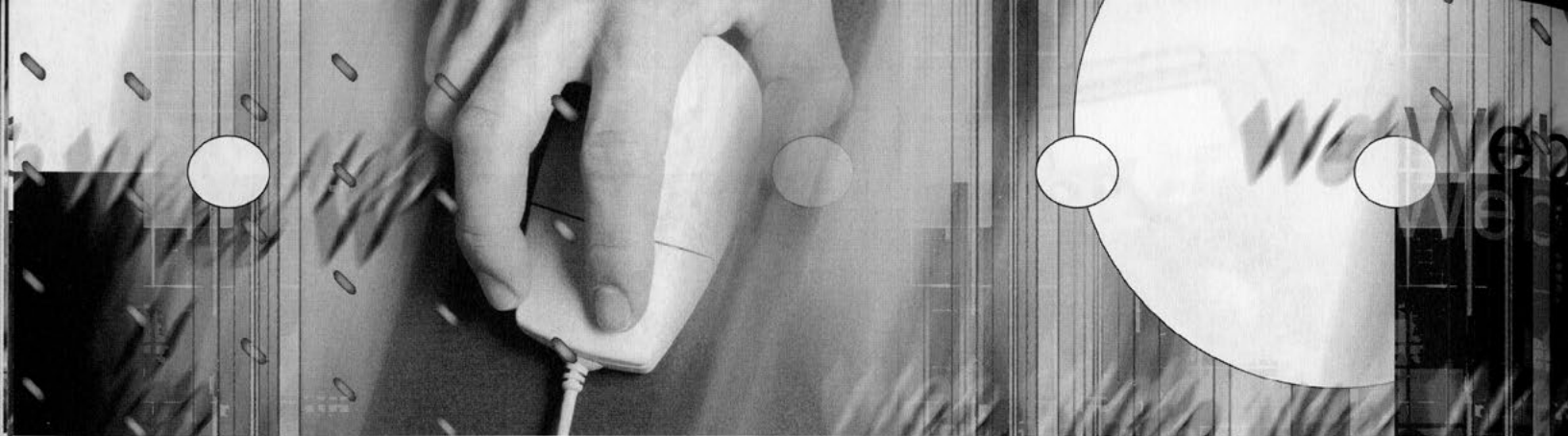
Neil Postman asserts that our present educational institutions were more or less created by the technology of print.⁷ If the information technologies presently leaving their infancy before our eyes constitute a change of the same magnitude, large-scale redesign of educational institutions and

practices is unavoidable. Unfortunately, there are no blueprints to tell us how to respond, how to redesign, and how to make such changes.

What we are presently doing, for the most part, is putting new wine in old bottles. Educational institutions at every level are working, with the best of intentions, to shoe-horn technology into print-era classrooms and practices. Many wise and seasoned teachers across the country are throwing up their hands in despair at the intricate stupidities of computers and networks, wondering if it would not be better just to leave out all of that stuff. In the immediate sense, they are probably right. It is doubtful that these transitional implementations of technology have a net positive effect proportional to the effort and expense involved. But we have to make these tiny experiments to start learning how to recreate education. New institutions are not created all at once, but they develop painfully and piecemeal by unsung pioneers.

The most fundamental challenge information technology poses to education is particularly germane to mission-based education. Information technology—more specifically, digital information technology—is a leveler of relationships. On the Web, any word or picture can be linked or related to any other e-mail account can send a message to any other e-mail account. Ultimately, any piece of information, be it trivia, Scripture, or a picture, is represented by the same 1's and 0's in the digital domain. Corporations are just now beginning to realize the immense cultural impact and potential benefits introduced by adoption of information technologies. When the janitor can e-mail the president, hierarchies will crumble.

This digital relativism changes everything: knowledge, power, even relationships. For example, American students are continuing



their high school friendships far more successfully now than a decade ago, mainly because of e-mail. But this throws the burden of defining *value* back on the individual. In the digital domain there is no authority. The implicit authority which underlies print (really an issue of economics) does not apply to digital communications.

This effect pertains to the Web in that even the young computer-savvy generation we are presently teaching is a very transitional group whose feet are still mainly in the print era. Students encountering the Web are uniformly prone to assuming that anything they see there is true. Raised with print values, they are not prone to question the truth of what is printed on screen. Questions such as "Who wrote this? Why? On what is their authority to say this based?" do not tend to occur to them. But in the digital domain, these questions must be asked. And since life is becoming overlaid by the digital domain, the questions cannot be avoided.

This is only a glimpse of a profound issue. The opportunity and advantage of church-centered education lie in the possession of governing values. Although there are immense challenges to articulating the application of those values, the church is not in doubt of what they are. Secular education's value set, generally speaking, is information (knowledge) itself. That value set is being rewritten, or rather, jumbled, in an earth-shaking way. I do not know what knowledge will constitute solid ground in a hundred years. By contrast, church-centered education has a value set which is not grounded in information, but in the revelation of the Word of God. In the long run, this suggests that the technologies themselves are not the fundamental challenge for church educators. We will need to balance the outward-looking technology issues with the inward- and upward-looking issues of value

and mission. We will need to take steps with our feet but keep looking ahead and up.

Notes

¹*Technology and Creativity*, Subrata Dasgupta. Oxford University Press, 1996. p. 9.

²*Technopoly*, Neil Postman. Alfred A. Knopf, 1993.

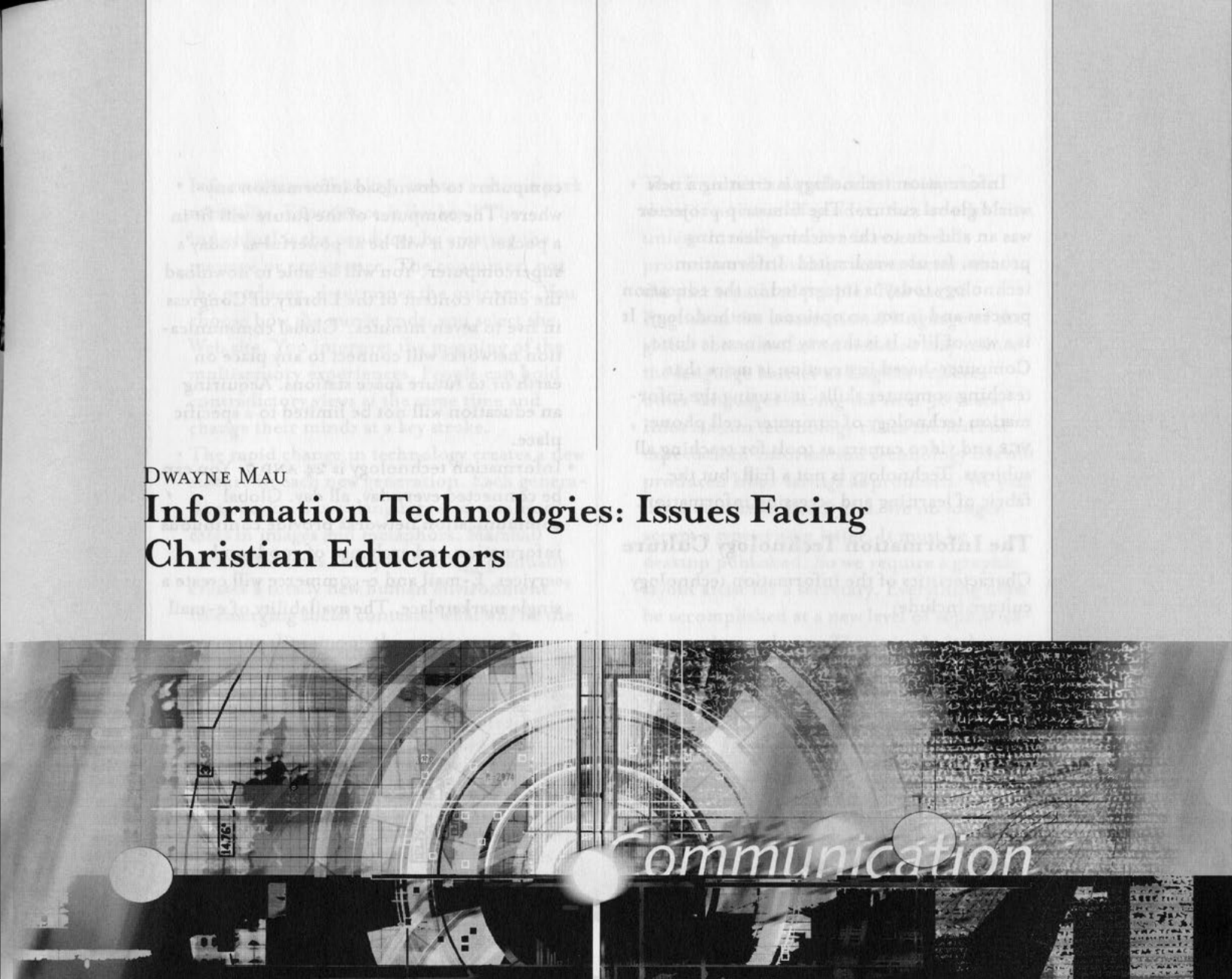
³Forbes ASAP, August 1999.

⁴http://webopedia.internet.com/TERM/M/Moores_Law.html

⁵Gilder Technology Newsletter, January 1998.

⁶Washington Post, August 10, 1999.
www.washingtonpost.com/wp-srv/business/daily/aug99/gm10.htm

⁷*Technopoly*, Neil Postman. Alfred A. Knopf, 1993.



DWAYNE MAU

Information Technologies: Issues Facing Christian Educators

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WHEN I WAS IN ELEMENTARY SCHOOL, the filmstrip projector was the cutting edge information technology. It was an advance over the blackboard. When we watched a filmstrip, we read the subtitles of each frame. The subtitles described the pictures. Later, the filmstrip projector was teamed with the LP record which provided sound for music, a narration that added to the content of the picture, and the audio beep for advancing the film. While children today may enjoy operating a filmstrip projector, information technology has advanced from low tech to high tech, from being a novelty in the classroom to becoming so pervasive that it is changing every aspect of our world, from how we communicate to how we think.

Information technology is creating a new world global culture. The filmstrip projector was an add-on to the teaching-learning process. Its use was limited. Information technology today is integrated in the education process and is not an optional methodology. It is a way of life. It is the way business is done. Computer-based instruction is more than teaching computer skills; it is using the information technology of computer, cell phone, VCR and video camera as tools for teaching all subjects. Technology is not a frill, but the fabric of learning and accessing information.

The Information Technology Culture

Characteristics of the information technology culture include:

computers to download information anywhere. The computer of the future will fit in a pocket, but it will be as powerful as today's supercomputer. You will be able to download the entire content of the Library of Congress in five to seven minutes.¹ Global communication networks will connect to any place on earth or to future space stations. Acquiring an education will not be limited to a specific place.

- Information technology is 24 AND 7. You can be connected every day, all day. Global communication networks provide continuous information and exchange of goods and services. E-mail and e-commerce will create a single marketplace. The availability of e-mail

- Information technology creates a theme park mentality. Experience is the key.⁴ The individual is the producer by creating the message or experience. The consumer, not the producer, determines the outcome. You choose how the movie ends; you select the Web site. You interpret the meaning of the multisensory experiences. People can hold contradictory views at the same time and change their minds at a key stroke.
- The rapid change in technology creates a new culture in each new generation. Each generation speaks its own language and communicates in images and metaphors. Marshall McLuhan states, "Any technology gradually creates a totally new human environment."⁵ In emerging social contexts, what will be the commonality among the generations?
- Computers do not increase learning. They increase communication. David Brown, the Dean of Wake Forest University International Center for Computer Enhanced Learning, states, "Computers have enabled more collaboration. More collaboration has improved learning."⁶ The use of computers, especially the use of e-mail in universities, has increased student/faculty and student/student communication which fosters collaborative learning. The same is seen in business.
- Information technology isolates people. While people communicate on-line, there is a reduction in interpersonal relationships. People e-mail around the world, but their communication with spouses or children can be limited. Once television brought everyone in the family into the living or family room. Today each family member watches television in one's own room. The increase in modem-to-modem communication instead of face-to-face interaction has increased rudeness of people because they have limited interpersonal skills.⁷
- The information technology conveys truth and lies at the same speed. One can be misled and misrepresented on the Internet. The Internet can be used for a con game. A video can be edited in ways that change the content. Criminal activity has gone high tech; computer hackers rob banks electronically.

- The Internet is nondiscriminatory since there is no issue of gender, race or ethnicity, unless this information is revealed. It promotes relationships across factors that in the past separated people. The use of English as the international language of the global communication network may reduce the language barrier as English replaces other languages during the next 50 years.⁸
- Information technology raises the level of expectation. Information technology has not produced labor savings as promised. We just labor at different activities. We no longer accept a typewritten letter. It must be desktop published. So we require a graphic layout artist for a secretary. Everything must be accomplished at a new level of sophistication and complexity. The attitude is that since you have all this technology, you should be able to do more.
- Privacy will be more difficult to maintain. Computer-based data banks provide access to in-depth profiles of individuals. While government census information has a level of confidentiality protecting individual privacy, major market research firms have detailed information gained from mortgage applications, warranty registration cards, credit cards, supermarket cards and medical records. Computers store, manage and retrieve this information for anyone willing to pay the fee. More places will be under video surveillance. Closed circuit television monitors town parks and high crime areas in many cities. Employers use it to monitor employees, and parents to monitor child-care providers. It is the candid camera of the technological age. All this leads to control of individual behavior and loss of freedom. These are some of the ways information technology is creating a new cultural revolution and impacting every institution of our society, including the church and school.

Christian Education in the Information Age

We are in the beginning of a revolution as great as the Industrial Revolution.⁹ No one can envision all the changes we will face. Some in the church may agree with Ogden Nash who

- Availability of the technology. I never had a filmstrip projector at home. Today, the technology is in the home. VCR, computers with modems, pagers, video game systems, cell phones, Internet access and cable television are in the home. Children learn to program the VCR before their parents and grandparents. While the same information technology is in school and sometimes in the church, its availability in the home fosters a child's familiarity and acceptance of the technology before the child enters school. Children at an early age play video games, send e-mail to their grandparents, and check out their favorite Web sites.
- Non-geographical. The information technology is portable. You can take it anywhere. You never have to leave home without it. All computer modems permit

and other technology such as voice-mail and cell phones is blurring the distinction between work and leisure. The technology culture assumes your 24-hour availability and demands your instantaneous response to electronic communication.

- Information technology creates a new way of thinking. The mind develops new patterns or paradigms for processing information. Youth "read" the world as a total multi-image rather than as linear languages. Multimedia and multisensory communication send messages that are multistimuli and complex. Youth receive their information in sound bites and images. They say, "I heard it," or, "I saw it," not "I read it." We are in post-literate age.² David Walsh observed that a child reads an average of only 26 minutes a week.³

commented, "Progress might have been all right once, but it has gone on too long."¹⁰

The church cannot ignore the technological change nor embrace it as a savior. Neil Postman observes that in the past technology was in service to human progress; now it is in service to technological progress.¹¹ Technology communicates values. The church's use of technology will result in being impacted by it, and the church must judge its value and influence.

A number of implications of the information technology culture in Christian nurture and education can be cited.

- Will schooling be the model of education for the church and its schools? The agencies of Christian education follow the school model seen in Lutheran schools, Sunday schools, vacation Bible schools, weekday schools. The school model divides people into classes by age, with a teacher(s) in a specific location and time. Today learners have access to information without the constraints of time and space. Children, not the school or church, can control the curriculum by the Web site they choose. The Internet, not their teacher, is the source of information, and it is available 24 hours a day. The Internet will highlight mentoring; if you want to learn from the best, go on-line. Perhaps in the future, education malls with many learning boutiques will offer a variety of educational experiences, either on-line or on-site. The teacher's role will be that of a coach, motivator or guide who will manage face-to-face discussion groups for experiential events.
- The computer can aid Bible study. One can have a complete theological library on the computer. Resources that were previously available only in a seminary library can be accessed on the computer or on-line. Bible translations, commentaries, study guides, atlases and other resources are available. This may change the way we train future pastors and teachers. On-line education may be common. The approach of DELTO (Distance Education Leading to Ordination) and CUENet are the leading edge of future possibilities. For people in congregations, the resources multiply daily, and they

will receive information from many theological perspectives. They can create their own theology by picking and choosing what gives them meaning, resulting in what Robert Bellah calls synchronistic religion.¹²

- The use of multimedia and multisensory communication is the language of the technological culture. We have come a long way from the filmstrip projector. Multimedia communications will enhance the church's ability to communicate to various generations. Video screens in educational and worship settings will be the new electronic banners for video clips and computer-driven presentations.
- Multimedia resources will be produced in the local congregation. The church has promoted performance in recitals, choir concerts, and dramatic and dance productions. Today, we must develop production skills for computer-based presentation software, video editing and animation. In the future, we will train our teachers and people to produce media locally. Many youth create animated productions and construct Web sites. The church will need teams of people using their media skills to communicate the Gospel. Leonard Sweet says, "To accomplish its mission, religious leadership will use media to tell stories of the faith: creative leaders of the future will develop media literacy."¹³ The production equipment must be available locally for the experimentation and exploration of the use of technology in the various ministries of a congregation. Because of the high cost, congregations may share equipment for producing high quality videos, editing computer-based video and developing Web sites.
- Global church. The church will be linked together across continents and oceans. Christians can communicate with and learn from one another. They can gain a global or catholic view of the church and discover fellowship on-line with Christians in various places. At the same time, the church will need to communicate with five generations in the local congregation. Congregational ministry will be cross-cultural because each generation is a different culture.

- The church will use market research and demographic studies in planning its education, nurturing and outreach ministries. This information, compiled for business, is helpful in understanding the needs, interests and value of people in congregations and communities so that appropriate education programs are offered. The Lutheran Church Extension Fund makes some of this information available at a reasonable cost.
- The church needs to provide for face-to-face meetings and interaction. People seek a place of community and compassion. The church, through nurture ministries such as small groups and interest groups, offers a place for relationships to grow.

word *information to relational*, the result is a relational technology which helps build relationships on a local and global basis.

Relationship technology can help the church to do ministry that involves five generations, with each generation being a different culture.¹⁴ In the church, the only intergenerational group that meets on a weekly basis in any community, relationship technology can assist in communicating among the generations through e-mail, Web sites and multimedia. While the church is reaching a smaller percentage of each new generation, relational technology can assist in creating doors into the church for new people.



What are the key theological themes that will shape Christian education and nurture in the information technology culture?

- *Relationships.* Relationships are key to understanding the Christian faith. The Gospel is about relationships. God acted in Jesus Christ to restore our relationship to him and to empower our relationship with others. The Christian faith is expressed in such relationship terms as love, joy, peace, patience, kindness, reconciliation and forgiveness. In 2 Corinthians 5:19-20, St. Paul describes God's work and the task of ministry as reconciliation or friendship-making.

Since the information technology is related to communication, it must help build relationships. When we change the

A critical factor in the ministry of the church is the degree of face-to-face contact required to maintain and enhance relationships. The church as a faith community needs face-to-face contacts. The total human communication response requires person-to-person exchanges. Relational technology can enhance the quality of the face-to-face interaction and assist in creating collaborative relationships for learning, growing and caring.

The collaborative process is the needed balance to the technology that isolates and focuses on the individual rather than on a community. The qualities of community and compassion of the gathered faith community will draw people. The use of communication media creates the experience that links people to the faith community and allows for

growth in all aspects of the relationship. Face-to-face is the way God communicates. Linkage to a community will avoid a use of technology that reduces a relationship to an electronic transaction.

• *Incarnation.* God didn't speak just words; "He spoke through his Son" (Hebrews 1:4). "The Word became flesh" (John 1:14). God's message was a person—a personal message. God creates personal relationships. God is a multimedia God, and a human being is multimedia and multisensory, seen in word and action, touch and voice, life, death, and resurrection. So we want to communicate the full dimension of Jesus, the incarnate Lord. How can communication technology assist in making the Gospel flesh? The church has a

places give thanks," we are connected to the church on earth and in heaven. Time and space are transcended. Can the church's concept of time and space help connect people who are experiencing change in time and space created by the information technology? Can the church's concept of transcending time and space point people to God who is enduring and permanent in the rapidly changing world?

Can a change in the concept of time and space lead to a new sense of mystery, to see the permanency of the Holy God? Will the Eucharist's transcendence of time and space bridge people of the information age to the relational, incarnational faith communities of the church? Will people see God, who

The church as the spiritual Body of Christ is a divine organism not bound by any human limitations but led by the Holy Spirit.

The church as a human organization, a public institution in society, is bound by all the limitations that exist in any human organization or institution.

The use of information technology addresses the boundaries of the church only as a human institution. It is good to reduce these barriers and boundaries so that they are not "stones of stumbling." We need to have the best in technology. God gives technology to the church for breaking human barriers. But removing institutional barriers will not make ministry happen. St. Paul says, "We struggle not against flesh and blood, but against power and principalities . . ." (Ephesians 6:12).

The ministry of the church is spiritual, and only the means of grace will make it happen. Only the Holy Spirit can gather the church.

So, the issue is, "How can technology support and extend the means of grace?" The church, as the Body of Christ and a human organization, is in a tension, a tension which we must maintain.

The church will need the best of resources for its mission. The information technology has created a world where the challenge is to reach people's hearts and minds. Competition for the church's message is increasing as the beliefs and values of cultures separated by history and distance become part of the local reality in the information age.

What an exciting time to be in ministry. Does anyone have use for a slightly used filmstrip projector?

Notes

¹Molitor, Graham T. "Trends and Forecasts for the New Millennium." *The Futurist*, August-September, 1998, p. 55.

²Slaughter, Michael. *Out On the Edge*. Nashville, Abingdon Press, 1998.

³Walsh, David. A presentation for Lutheran Schools Association of Metropolitan New York and New Jersey, November, 1998.

⁴Pine, B. Joseph, II, and James H. Gilmore. "Welcome to the Experience Economy." *Harvard Business Review*, July-August, 1998.

⁵McLuhan, Marshall. *Understanding Media: The Extensions of*

Man. New York, 1965, p. 300.

⁶Brown, David G. "A Strategy for More Effective Teaching." Faculty workshop at Concordia University, River Forest, Illinois, August 13, 1998.

⁷Cornish, Edward. "The Cyber Future: 92 Ways Our Lives Will Change by the Year 2025." *The Futurist*, January-February, 1996, p. 4.

⁸*Ibid.*, p. 4.

⁹Drucker, Peter F. "Beyond the Information Revolution." *The Atlantic Monthly*, October, 1999, p. 47.

¹⁰Nash, Ogden, quoted in *The Employee Handbook for Organization Change*. Price-Pritchett and Ron Pound Pritchett and Associates, Dallas.

¹¹Postman, Neil. *Technology, The Surrender of Culture to Technology*. New York, Alfred A. Knopf, 1992.

¹²Bellah, Robert, et al. *Habits of the Heart: Individualism and Commitment in American Life*. Berkeley, University of California Press, 1985, p. 221.

¹³Sweet, Leonard. *Faithquakes*. Nashville, Abingdon Press, 1994, p. 110.

¹⁴Gambone, James. *All Are Welcome: A Primer for Intentional Intergenerational Ministry and Dialogue*. Crystal Bay, Minn., Elder Eye Press, 1998, p. 99.

Means of Grace

history of multimedia in the sacraments, the physical elements, and in life as church, the people of God. Visual images and metaphors used in education and worship convey the message to new generations. Our visual world gives many resources for video clips, and it is easy to use video clips that show sin and inhumanity. The challenge is to create the message of the Gospel in visual images and symbols for a visually-oriented society. This is a time for many experiments in the use of new communication technology.

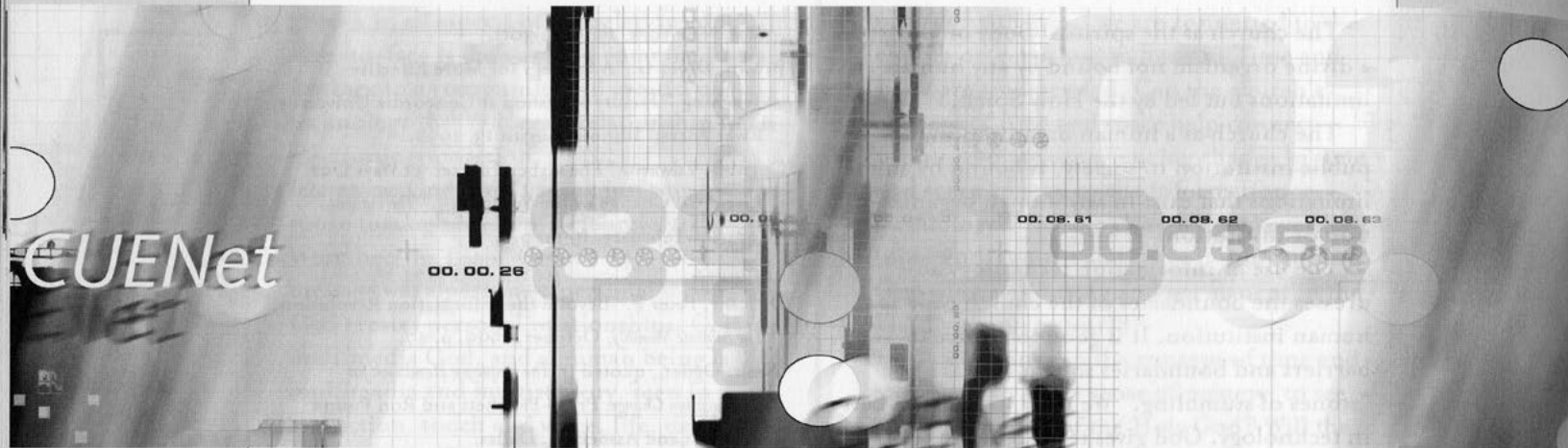
• *Time and space.* The church has its own concept of time and space. This is reflected in the Eucharist meal. In this meal we remember the past, celebrate the future as a foretaste, and rejoice in forgiveness in the present. As the *Preface* states, ". . . at all times and in all

involves himself in time, not as a remote-control God but one personally involved in Jesus Christ and always available—24/7?

Technology and the Means of Grace

The use of technology in the church can enhance the effectiveness of the church's ministry. But technology is not the savior. In fact, technology is a false salvation if we think it will solve *all* our problems. No technology, whether electronic hardware or soft technology, will save the church. The only powers we have are the means of grace, the Scripture, Holy Baptism, Holy Communion, Absolution and the mutual conversation and consolation of Christians.

There is a paradox which may help us understand the relationship of technology and the means of grace.



D. RAY HALM

CUENet: LCMS Response to New Opportunities

THE USE OF TECHNOLOGY within higher education has grown exponentially in recent years. So, too, within The Lutheran Church—Missouri Synod, including everything from digital library data banks to interactive television classrooms. As a result, the Concordia colleges, universities and seminaries have become extensively involved in distance education and in the use of technology for the education of students on campus. Academic courses are being delivered via computer and compressed video, with preparations under way

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for the delivery of both a degree program and colloquy instruction via satellite and data streaming. Meanwhile, students on the home campus and in distance learning environments are utilizing computers, Internet resources, interactive television, data streaming, satellite and CD-ROM as research and learning tools. In fact, students have become so comfortable with technology, that they regard it as the norm. Glenn Offermann, librarian at Concordia University in St. Paul, smiles as he describes students sitting at a computer terminal to interact with the reference librarian whose desk is less than 20 feet away and with whom the students are welcome to speak face-to-face.

These technology-intensive educational activities have given rise to the formation of a multi-campus technology collaboration within Concordia University System entitled the Concordia University Education Network (CUENet). Likewise, these innovations have spawned new professional roles on most of our 12 campuses to guide local evaluation and implementation of technology. The purpose of this article will be to sketch the history of technology advancement on the campuses of the Concordia University System and to explore the nature and activity of CUENet.

Exponential Growth

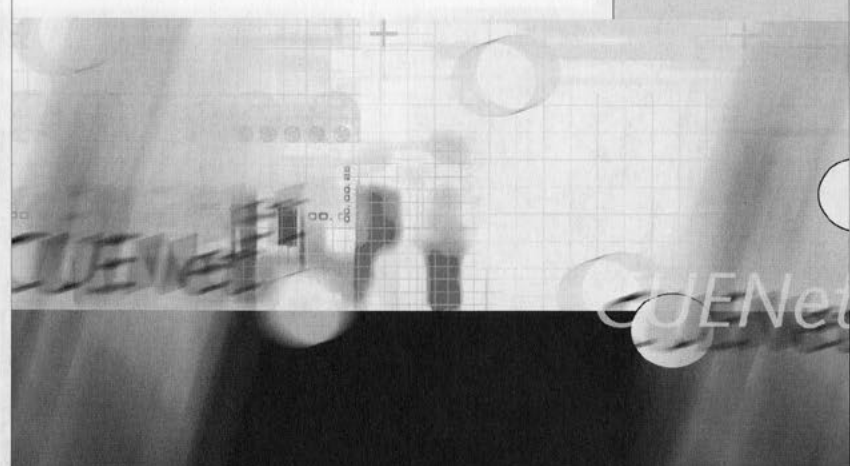
Webster's Dictionary defines the word *exponential* as "a positive constant raised to a power." A

graph depicting *exponential* would show a line rising upward unevenly and always more positively. A mathematical term without synonym, *exponential* is frequently employed beyond mathematics to describe growth which occurs faster and faster with every passing time period. Working with such a definition, it is no stretch of truth to state that the development of information technologies within higher education has been exponential during the last half-century. The Council for Higher Education Accreditation reported during its 1999 annual meeting that 44 percent of all college classes are using e-mail, and 33 percent of all classes are relying to greater or lesser extent upon Internet resources. The percentages for Concordia University System classes may be even higher.

The History of Information Technology on Lutheran Campuses

The typical Lutheran school of the 1950s had access to a telephone, a radio, a record player, a 16mm film projector, a manual typewriter and a ditto machine which emitted an odor many recall to this day. By the 1970s television had entered the classroom. In the 1980s bulky, slow computers arrived with limited memory capacity in contrast to the computers used by even the youngest students today. In less than one lifetime, America's students leapt from classrooms in which a motion picture was an uncommon treat to classrooms outfitted with modems, digital video disk players, library data banks, compressed video and other dazzling technologies. Somewhere in between came slide projectors, copy machines, overhead transparencies, video tape recorders and facsimile reproduction.


At the heart of these important advancements in educational technology lies the computer. First dreamed of in 1830 by English mathematician Charles Babbage, the analog computer did not materialize for another 100 years. When it did, inventor Vannevar Bush called his creation a *differential analyzer*, and it was used during World War II to aim anti-aircraft guns. The digital computer—the computer we know today—was invented in 1944 by Harvard University professor Howard Aiken. The digital computer remained the almost exclusive



possession of large, research universities until well into the 1960s. Finally, in the decade of the 1980s, computers became commonplace in the classroom, library and school offices. Because of the complexity of the computer and its accompanying software, and because of the diverse educational uses to which the machines could be placed, most American college campuses created a new administrative sector, dubbed an office of information services, to assist professors, staff professionals and students in the assimilation of computer hardware and software skills.

The precursor to the office of information services on the Concordia campuses was a position called the audio-visual specialist. The frequently young personnel in these jobs worked alongside professors to employ new, low-level technologies to classroom instruction. In many instances the same individuals who served as "A-V" specialists migrated into the more sophisticated work of computer technology. Some were self-taught; others turned to formal courses in computer science to acquire the skills needed to be of service to their campuses. At more than one college in recent years, the quip was heard that the computer technician was becoming more critical to the campus than the president.

It was perhaps only natural that one or two of the Concordia campuses would take the lead in computer technology, assisting the other campuses and the church-at-large as infrastructure was created. Both Concordia University, River Forest, Illinois, and Concordia University, Seward, Nebraska, invested significantly and early in the formation of computer



services and the acquisition of skilled personnel. In developing a center for research, River Forest became a leader in the LCMS in the application of computers to the multiple functions of the Synod. Shortly thereafter, following in the pattern of the college campuses, the Synod, too, developed an office of data services. Today most of the campuses have substantial computer centers, and many of our colleges and universities collaborate through technology with the church-at-large. So committed to technology-enhanced education is Concordia University, St. Paul, Minnesota, that it has become our Synod's first "laptop campus," providing every student who enrolls a portable computer.

The Launching of CUENet

At the synodical convention in 1992 a resolution was adopted which merged the ten Concordia college campuses into a single university system. Subsequently, and in the spirit of the synodical mandate, the campus presidents and Dr. William F. Meyer, newly elected president of the system, proposed the formation of a number of professional teams, comprised of appropriate faculty and administrators from across the new system, to address opportunities for collaboration which would enhance the quality of education for students while achieving high operational efficiency. One of the outcomes was the creation of CUENet.

The Board for Higher Education approved the formation of CUENet in 1996, and it was in that same year that the first academic course

was delivered from one campus to another via computer-based, compressed video technology. Three students at Concordia College, Ann Arbor, Michigan, participated in a literature course offered at Concordia University, Irvine, California. When one of the students in Ann Arbor raised a hand to ask a question, the professor in California could see the hand and call upon the student. Dialog and fully interactive visual images passed smoothly over the miles. In post-course assessment, the distant students rated their learning on a par with the students in California, and all of the students responded positively to the introduction of new technologies into the learning environment. Today the ten college and university campuses of Concordia University System are exchanging numerous classes, involving several hundred students. In addition, those same campuses are sending more than 100 lower-level college courses to advanced learners at 30 Lutheran high schools across the country. Concordia Seminary, St. Louis, Missouri, has established an ethnic pastoral training program on the campus of Concordia University, Irvine, in which much of the instruction is delivered via interactive television.

Compressed video, or interactive television, as it is often called, is but one type of technology being employed by the Lutheran higher education community to deliver education to distant learners. The campuses at St. Paul, River Forest, Seward and Mequon, Wis., are creating courses for delivery via the Internet, and all of the campuses are using the World Wide Web in support of campus-based classroom instruction. The libraries of the campuses are subscribing to large data bases which provide full text, as well as abstracts, from hundreds of professional journals. CUENet also is working closely with Concordia Publishing House for the release of the foremost theological writings of our church body in an electronically searchable format, thus greatly reducing the time required by students and professionals to locate pertinent material. More recently, CUENet has begun to prepare pre-recorded instruction for broadcast via satellite. The delivery of teacher colloquy



CUENet

courses in this format and via data streaming will be a boon to many professionals within the church. CUENet hopes to be "on the air" with satellite learning and data streaming early in the year 2000, appropriate steps forward for the new millennium.

Financial support for CUENet has come from a foundation, the identity of which is confidential; from corporations such as Aid Association for Lutherans and Lutheran Brotherhood; and from the Fund for the Improvement of Post-Secondary Education. Today CUENet has become one of the larger, technology-based, academic collaborations in the country. LCMS district administrative centers, individual congregations, and clusters of smaller congregations are joining the network, eager to receive workshops and symposia from the higher education campuses, as well as to present programming of their own origination.

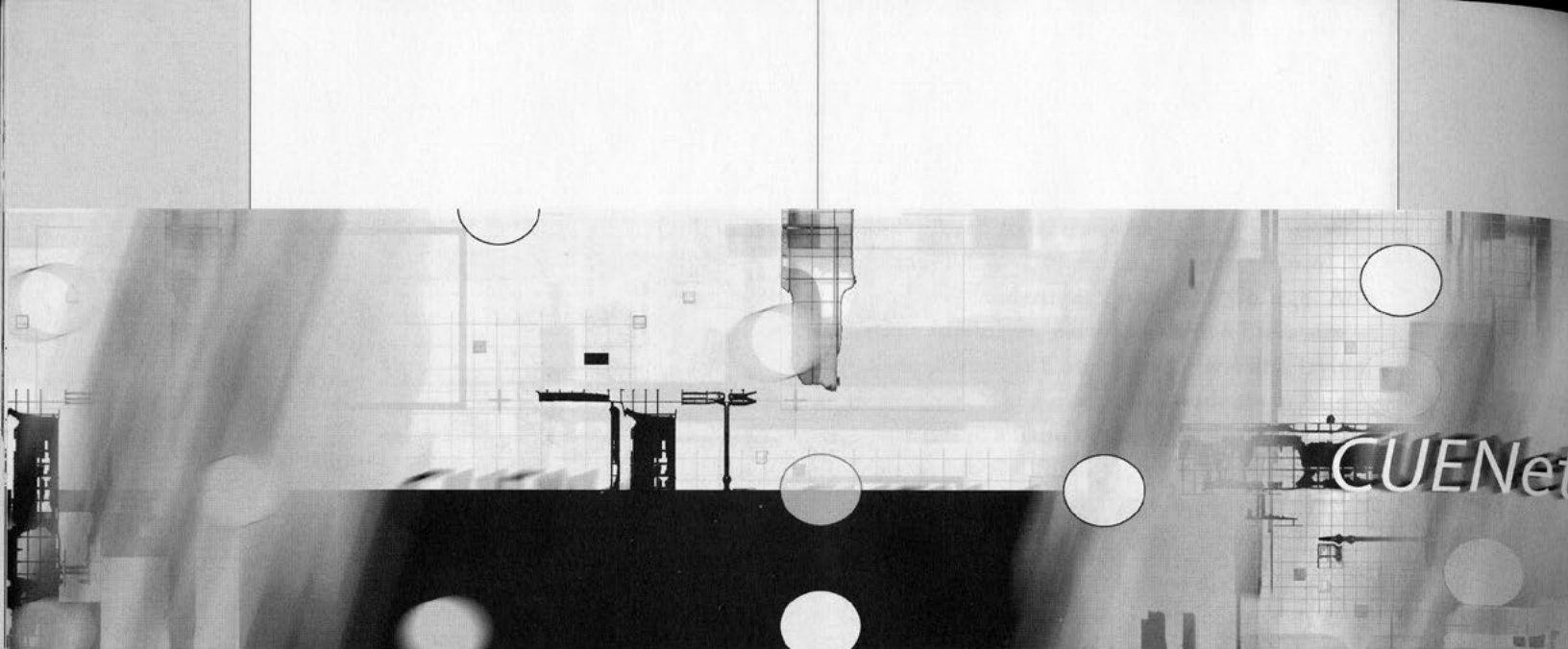
The mission of CUENet is to alleviate the barriers of time and distance for learners of all ages who seek Lutheran education in any form. The colleges, universities and seminaries of The Lutheran Church—Missouri Synod are taking bold steps to increase the access of all people to the rich Lutheran resources of heritage and scholarship. The activities of the collaboration include professional training as well as academic programming. In addition, the CUENet sites are frequently used as venues to conduct meetings and interviews, bringing together people from across the nation without great expense and without the loss of time in travel.

The Value of Technology in Education and the Challenge to Faculty

The creation of CUENet and the attention technology is receiving within education today have raised questions in some quarters about value. Is technology worth the significant dollar investment required? Does technology contribute substantively to the education of students, or is it mere window dressing? Most classroom educators, especially those who use technology extensively, would argue that the contribution is indeed substantive.

The Internet, for example, introduces students to resources which were not easily accessible by prior generations. With the click of a mouse, a student may enter the world of the National Aviation and Space Administration (NASA) and be introduced to the wonders of space travel and the machines which take humans there. More than a mere article to read with accompanying pictures, the Internet site provides motion picture, called "quick-time video," and "hot links," which are buttons the student can click to immediately jump to related Internet sites. The Encyclopedia Britannica has created a World Wide Web site which not only provides the student with up-to-the-minute articles and quick-time videos, but also offers hot links to sites which their experts have evaluated to be the best the world has to provide.

Interactive television makes possible the visit of world-class experts to the classroom, and satellite makes feasible the visit of such experts to a thousand students simultaneously. The significant question accompanying the ad-



vancement of technology in education relates not to its value, but to the challenge it places before teachers to remain abreast of its research, capability and utilization.

Professors of past decades derived much of their mystique from the fact that they possessed the best and most up-to-date information on the subjects they taught. They were the experts. Questioning the accuracy of a professor placed a burden of proof upon a student which was more than most students felt confident to undertake. The result was notable respect and authority for the professors of our world's finest research universities, and such respect and authority trickled down to professors and teachers of all grade levels. Today the authority of the professor is less assured. More than one university professor has been challenged in the classroom by a student more up to date on the latest research on the subject at hand than the professor. Students become this well informed via the Internet, via technology.

The equation is shifting among the elements of learner, teacher and information. Once the teacher was the best source of information, and the learner looked predominantly to the teacher to provide that information, while the library was viewed as secondary, as supportive to the classroom. Today the first source of information for students is frequently the library's computer, and the learner often has more information at hand than the teacher, simply by virtue of having more hours to spend in front of a monitor. Within the equation today information has arisen as king. The experience and maturity of the teacher come to bear not as sole source but as guide and

provider of a value system by which the myriad data are evaluated.

While such a perspective on teaching is not entirely new—many educational leaders have long envisioned the teacher's role principally as guide—the pressure upon the teacher to conform to this point of view has never been greater. Not only does today's teacher have the opportunity to guide the learner to deeper, more rapidly running streams of information, but the teacher also has an increased responsibility to assist students to evaluate the information they encounter. This is perhaps the most significant role for educators emerging from the advancement of technology. The amount of information readily available to students and the speed of change in information make it imperative that the classroom educator of all ages of students provide appropriate guidelines for evaluating the merit of the information at hand. The Internet is filled with data; some of it is excellent, much of it is trivial, and some, inappropriate. The teacher's assistance is needed to discern the difference.

At our Concordia campuses, for instance, students enter the library and sit at a computer terminal to research a question presented for homework. By typing in a word central to the question, the computer searches articles from several hundred professional journals, articles written by the best researchers in the field, and does so not in hours but in seconds. While the university previously spent its budget dollars to provide hard-copy journals for its students to research, today it spends fewer dollars to provide three-to-four times the number of journals in electronic format. (Many hard-

copy journals are also maintained.) While in previous generations the student would have devoted hours to the search for information within those hard-copy journals, today's student accomplishes that task in less than a minute. The computer provides the learner with the full text of the journal article and, frequently, an abstract as well, making it possible for the student to determine more quickly if the article is relevant to the assignment. The student spends less time searching and far more time learning. In addition, electronic access to journals and other forms of research makes it possible for students to get information earlier. No longer must weeks pass between the writing of a journal article and reading the article in a university library, weeks filled with placing the article into the proper format for printing, going to print on a monthly or bi-monthly schedule, followed by shipping and delivery through postal services. The article written today can be read today. Technology breaks the barriers of time and distance, making research by student and practitioner alike far more up-to-the-minute.

Conclusion

Technology is bringing substantive benefits to bear upon the education of students enrolled in LCMS classrooms, elementary, college, and seminary. Now CUENet is moving toward a district and congregational phase of its work, looking to aid individual churches and clusters of smaller congregations to adapt these technologies, especially interactive television, satellite and data streaming, to their educational programming. Congregations in Virginia, California and Hawaii have already become involved in the process, and others are beginning to show interest. The district offices of Kansas and Northern California-Nevada-Hawaii are setting the pace in bringing technology to bear upon ministry. A bright, exciting day lies ahead, thanks to the Lord's gift of technology to the church.

Note

CUENet is under the leadership of Dr. Johnnie Driessner of Concordia University, Portland, Oregon; Rev. David Kluth of Concordia University at Austin, Texas; Mr. Paul Massmann of Concordia University, Irvine, California;

and Drs. Stan Meyer and D. Ray Halm of the CUENet headquarters in Bend, Oregon. Providing part-time support as additional members of the executive staff or as consultants are President Charles Schlimpert of Concordia University, Portland, Oregon; Dr. Shang Ik Moon of Concordia University, Irvine, California; Dr. Elmer Gooding of Arizona State University; Dr. Jon Laabs of Lutheran Education Association; and Professor Joel Schuessler of Concordia University, St. Paul, Minnesota. The following persons serve in a volunteer capacity as members of CUENet's Advisory Council: Drs. Andy Bartelt of Concordia Seminary, St. Louis, Missouri; Robert Rothemeyer of Concordia Theological Seminary, Fort Wayne, Indiana; Cynde Kuck of Concordia University, River Forest, Illinois; Lane Seitz of the Minnesota South District; and Lynnell Edwards of Concordia University, Portland, Oregon. Presidents Jim Koerschen of Concordia, Ann Arbor; and David Zersen of Concordia at Austin, Texas, are the representatives of the Concordia University System governing board. Ms. Debbie Martin-Paul of MCI-Worldcom is CUENet's vendor representative. Mr. Peter Wille represents Concordia Publishing House, and Mr. Ron Schulz and Mr. David Berner represent the LCMS International Center. Representing the Association of Lutheran Secondary Schools are Dr. (Cand.) Thomas Buck of Milwaukee, Mr. Randy Lowe of St. Paul and Dr. Kenneth Ellwein of Orange, California.

Out on the Edge: A Wake-up Call for Church Leaders on the Edge of the Media Reformation

Michael Slaughter
Nashville: Abingdon Press, 1998

While we all have heard arguments of how we, the church, need to move into the 21st century, rarely have I heard these views stated as simply or effectively as by Michael Slaughter. He shows how, in each age, church leaders have used the communication tools most readily available to them to proclaim Christ to the world through oral story telling, manuscripts, mass print, and now electronic media. The author points out that followers of Jesus were given the ability by God to communicate in the contemporary language of the culture.

The use of electronic media is linked to cells or small groups which allow people to feel the intimacy of a "family." This also enables individuals to be assimilated into the church body more quickly, which in our fast-paced society is becoming more important.

It is at this point that the author begins to take what I describe as a long, slow curve to the left. I strongly agree that we live in an age where more and more people receive much of their information visually. We know from research that many individuals may not read a book, magazine or paper in years. Such data need to be taken into consideration as we investigate new ways to share Jesus to the under-30 crowd. What we need to be careful of is crossing the line from informing to entertaining.

The author describes how the Ginghamburg Church near Dayton, Ohio, works with a worship team in planning the Sunday worship. This worship team is similar to the production team of a Broadway stage. They have nearly complete control over the "worship experience," including the sermon, editing it as needed to fit the production. Their control also includes music, allowing them to include secular music as long as it fits their theme.

Does this worship experience help bring people to Christ? That seems to be the case at Ginghamburg. My concern would be "What happens after that?" God's Word shows us how to live our lives. I feel this book does not show us what our responsibilities are after becoming a child of God.

This book also includes a CD. Unfortunately, it was of such poor quality that I finally turned it off. The sound varied from being barely audible

to suddenly blaring in one's ear. While the author stresses that we need to use all the senses in communicating our messages, much of the CD consisted of pages of text. When following the text, the author cites many notations which instruct the listener to put the book down and listen to the CD. I, for one, do not sit at a computer while reading a book. In my opinion, the CD was of no help.

While I disagree with much of the discussion, the book is worth reading if you are trying to figure out what all the hype is surrounding the use of electronic media, or if you are trying to break out of the "fortress mentality." Unfortunately, I believe the author has gone over the edge in too many areas.

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District Communications,
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Growing Up Digital: The Rise of the Net Generation

Don Tapscott
New York: McGraw-Hill, 1998
(<http://www.growingupdigital.com>)

The discussion about the impact of technology on society and culture has continued to grow rapidly since the beginning of the industrial age. As a new digital generation joins our world, it is easy to "cry wolf" once again. In his book, *Growing Up Digital: The Rise of the Net Generation*, Don Tapscott argues, "It is not the N-Gen children who are being robbed of social development, it is those adults who, through fear or ignorance, deny themselves the experience of participating in the great revolution of our times."

Tapscott's book critically examines the Net Generation's values, their social structure, and, most important for church professionals, their learning style. Not only does the book explore the facts, it also interacts with them. *Growing Up Digital* was originally written on the Internet. The research team collaborated using shared digital work space, electronic mail and computer conferencing with several hundred children and adults located on six continents.

The book's seventh chapter on N-Gen Learning is a must-read for educators today. He brilliantly compares traditional "broadcast" to "interactive" teaching and learning models by comparing television to the Internet. The N-Gen will not accept a "One-size-fits-all broadcast learn-

ing" environment where a teacher simply regurgitates factual information. Teachers must focus on being facilitators of a "discovery learning process" based on this rationale:

"... the construction of the self occurs as the child acts on its environment—as the child takes actions to understand what he or she can do. This may explain why television is such an unproductive medium for self-esteem development—the child does not take actions but rather is acted upon... There is an important distinction between acting on the physical and acting on the social world. TV allows neither. [Playing with] Lego [pieces] allows one. The Net allows both. The actions taken on the Net involve reading, assessing, imagining, composing sentences, searching for information, discovering new places, and interacting with others."

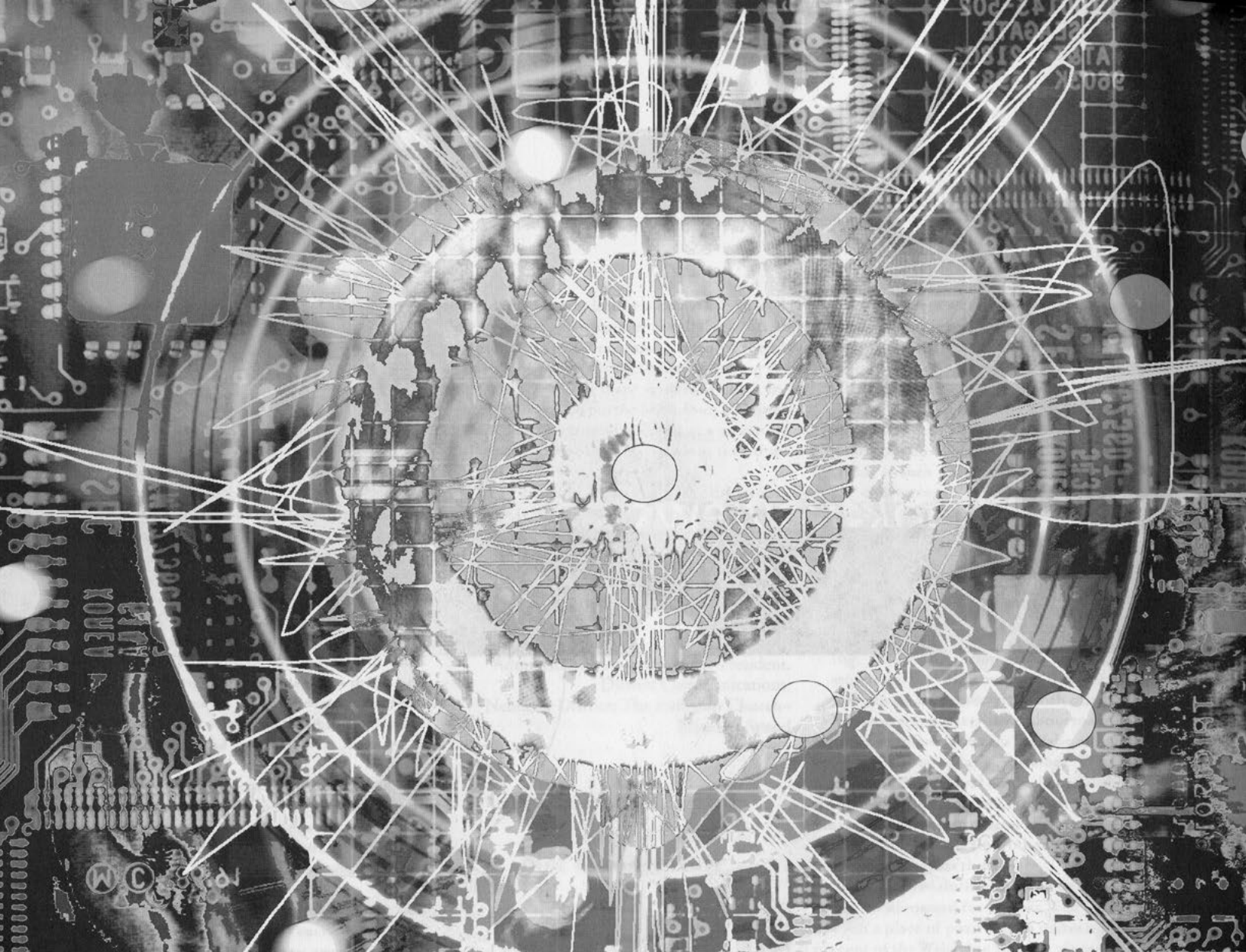
Tapscott compares truisms about today's educational problems and also the false answers often proposed by today's educators. "The irony here is that if [teachers] don't change and transform their classrooms and themselves to the new model, they face even greater threats to their job security. Society will find other ways to deliver learning and bypass them."

The digital revolution must not be ignored but rather be harnessed for success. The Internet is not just a place of porn (which makes up only .5 percent of the Web), but rather a place rich with information waiting to be discovered. As Lutherans with a history of leading the educational field, we are challenged to respond to these new developments.

We highly recommend *Growing Up Digital* to any church professional wanting to gain understanding and insight into the societal effects of the Internet and the development of the Net Generation. Let us see the Digital Age as a gift of God to reach the world with the most important news of all, Jesus' life, death and resurrection.

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