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NEW LEARNING PARADIGMS FOR CATHOLIC EDUCATION

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A paradigm shift is needed in Catholic education for the 21st century. The new paradigm needs to communicate that the purpose of Catholic education is not to transfer knowledge but to create environments and experiences that bring students to discover for themselves, to make students members of communities of learners that make discoveries and solve problems. The New Frontiers for Catholic Schools project supports educators in making technology a vital part of the future of Catholic education.

Take a few moments and reflect on the following statements. Do you believe that our Catholic school environments will reflect their reality by 2015? If you disagree, why not? If you agree, how and why?

1. All students will have laptop computers as a basic learning tool.
2. Only teachers with knowledgeable background and skills related to the new infomedia culture will be engaged in our Catholic school learning environments. Infomedia identifies the integrated comprehensive infrastructures which support new administration and learning initiatives.
3. Media education will be woven into the fabric of our Catholic school curriculum at all levels.
4. Cyberspace will invite a diversity of insights challenging netizens and cyberzens to profound dialogues of faith requiring new intellectual skills to be encountered in our Catholic schools.
5. Traditional classrooms, as we know them today, will cease to exist.
6. Integrated interdisciplinary learning via the World Wide Web will be the foundation for the new paradigm of learning.
7. Virtual reality experiences will be integrated into all Catholic school environments.

8. Academic preparation for Catholic school teachers and administrators will require a 180-degree shift from the present programs offered in our colleges and universities.

Some education futurists believe that only those Catholic schools that reflect the above reality will survive past 2015. Yet, if the current situation of most of our Catholic schools is any prediction of the future, a significant number of our Catholic schools will be in deep trouble. In many Catholic schools in America, a visitor now sees at least one computer for student use and probably a computer lab into which classes of students are scheduled each week. However, the presence of these technologies does not mean that methods of instruction or the infrastructure of our Catholic school environments has been modernized to meet the 21st century paradigm.

The way in which students are taught is the nucleus of all the problems in today's classrooms. For the most part, the teacher is active and the students are passive. Elementary and secondary teachers must spend large amounts of time planning lessons and keeping track of student progress. The constant complaint that there is not enough planning time is a reflection of the real pressure teachers are under trying to manage an approach that was adequate when the amount of available knowledge was limited and the majority of students would not need more than a low level of literacy. However, this approach is totally inadequate for the global reality which awaits our students when they graduate from our institutions of higher learning.

The introduction of the computer into the classroom has made some dramatic differences where it has been applied to meaningful instructional changes. However, the effect of these innovations has been superficial in many instances in our Catholic schools because there has been no infrastructural change to accommodate the explosion of information and the need for different problem-solving and reasoning skills.

My research indicates that when technology implementation is mandated from the top down, it lacks momentum and inventiveness. In addition, the computer's present role has been inadequately implemented because of inappropriate software, limited resources to acquire hardware, and scant attention to teacher training. We are entering a new era in infomedia technology in which the advances in technology and the goals of education align so closely that we have an unprecedented opportunity to change the way we think and learn. Today, it is not beyond our reach to provide to every student access to the world's knowledge and a unique path of learning tailored to individual needs. In visiting Catholic schools, I have found that if the administration inspires imagination, courage, and commitment, Catholic educators can transcend their doubts and fears to achieve extraordinary levels of personal and professional fulfillment with the new infomedia technologies within their learning environment.

What is required is a new paradigm shift in Catholic education. Albert Einstein stated, "The significant problems we face cannot be solved at the same level of thinking we were at when we created them." Thus, we need to move from thinking of Catholic schools as an institution of instruction to one of learning. Barr and Tagg indicate that few of the new ideas about learning in the infomedia age have been adequately or widely adopted. The reason is "that they have been applied piecemeal within the structures of a dominant paradigm that rejects or distorts them" (Barr & Tagg, 1995, pp. 14-16).

We advocate a new paradigm which understands that the purpose of Catholic education is not to transfer knowledge but to create environments and experiences that bring students to discover and construct knowledge for themselves, to make students members of communities of learners that make discoveries and solve problems. The Catholic school aims, in fact, to create a series of ever more powerful learning environments. Barr and Tagg explain that a new learning paradigm does not limit institutions to a single means for empowering students to learn. Within its framework, effective learning technologies are continually identified, developed, tested, implemented, and assessed against one another. The aim of the new learning paradigm is not so much to improve the quality of instruction, although that is not irrelevant, as it is to improve continuously the quality of learning for students individually and within the learning community.

Einstein further stated that absolute madness is doing the same thing over and over and over again expecting different results. We must now break this vicious cycle of past perceptions and paradigms of teaching and learning. We realize that changing the paradigm is no easy task. It will be a process of gradual modification and experimentation which will alter many parts of our learning environments into a new learning environment.

We find, just as Paulo Freire and popular education advocates have, that knowledge is a process and not merely a product. This is an important dimension of the new learning paradigm we affirm for Catholic education today. Many of the elements articulated in Freirean pedagogy (nonauthoritarian but directive pedagogy for liberation) have a direct relationship to what is happening with the accessibility of new infomedia technologies for learning. The teacher is at the same time a student, and the student is at the same time a teacher, even though the nature of their knowledge may differ. As long as education is the act of knowing and not merely transmitting facts, students and teachers share a similar status and are linked through pedagogical dialogue characterized by horizontal relationships (Torres & Fischman, 1994).

Today's classroom telecommunications activity is quite remarkable, not because of the possibilities of electronic "handshaking" and the rapid movement of bits of information via Internet technology, but because of the intensely social activity that the technology supports. Our students learn to provide enough detail to make unfamiliar ideas comprehensible to other chil-

dren thousands of miles away, and they are able to tailor their language so that it is informational, engaging, and useful. Thus, new learning communities are being formed in cyberspace. Like Freirean pedagogy, the educational agenda is not necessarily carried out in a classroom but in a “culture circle in cyberspace.” It is here in cyberspace emphasis is placed on sharing and reflecting critically upon learners’ experience and knowledge, both as a source of material for analyzing the “existential themes” of critical pedagogy and as an attempt to demystify existing forms of false consciousness (Torres & Fischman, 1994).

The Internet is only the newest among many technologies introduced to Catholic schools over the past 15 years. The enthusiasm of Catholic educators for new trends in technology has risen and fallen. Yet, much of the equipment that generates enthusiasm one year can be found the next year languishing in a school closet. Why? One explanation is inadequate management of innovation. That is, new technology is often delivered haphazardly to classroom teachers. This frequently happens by a lone-ranger within the school. Our interest and concern to discover an innovative and supportive way to mentor Catholic educators into the new infomedia culture in order to enhance the quality of their curriculum led to the founding of the New Frontiers for Catholic Schools project.

THE NEW FRONTIERS FOR CATHOLIC SCHOOLS PROJECT

Six years ago, a project entitled New Frontiers for Catholic Schools (NFCS) was initiated through the collaborative efforts of the National Catholic Educational Association and the Center for Religious Communication of the University of Dayton. The project coordinated by myself and Regina Haney (NCEA) continues today. The goal is to support our Catholic educators and schools to make technology a vital part of the future of Catholic education. NFCS provides leadership, direction, and support for Catholic school teams as they search out ways to integrate technology across the curriculum, to push for educational excellence, and to prepare Catholic school students for tomorrow.

For the past six years, 10-12 NFCS teams of three have gathered annually during the summer at the University of Dayton to explore possibilities, draft a vision, and establish a network of peers who, like themselves, dream of developing a plan that redesigns the infrastructure of the school to enable new learning paradigms through the support of technology to emerge within the learning environment.

Through NFCS we realize we are now living in a new era. The Vatican documents *Redemptoris Missio* and *Aetatis Novae* emphasize that the new

era is *a new culture with a new language, new psychology, and new techniques* (Internet, multimedia tools, converging technologies, etc.) (John Paul II, 1991; Pontifical Council for Social Communications, 1992). With or without Catholic educators, this new culture is emerging. It is being woven into the fabric of our everyday lives. What is the impact of this new culture on Catholic education? First, as a *new culture* it is manifesting new creeds (beliefs, values), codes (behavior), and cults (rituals); second, we discover a *new self-awareness/awakening* unfolding as learners discover themselves immersed in a sea of new and rapidly revealing information; third, *new locations and styles of learning communities* are emerging, inviting learners to a deeper understanding of global and interdisciplinary collaboration for learning. Finally, *new leadership and administration skills* challenge Catholic school administrators to rethink both the physical and personal infrastructure of our learning environments for more effective learning to occur.

We are aware that this new culture is fast, complex, compressed, uncertain, and multimedia. *Aetatis Novae* states:

...communications technology is a marvelous expression of human genius, and the media confers innumerable benefits upon society. But, as we have also pointed out, the application of communications technology has been a mixed blessing, and its use for good purposes requires sound values and wise choices on the part of individuals...(Pontifical Council for Social Communications, 1992)

Each day we hear concerns from Catholic educators about their fear that the overemphasis and/or application of new educational technologies will fundamentally destroy the human person, or if not, at least some degree of the quality of human interaction in the classroom. However, in monitoring our New Frontiers teams over the years, we have found the following criteria for discerning if, where, and when we apply new technologies to our learning environment to be sound guidelines: *conversation, collaboration, conversion, community, creativity, and contemplation*. Technologies applied in the learning environment that can assist in establishing these outcomes can be considered effective educational tools. An assessment of technology should yield affirmative answers to the following questions:

- Is the quality of our *conversations* within the learning environment enhanced at all levels?
- Are we demonstrating that *collaboration* and teamwork offer greater opportunities than individualism?
- Are our students and teachers experiencing radical *conversion* or transformation in their way of thinking and being in relation to one another and the world?
- Have new opportunities for *community* been created within the educational set-

- ting and on national and international levels?
- Have students and teachers found new paradigms of *creativity* for problem-solving and reasoning in regard to both academic and religious insights?
 - Has the experience of integrating the new technologies into our learning environments aided us in a greater awareness for the need and value of *contemplation* in a world deluged with information and interaction?

In *Hidden Persuaders*, Vance Packard describes how people are becoming victims of communication/information rather than communication/information being a means by which one finds oneself in relation to others in a community of mutual criticism and helpfulness. We believe that if Catholic educators spend quality time reflecting on the above six criteria for discerning the outcomes of a new learning paradigm, many of their infomedia fears will be depleted. Technology itself, after all, does not change instructional practice of teachers or literacy behaviors of students. Teachers and students change by using new infomedia technologies. We are convinced that the single most important reason students enjoy this new form of communication is that they are allowed, even encouraged, to communicate with other kids on topics of interest to kids. Our New Frontiers teachers report that the most important reason administrators and teachers are enthused about the new infomedia technologies is the excitement for interactive collaborative learning stimulated within the new learning environment.

Our New Frontiers teams are encouraged not to limit their schools' infomedia planning to computers or the Internet. We encourage them to broaden their infomedia perspectives:

The overwhelming presence of mass media in the contemporary world by no means detracts from the importance of alternative media which are open to people's involvement and allow them to be active in production and even in designing the process of combinations itself. Then, too, grassroots and traditional media not only provide an important forum for local cultural expression but develop competence for active participation in shaping and using mass media. (Pontifical Council for Social Communications, 1992)

We encourage our NFCS teams to consider radio, cable TV, film, audio-video-computer conferencing, Internet, media education, press, art, music, drama, etc. We avoid the "tyranny of the either/or" syndrome; that is, we do not limit our perspective to only one or the other infomedia technologies to be utilized within our Catholic school learning environments. As a matter of fact, a singular focus on any given infomedia technology limits the potential for a holistic approach in the new learning paradigm. Each and every one of these technologies is valid and must be considered.

Our NFCS coordinating team has discovered that ISTE's guidelines for

preparing teachers for the 21st century are an essential component for our New Frontiers schools. According to ISTE's (1991) Curriculum Guidelines (Accreditation and Professional Standards Committee), all candidates seeking initial endorsements in teacher preparation programs should receive foundations that prepare them to do the following:

1. Demonstrate ability to operate a computer system in order to successfully utilize software.
2. Evaluate and use computers and related technologies to support the instructional process.
3. Apply current instructional principles, research, and appropriate assessment practices to the use of computers and related technologies.
4. Explore, evaluate, and use computer/technology-based materials, including applications, educational software, and associated documentation.
5. Demonstrate knowledge of uses of computers for problem solving, data collection, information management, combinations, presentations, and decision making.
6. Design and develop student learning activities that integrate computing and technology for a variety of student grouping strategies and for diverse student populations.
7. Evaluate, select, and integrate computer- and technology-based instruction in the curriculum of one's subject area(s) and grade levels.
8. Demonstrate knowledge of uses of multimedia, hypermedia, and telecommunications to support instruction.
9. Demonstrate skill using productivity tools for professional and personal use, including word processing, database, spreadsheet, and print and graphic utilities.
10. Demonstrate knowledge of equity, ethical, legal, and human issues of computing and technology use as they relate to society and model appropriate behaviors.
11. Identify resources for staying current in applications of computing and related technologies in education.
12. Use computer-based technologies to access information to enhance personal and professional productivity. Apply computers and related technologies to facilitate emerging roles of the learner and educators. (Handler & Strudler, 1997)
13. Apply computers and related technologies to facilitate emerging roles of the learner and educators. (Handler & Strudler, 1997)

NFCS PRAXIS STORIES

During the four-day intensive seminar, each New Frontiers team drafts a working document to be the initial phase in the design of an integrated interdisciplinary Infomedia Plan for their schools. We realize that the future is more often invented than discovered.

To help invent the future, the New Frontiers program envisions ways of integrating people, processes, and technology. The result is a kind of planning from the future back to the present which we believe can be helpful in the integration of technology, teaching, and learning. Accompanied with foundational materials and rich collaborative insights from New Frontiers colleagues, each team returns to their school to design a total inclusive Infomedia Plan within the year. Contemporary infomedia technology is complex and has the potential to both challenge and change old paradigms while simultaneously requiring tremendous investments in resources of time, effort, and funding. Sound infomedia planning assures those resources will be wisely used. We have been pleased that a number of our New Frontiers Schools have become Blue Ribbon Schools and almost all have reported that enrollment, funding, public relations, and the quality of Catholic education in general increased in their school.

Bobby Ohler, St. Margaret Mary School, Slidell, Louisiana states, "Our team's exposure to the various technologies and applications, as well as our interaction with other Catholic educators at The University of Dayton, enabled us to formulate a plan for incorporating some of these technologies into our curriculum. Within three years, we have changed from a school without computers to one with seven to ten networked computers in every classroom (grades 2-8), televisions and VCRs in every classroom, a closed circuit television system, laserdisc players, and an application pending with the FCC for four wireless television channels."

Sr. Rosemary Eyler, St. Augustine School, Rensselaer, Indiana, indicated that radio opened new opportunities for their students. Like the air, radio is simply there, all around us, part of the media and social landscape, but rarely acknowledged or much remarked. So, St. Augustine School accepted the challenge and began working with their local radio station WRIN-WLQI. "The WRIN-WLQI radio staff spent time with all of our students educating them about broadcasting and taking them on tours of the radio station. We now take one grade each week to the station to broadcast a five-minute program," states Sr. Eyler.

The importance of ongoing teacher formation for enhancing teacher infomedia skills is most critical if shifting our educational paradigm is to be effective and complete. Sherry E. Peterson, St. Gertrude High School, Richmond, Virginia, indicates that, "At least one member of each department has completed a Multimedia in the Classroom course. Each of our faculty meetings includes a 'technology minute' and this year an entire inservice day is being devoted to infomedia applications. All of our teachers have Pen Virginia Public Education Network accounts for the Internet." Peterson believes that the ongoing intensive courses have helped the teachers to engage in innovative approaches in instruction and learning. She indicates that the senior government classes have used the Internet to explore political

parties and candidates during an election. This is done during class and stimulates learning and discussion. They also use the Internet for information to supplement their discussions of current issues such as immigration and HMOs. In their study of the Renaissance, World History classes studied art through the use of laser disc and the Internet. They were able to view the Sistine Chapel and other famous works of art.

The shift from computers in a lab to computers in the classroom is becoming the norm for the new Catholic school infomedia infrastructure. Mary Sifferman, St. John School, Seattle, Washington, points out that since their school participated in the NFCS program they have accumulated enough computers to have at least three computers in each classroom from second through fifth grades. Each sixth-grade room has 22 computers. The seventh-grade language arts room has five computers. Each junior high classroom has connected the teacher's station to a television to use CD-ROMs as teaching tools.

The significance of having each teacher's Macintosh computer connected to a school network is an important dimension of St. John's infomedia infrastructure. Teachers use *MacSchool* to enter attendance data and report cards. The administration uses it to record student and staff information. Because of the proliferation of classroom computers, they have begun an internship program where students in a special seventh/eighth-grade exploration class work with students in the first- through third-grade rooms two hours a week.

Sifferman points to the multimedia science project as well as the sixth-grade language arts project centered around language in commercials utilizing cameras and computers to produce multimedia projects as specific examples of the success both teachers and students have experienced in the classroom.

In every situation our NFCS teams are working to bring computers into the classroom. This shift in the paradigm from the lab to the classroom is the second key reason for the growing success and enthusiasm in our NFCS sites. Christ the King School in Dallas, Texas, decided to engage the parents' organization to support the placement of 13 new Macintosh computers in the classrooms. Teri Yeargan, technology & development director, articulated that one thing they learned about installing a local area network (LAN) is that you cannot plan enough. Catholic school infomedia teams must be sure that all bases are covered for the installation. Yeargan states, "Our school was built to stand the tests of time, which is a good thing until you want to drag miles of cable down the halls, through 15-inch-thick concrete walls, and into each classroom. Our first lesson was never to leave decisions such as port placement up to the cabling contractor. Teachers must consider every possibility for technology in the classroom and especially the location of the electrical outlets.

"The second lesson," states Yeargan, "was in the realization that a technology or infomedia coordinator is critical to our success. It is a large budgetary commitment; however, when you factor in the cost of service calls, general repairs, additional installations, and the redundancy that occurs in purchasing, the value of such an investment becomes apparent. If schools are going to make the leap for shifting the paradigm, as we have done, then a coordinator in this area must be seriously considered."

As we continue to keep in contact with our NFCS schools through visitations and Internet conversation, it is obvious that those Catholic schools who have an intense commitment from the central administration find their schools are on the leading edge. Sr. Barbara Buckley, Merion Mercy Academy, relates how her principal experienced first-hand the place of closed-circuit television, desktop publishing, and multimedia presentations and decided that the application of these technologies would accelerate the excellence of Merion Mercy. She wanted the technology to be more than fancy hardware in the classrooms.

Merion Mercy Academy realized that most technology plans fail because teachers have not received sufficient inservice training. Their technology task force knew that the learning curve for technology initially is quite steep, and many teachers feel frustrated by the demands on their time in this learning process. Buckley states, "So often I have heard computer salespeople say, 'Put a computer in every classroom and watch what happens.' My answer is that without training, the computer sits idle, underused, and ineffective as a learning tool.

"It is a fundamental belief of our administration that we must provide both our students and teachers with the skills they need to use technology wisely." She refers to those skills identified by David Thornburg during his participation in the NFCS conference as reasons they have made a commitment to a full-press integration of technology into the classroom. These skills are:

1. Accessing, evaluating, and communicating information.
2. Improving the quality of student thinking and writing.
3. Developing a student's capacity to solve increasingly complex problems.
4. Nurturing a student's artistic expression and appreciation.
5. Developing a student's multicultural and global awareness.

St. Raphael School, Louisville, Kentucky, implemented their NFCS experience by ensuring that every classroom had a computer and by placing those computers in the teachers' hands/homes during summer vacation. "The teachers were given the 'homework' of using the computer and manual and returning to school in the fall with a redesigned curriculum," states principal

Paul E. DeZarn. "At the end of the summer, we provided two days of inservice where the teachers produced a database of information about their homeroom students. We continue to offer mini-courses in the application of technology skills to our learning experiences," says DeZarn.

We constantly remind our NFCS schools to incorporate all dimensions of the infomedia world into their classroom curriculum/technology plans. Little Flower School in Mobile, Alabama, used video to create a video brochure to inform parents and prospective parents of the advantages and highlights of a Catholic education at Little Flower. Nerinx Hall, Webster Groves, Missouri, spent quality time making better use of their closed-circuit television system after the NFCS conference. "Girls are assigned projects to create video spots that may be aired on our *Morning Show* each morning," states Carol Ann K. Winkler. "These videos enable a very creative interdisciplinary learning experience for our students which nurtures their self-esteem," states Winkler.

Today's Catholic Teacher (1996-97) highlighted one of our New Frontiers for Catholic Schools teams in each of their seven issues. Their stories communicate NFCS successes in monitoring scientific, political, and religious issues and concerns within our contemporary culture and applying the basic skills of problem-solving and decision-making to these concrete realities. Networking beyond their school, diocese, and national forums into the World Wide Web continues to offer significant new intercultural perspectives to our NFCS teams. Whether NFCS teams use the Internet for a national/international-wide messaging board to share technology/infomedia plans, curriculum design, and interactive student projects or identify other infomedia resources to ensure the effectiveness of their teaching, all our NFCS schools continue to be successful. They realize that it is not technology that is the issue for their schools but how we are transforming Catholic education in the midst of a new culture, a new mediasphere, where the new networked community brings education into a global context communicating on all levels in varying degrees and infomedia technologies.

Speaking at the 1994 NCEA National Convention, David Thornburg indicated that "the most important change for education is the realization that the very nature of change itself is changing. In other words, any long-term plan that does not allow for radical modification is doomed to failure. We need to shorten the time frame for bringing the benefit of innovation to all students, whether these innovations arise from the domains of pedagogy, curriculum, or technology" (Thornburg, 1994). Our NFCS teams have communicated Thornburg's ideas to their schools by acknowledging that the mere existence of technology does nothing to insure its effective use. Staff development and participation in the reinvention of our Catholic educational system is essential for long-term success. It is for this reason we require that three persons from each school participate in the NFCS summer conference. The team approach supports a more effective reinvention. Thornburg

believes, "Our challenge is not to do things differently, it is to do different things" (Thornburg, 1994). Completely revamping our educational practice in light of societal transformations is essential.

SHIFTING OUR PARADIGM(S)

Few periods in history deserve to be called "transforming eras." Ours is one. Science historian Thomas Kuhn has pointed out that major change takes place only occasionally, in what he called *paradigm shifts*, when the working assumptions on which people have depended became so inappropriate that they break down and are replaced by a more appropriate set.

Those who recognize our entrance into the transforming era realize that it requires a leap of imagination and faith. We can offer our colleagues no infallible forecasts or guarantees to prove that technology is no longer a luxury for the few but a necessity for the many. The information superhighway is the smallest part of this new beginning within our educational environment. Knowledge banks, virtual communities, and artificial environments will dominate much of society a generation from now. They will make the global village either a healthy or unhealthy place to be, depending on the kind of content that we put into these new channels.

The postmodern world is fast, complex, uncertain. Already it is presenting immense problems and challenges for our modernistic Catholic educational systems and teachers who work with them.

The compression of time and space is creating accelerated change and innovation in the teacher's role as well as overload and intensification in her or his work. Much of the future of Catholic school teaching will depend on how the challenges of postmodernity are resolved within our colleges, schools, and parish programs.

Developed 150 years ago, our present system of schooling pushed the limits of information processing in the 19th century. America's school system itself was a radical invention, a communication revolution! Building the Catholic system of parish programs, schools, and colleges was a hard-fought battle to assure the right to learning while preserving the Catholic culture within a particular context. Even more important is the need to lead the communication revolution rather than attempting to restrain it.

NEW LEARNING PARADIGMS

The rapid advance of communication technologies and their impact on our Catholic school environment requires our full attention. New paradigms are emerging in education with or without Catholic educators. How do we as educators and mentors of future Catholic educators engage in the design and implementation of the new learning paradigms? Here are a few shifts for

your consideration: virtual communities, customized knowledge bank, and virtual experiences which are already reshaping our learning environments. You and I must face the reality that language itself creates a barrier to understanding the new learning paradigms and their associated concepts.

Virtual communities are achieved through telepresence. This is the ability to cross any distance to form new relationships. High performance computing and communication technologies are making it possible today. We and our students are able to look over the shoulders of experts who are engaged in research and share their discoveries and insights. The opportunities offered by National Geographic through their Kids Network is a concrete example. This network grew out of collaboration with curriculum developers at the Technical Educational Research Center (TERC) in Cambridge, Massachusetts, and offers a series of science and geography minicourses on globally significant issues such as acid rain, water quality, and related issues. Each class is assigned to a research team of about a dozen distant schools, usually including at least one international site. In addition to mail from their own team, all participants receive compiled data from the teams in files they can manipulate onscreen, such as maps and graphs.

Customized knowledge bank is a type of multimedia serving multiple learning styles. It shifts the balance between in-class and out-of-school work. One of the problems with classrooms now is that the teacher has to spend so much time presenting instead of interpreting information. But if we can have rich presentational resources that are routinely available outside of class, we can make better use of our time in an interpretive, interactive role with our students. Furthermore, our growing sophistication about the nature of learning inevitably points to the virtues of individualized teaching. With the creation of *customized learning environments*, we can better accommodate the diverse learning styles of our students. Harvard professor Howard Gardner in his book *Frames of Mind: The Theory of Multiple Intelligences* suggests there are at least seven human intelligences. Two of these, verbal-linguistic and logical-mathematical, have dominated the traditional pedagogy of Western societies. The five nontraditional intelligences—spatial, musical, kinesthetic, interpersonal, and intrapersonal—have generally been overlooked in education. We can develop new learning paradigms by engaging all seven intelligences through modern infomedia technologies (Nuzzi, 1996).

Virtual experiences are not simply a new medium. Rather than acting as communication channels, virtual experiences create places to live and to be. This is sometimes expressed as “virtual reality” which is computerized clothing to create the subjective impression of being inside a virtual world instead of looking through a window into an artificial reality. We cannot but wonder what type of historical events teachers could create and communicate to their students through virtual reality (Dede, 1994).

CONCLUSION

Historically, conditions of rapid and radical social change have typically given rise to new learning paradigm shifts. But the postmodern age, with its qualitative leaps in instantaneous development and dissemination of information, brings an acceleration and diversification of paradigm shifts themselves. A fundamental problem of postmodernity, therefore, is the need to generate paradigms of understanding, development, and change in order to interpret, analyze, synthesize, and respond to the more specific paradigm shifts in technology, organizational life, and intellectual thought that are occurring with increasing speed within education and outside it.

Specifically, collaboration offers us a way to navigate through diversity and invention. In some of the most innovative NFCS settings, collaboration has been given priority. Collaboration has created a positive atmosphere of well-being, creativity, trust, and renewed initiatives for learning. Interviews with our NFCS teams highlight the following six elements as critical for collaboration to take root:

- *Moral support.* Collaboration permits vulnerabilities to be shared and aired and carries people through the failures and frustrations that accompany change.
- *Improved effectiveness.* Collaboration encourages risk-taking, creates diversity in teaching strategies, and boosts positive responses and encouragement from peers.
- *Increased capacity for reflection.* Collaboration provides sources for feedback and comparison that prompt teachers to reflect on their own practice. Others become mirrors for one's own practice, leading one to reflect on it and reformulate it more critically.
- *Organizational responsiveness.* Collaboration polls the collective knowledge of colleagues, especially other NFCS teams, enabling teachers to respond swiftly to changing constraints and opportunities in the surrounding environment, to scan the environment proactively for upcoming changes, and to seek out the opportunities of the new mediasphere.
- *Opportunities to learn.* Collaboration increases educators' opportunities to learn from each other between classrooms, between departments, schools, city, states, and countries (Internet).
- *Continuous improvement.* Collaboration encourages Catholic educators to see change not as a task to be completed, but as an unending process of improvement in the pursuit of greater excellence for which Catholic schools pride themselves. (Hargreaves, 1993)

Collaboration is not the only element that influences the reengineering of Catholic schools in the new Infomedia culture. Our Catholic colleges/universities along with Catholic school administrators must take steps to remove roadblocks that might prevent collaboration and innovative thinking and application. Some of these steps are:

- recognizing and celebrating the innovative achievements of our teachers;
- encouraging research and development, especially in regard to interdisciplinary teaching initiatives enhanced with informed resources;
- enhancing communication and cross-fertilization by bringing teams of people together from different academic areas to support new learning paradigms;
- eliminating barriers to accessing resources; and
- initiating participative decision making in the design and implementation of technology/infomedia plans. (Marshall, 1995; Scriven, 1988)

One of my favorite films is *Dead Poets Society*. Two scenes in particular capture my notion of the role of Catholic educators today. In the first scene John Keating (Robin Williams) instructs his students to rip out the introduction to their poetry book. Perplexed, the students follow his directives. His ultimate goal is to introduce them to a richer understanding and appreciation of life. He says, "You are here. Life exists...the powerful play goes on and you must contribute a verse. What would your verse be?" In another scene, Keating takes his students into the hallway and points out photos of students who attended the school a couple of generations earlier. He indicates that they dreamed big dreams for their lives but they're all dead now and very few of them realized their dreams. They were overwhelmed, as most people are, by the present and were never really able to take control of and reinvent their lives. Keating urges his students to do otherwise, saying, "Carpe diem!"

In our fast-paced world, there is little time for indecision. We must seize the day! We must not be passive bystanders in the evolution of a new communication culture but active participants in its formation. Catholic colleges and universities are to be the catalysts who inform and form those Catholic educators who will make a difference in our Catholic elementary and secondary schools if these schools are to be effective and exist in the 21st century. Yes, the powerful play of new learning environments will go forward and we, Catholic educators, must contribute our verse.

What will our verse be?

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