

EDUCATION FOR THE 21st CENTURY

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The 21st Century is only fifteen years away. For many reasons, not the least of which is the escalating pace of change, we should expect to see dramatic change in how education is delivered, what is delivered, by whom, to whom.

I've entitled these remarks, "Education for the 21st Century" rather than "Education in the 21st Century" because I want to direct our attention, not so much to the impact of the future on education, as to the impact of education on the future. The National Commission on Excellence in Education (1983, p.5) caught public attention when they entitled their report A Nation at Risk and declared that "our very future as a Nation and a people" is threatened as long as we fail to understand that our future is fundamentally based in the education of our people.

Yet, in the literature and conversations of higher education there is more concern about what the future will do to higher education than what higher education can do for the future. Ironically, much of the planning for higher education's future is done by looking backward at the birth rate eighteen years ago rather than by looking forward to the needs of the nation. The number of eighteen-year-olds in the population is an admittedly important factor in planning for the future of individual colleges, but it is what Benjamin Bloom (1980) might

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call an "unalterable variable." We can and must plan for future enrollments, but there is absolutely nothing that we as educators can do to alter the birth rate of eighteen years ago.

I want to direct my attention largely to "alterable variables"--variables that are subject to influence by educators. To plan the future of higher education as though we have no influence over what happens, is to default on matters of educational leadership.

Unhappily, the past decade has not brought forth many leaders in higher education. Presidents and researchers alike offer a variety of explanations, and there is not much doubt that external constraints on college presidents have increased in recent years--"more barbed wire around smaller corrals" as one president put it (Kerr, 1984, p.99).

"Strengthening presidential leadership," says Clark Kerr "is one of the most urgent concerns on the agenda of higher education" (p.100). He calls on all campus and higher education constituencies to re-examine the conditions surrounding the presidential role and to restore the power of leadership and the presidency. I agree; external conditions are robbing many colleges of the opportunity to determine their own destinies. But I believe that there is slippage in leadership internally, as well as externally, and it occurs at all levels of administration. There is a tendency today to "manage"

colleges rather than to "lead" them.

IEM Alumni may dispute my distinction between management and leadership, so let me be clear about this. IEM concentrates, appropriately for a summer institute I think, on management. But I hope that the knowledge you gain about management is overlaid on a firm foundation of knowledge about education. For the next decade we will need good managers to maintain the status quo, but we will need good leaders if higher education is to make progress.

In this context, I define a manager as one who concentrates largely on responding efficiently to unalterable variables. For the next decade, good managers are going to manage enrollment decline, retrench their faculties, and in general concentrate on managing scarce resources for the survival of their institutions. Leaders, in contrast, will direct their attention to alterable variables. They will know why their institutions should survive. They will be asking probing questions about the needs of the 21st Century and how higher education might best respond to those needs.

If we assume that colleges should be doing basically the same things in the 21st Century that they are doing today, then certainly higher education should be prepared to cope with the downward slope (Crossland, 1980). I assume, however, that higher education will be changing along with the rest of the world. And the rest of the world will be demanding more education, not less. As Peter Drucker told the Chronicle for Higher Education recently, "Demand for education is actually going up, not down. What is going down, and fairly fast, is demand for traditional education in traditional schools."

Higher education stands now where the railroads stood in the 1920s--which is at the end of a golden era of expansion, but facing unprecedented change in the external environment. Fifty years ago, passenger demand for rail service was falling off as the automobile, bus lines, and finally airplanes offered new alternatives to travelers. At the same time, trucking, inland water routes, and pipelines offered faster, more convenient, and cheaper service for the movement of freight. What the railroad operators failed to perceive was that the demand for transportation was growing, and that new ways of moving people and goods were rushing in to fill the need. Ironically, in the midst of great demand for transportation services, the railroad operators turned inward and concentrated on "running the railroad."

The substitution of management for leadership has also plagued the automobile industry. In his book, The Decline and Fall of the American Automobile Industry, Brock Yates observed that "by the middle 1960s....emphasis at all the American automakers had shifted away from engineering toward marketing and finance" (1983, p.29). He goes on to tell the story about an old line engineer, who cared passionately about cars, who was asked to give a newly-hired executive a tour of the manufacturing operation. When they got to the engine plant, the new executive nudged the engineer and said, "Excuse me, I wonder if you'd explain how one of these things work. The thing he wanted me to explain," the engineer exploded, "was an engine! He had just been hired as an engineer by the world's largest automobile company and he didn't have the vaguest notion about how a four-cycle internal combustion engine worked!" (Yates, 1983, p.89).

We are hiring managers in education today who know how to market and manage their product, but they don't know how "the thing" works. They don't know how students learn or how a curriculum is constructed, or how to visualize new and expanding roles for education.

While we in higher education are coping with an anticipated lowered demand for traditional services, new educational functions are being assumed by corporations, professional associations, and other non-colleges at an unprecedented rate. It is not unusual

for the education and training budgets of some large corporations to be growing at the rate of 35 percent per year, which exceeds by a considerable margin the explosive rate of growth of higher education in the boom years of the 1960s.

Higher education today provides a little over a third of the organized learning opportunities for adults. The remaining two-thirds is offered by a vast array of non-collegiate providers, many of whom offer everything colleges do and more. Industry and a cluster of government agencies offer more than 2000 courses that are endorsed by the American Council on Education as worthy of academic credit. Within the past decade, at least eighteen new corporate colleges have been recognized by appropriate state agencies to grant associate, bachelors, and masters degrees (Eurich, 1985). Aetna, Xerox, IBM, and other corporate giants have built campuses with classrooms and residence halls that surpass anything offered in our most exclusive and expensive colleges. Corporations spend more today on the education and training of employees than all fifty states combined spend on public higher education (Lynton, 1984), and the army of professionals concerned about human resource development in industry has more than doubled over the past decade.

According to a senior official of General Motors, "Major industries maintain very large staffs of their own to meet their continuing education needs, but they do so principally because they can't find viable providers through academic

sources. We simply would not hire people and maintain them on the payroll if there were an alternative, but so far we haven't seen an alternative" (Kost, 1980, p.51). Whether or to what extent colleges should be offering alternatives is a difficult question, but it is one that higher education should be addressing.

Both the supply and the demand for education are growing because the economy of the 21st Century is dependent on the nondepletable resources of human energy and creativity. Futurists of all persuasions seem to agree that we live at the confluence of more transitions than any previous generation. John Naisbitt (1982) identifies ten "megatrends" that are transforming our lives; Harlan Cleveland (1980) speaks of a "macrotransition," and Alvin Toffler (1980) labels the confluence of these streams of change The Third Wave. Toffler uses the metaphor of waves to suggest that change rolls and crests across the planet, with the leading edge of each wave introducing dramatic and rising change which then steadies and finally subsides as another wave begins to rise.

The First Wave, according to Toffler, was the Agricultural Revolution. Land became the capital asset in a society that converted from migratory hunting groups to farming. The Industrial Revolution constituted the Second Wave which swept across the industrialized nations of the world between roughly

1750 and 1950. The capital asset of the Second Wave was money. While many people knew how to build the factories necessary for mass production, not many people had the dollars to build one.

The Third Wave started in the United States around 1955 when white collar and service workers began to outnumber blue-collar workers. Computers, biotechnology, and telecommunications have become known as "sunrise" industries to distinguish them from the "sunset" or smokestack industries of the Second Wave. The capital asset of the Third Wave is knowledge and the people who know how to generate it and use it. Steven Jobs, the youthful president of Apple Computers, is the symbol of Third Wave human capital. Not a member of the landed gentry, and with little in the way of financial backing, he used knowledge, innovation, and entrepreneurship to launch a corporation which saw profits in the first quarter of 1985 zoom to \$46 million.

Ironically, the age of technology is necessarily the age of the development of human resources. Unlike the fossil fuels that provided energy for the industrial revolution, the technological revolution is fueled by information which is a nondepletable, expandable resource. Moreover, it is self-generating; the more people use it, the more it expands.

What could possibly be more important to higher education than the Third Wave? Knowledge and the development of human potential have always been the business of education. Now

because of the economic importance of knowledge, the development of human resources has become everybody's business.

Like the railroads of an earlier era, we in higher education seem to find ourselves in a world demanding more and more of what we thought we were offering. Yet we are preparing for retrenchment. Perhaps we should be. One quite legitimate way to prepare for the learning society is to expand the number of providers of educational services and to define more precisely what each can do best. Another equally legitimate approach is to ask if colleges and universities should be expanding their services to meet new needs. Historically, new needs have been met in the United States by expanding functions of colleges and universities, but the growing demands of the learning society may make that solution obsolete.

Perhaps it is time to ask the question that John Naisbitt (1982, p.85) labels the question for the 1980s--what business are we really in? Are we in the business of human development, intellectual growth, academic achievement, career development, certification, or what? And whom do we serve--eighteen-year-olds, forty-year-olds, employers, or society at large?

Educators are not unaware of the urgency of finding answers to these questions. In one recent survey college presidents ranked the "changing mission and purpose" of their institutions as the second most critical issue facing higher education in the next ten years; only financial concerns ranked higher (Duea, 1981).

While educators debate the complex and critically important issues of mission, industry seems to have adopted the broadest possible goal for their education and training divisions--the development of human resources, or HRD as it is known in the trade. The contention is that business has become dependent on human resources that are capable of generating and using the knowledge that is the capital asset of a Third Wave economy.

Rosabeth Kanter (1983), an insightful researcher of business practices, claims that there is a renaissance in business today which consists of a shift from developing a system of production to developing people. That represents a significant departure from Frederick Taylor's Second Wave principles of "scientific management." Basically, Taylor's assumption was that managers could treat workers as constants and then discover the best way to design jobs so as to eliminate human error. The last thing a manager wanted on the assembly line was a worker who thought for himself. Corporate success in the Second Wave Society was presumably attributable to the scientific design of the system rather than to the creativity of the workers.

The turn-around in business practices as we move into the Third Wave, is vividly portrayed in the raft of best-selling books on business practices. Peters and Waterman, authors of In Search of Excellence, label the new approach to management "productivity through people" (p.xxii), and they advise corporations to treat

people "--not capital spending and automation--as the primary source of productivity gains" (p.238). Rosabeth Kanter labels idea power "the most important economic stimulus of all" and urges companies to encourage workers to develop their creative capacities (1983, p.18). Robert Reich (1983, p.13) joins the chorus and contends in his analysis of The Next American Frontier that "We cannot continue to rely on high volume, standardized industries after other countries have become better suited for them. Rather, our economic future must be rooted in the only resource that will remain uniquely American: Americans themselves. The industries that will sustain the next stage of America's economic evolution will necessarily be based on a skilled, adaptable, and innovative labor force and on a more flexible, less hierarchical organization of work."

The advice that is being given--and bought--in these national best-sellers today is that human resource development is the capital asset of America's economic future. That insight is not necessarily new nor is it uniquely American. The theory of human capital is global in its contention that in poor countries as well as in rich, it is the acquired abilities of people--their education, experience, and health--that determine economic progress and the quality of life. Nobel laureate Theodore Schultz (1980) observes that, "Increases in the acquired abilities of people throughout the world and advances in useful knowledge hold the key to future economic productivity and to its contributions to human well-being" (p.xi). He concludes

that "The decisive factors...in improving the welfare of poor people are not space, energy, and cropland; the decisive factors are the improvement in population quality and advances in knowledge" (p.4). The operative words in human capital theory are the "acquired abilities" of people. Acquired abilities are alterable variables, and they fall squarely in the laps of educators.

Now the question is what abilities should people acquire, and how can we as educators help our students acquire them? At the top of my list of essential characteristics for people living in the 21st Century is the development of the skills and attitudes for lifelong learning. No education, no matter how brilliantly designed and delivered, will last a lifetime in a world in which entire industries are created and wiped out in a single decade. Ted Sizer (1984, p.216) states flatly that , "A self-propelled learner is the goal of a school...." I agree. Any student who graduates from high school or college without the cognitive skills and the attitudes and values to pursue continuous learning must be considered a failure of the educational system. He or she will lack the basic survival skills for life in the 21st Century.

Perhaps no professional group is more aware of the need for lifelong learning than the medical profession. Three years ago, the Association of American Medical Colleges appointed a panel to recommend needed changes in medical education. In

their recently-issued report entitled Physicians for the Twenty-First Century, the panel concluded that, "A general professional education should prepare medical students to learn throughout their professional lives rather than simply to master current information and techniques" (1984, p.9).

I think it is fair to say that every report that has addressed educational reform in the past two years--and there have been literally hundreds of them--has stressed the importance of moving away from trying to fill students full of quickly-outdated information toward the goal of preparing students for active and continuous involvement in their own lifelong education.

The Study Group on the Conditions of Excellence in American Higher Education (1984, p.17) entitled their report issued in October, Involvement in Learning, because, they say, "There is now a good deal of research evidence to suggest that the more time and effort students invest in the learning process and the more intensely they engage in their own education, the greater will be their growth and achievement, their satisfaction with their educational experiences, and their persistence in college, and the more likely they are to continue their learning." The shift in recommendations--if not yet in practice--is clearly toward more active self-directed learning. If we, as educators, are to develop the human capital needed for a Third Wave Society, we will have to provide students with the three prerequisites for lifelong learning--cognitive skills, motivation, and the

capacity for self-direction.

Unfortunately, much of the current educational reform movement seems to be giving blind allegiance to the admittedly important, but dangerously narrow goal of improving academic performance. The swing of the pendulum from the over-permissiveness of the 1960s to the over-regulation of the 1980s is robbing students, teachers, and local school people of the opportunities for developing initiative and self-direction (See Cross, 1984). I fear that sometime in the 1990s, we will realize that today's somewhat grim, increasingly competitive, over-regulated emphasis on academic achievement has created a generation of turned-off learners, who may have the cognitive skills for learning under direction, but who find little joy in self-directed, voluntary learning.

Adults are, by and large, volunteer learners, and motivation is as important as skill development. An adult who cannot or will not engage in continuous learning is likely to become one of our most serious social and economic problems in the 21st Century. The new class of educationally disadvantaged will consist of adults who have lost confidence in themselves as learners and who lack either the skills or the will to learn.

At the present time, the gap between the well-educated and the poorly-educated is actually growing as the opportunities for adult learning increase. Research shows clearly that the more formal education people have, the more likely they are to

participate in adult education (Cross, 1981). A college graduate is roughly seven times as likely as a high school drop-out to be engaged in some form of organized learning. The problem is that it is the already well-educated who are rushing to take advantage of the new opportunities that are appearing, while the poorly-educated fall further and further behind, lacking the skills, the self-confidence, the motivation, and frankly the pressure and encouragement from employers to participate fully in the learning society.

Thus, one of the first priorities of higher education should be to help undergraduates develop the intellectual skills and interests that are required of lifelong learners. Not so incidentally, when I use the term "undergraduates," I hope the picture that comes to your mind includes people of all ages and from all walks of life. One-third of all people studying for college degrees today are over the age of twenty-five.

What else should higher education do to equip people for life in the 21st Century? We have talked about the demands of the learning society, now let us give some attention to the demands of the information society. They are not the same thing.

The statistics describing the information society are themselves a product of the computers that are cranking out more information than we can possibly absorb or use. Between

6,000 and 7,000 scientific articles are written each day, and scientific and technical information doubles every five and one-half years (Naisbitt, 1982, p.24). One way of dealing with this huge surplus of information is to shoot it out in short modular blips--the ninety second news clip intercut with a thirty second commercial, a headline here, a cartoon there, a professional newsletter of short, disconnected items of information. Trivial Pursuit is aptly named and a symbol of our times--huge files of disconnected facts that defy organization and can be expanded at will.

The skill that is rising in importance as knowledge explodes about us is the intellectual skill of synthesis. "Running out of [information] is not a problem," says John Naisbitt (1982, p.24), "but drowning in it is." The excitement of my doctoral students, who find that the library will run an ERIC computer search on a topic of their choosing, soon turns to dismay when the computer cranks out three hundred abstracts of articles written on their topic in the past two years. Scientists complain that it takes less time to do an experiment than to find out if it has already been done (Naisbitt, 1982, p.24).

How can we possibly prepare students for life in a world in which the sheer volume of scientific and technical information will nearly double between their freshman and senior years in college?

Academics are right in the middle of the information

explosion; no teacher could possibly miss it. Yet, classroom teaching looks much as it did in the 14th Century. The formula is simple. Professors tell students, presumably in a well-organized lecture, what they know. Clearly, that formula is no longer adequate. Professors cannot keep up with the information explosion themselves; telling people something is a very low-power teaching technique; and information is freely available now whenever and wherever it is needed.

Traditional education has emphasized content mastery and critical analysis far more than synthesis. It is my observation that our best students graduate from college today with rather well-honed skills in tearing apart an argument. What they cannot do very well is to put together information to build an argument or to solve a problem. Students are going to have to know how to select from all of the information available today that which is relevant to their needs, and they are going to have to know how to use the information to address a problem. Unfortunately, Ernest Lynton (1984, p.67) is right when he complains that "The focus of higher education is now almost entirely on the acquisition of knowledge and no longer on the competence to use it." Students graduating from college today have every right to expect their education to provide them with the skills to use knowledge on the job and off, at work and at leisure, as members of groups and citizens of the world.

Perhaps I can conclude these observations about education for the future by returning to the question of how higher education can best contribute to the quality of life in the 21st Century. That involves starting conversations about what business we are really in.

I think we are in the business of human development. That includes moral and personal development, as well as intellectual development. And it includes groups of people that we should probably stop calling non-traditional--women, ethnic minorities, and adults over the age of twenty-five. Colleges and universities should be as concerned about adult development as about adolescent development. The commitment to human development would call for substantial change in the way we do business.

The greatest change would require a shift away from the current emphasis on the acquisition of information toward its utilization. Inert information has little or no effect on development. It must be acted upon by the learner in order to make a difference. The relegation of the storage, retrieval, and delivery of information to the new technologies of the Third Wave should free human teachers to concentrate on how individual students are responding to the learning situation.

This requires skills that most faculty members don't have. It therefore means embarking upon extensive faculty development programs with the honest recognition that the professoriate is no more immune from obsolescence than any other occupation. Clark Kerr (1976) believes that change in higher education will probably not occur until the huge post-World War II faculty cohort retires, which will be around the turn of the Century. But the new supply of college teachers is in graduate school now, and they will no doubt teach as they have been taught.

I do not underestimate the difficulty of changing faculty approaches to teaching. Steve Muller, (1984, p.38) president of Johns Hopkins University, says that the most serious problem universities face in the next few years is that we will try to operate post-Gutenberg universities with pre-Gutenberg faculties.

Once again, I see a parallel in the auto industry. After the Plymouth Valiant had failed to weaken Volkswagon's grip on the small car market, R.K.Brown, the Vice President of Marketing at Chrysler lamented "I just can't understand it. Our Valiant is bigger, faster, roomier, looks better, and is only slightly more expensive than the VW, but we just can't convince anybody." In his analysis, Brock Yates observed that, "the notion that a growing percentage of buyers was not looking for automobiles that were bigger, faster, roomier, gaudier, but for cars which exhibited other measures of excellence--functionalism, quality,

economy, technical innovation, handling, originality--escaped Brown and his associates for another ten years" (Yates, 1983, p.194).

While the Third Wave society may well admire bigger, faster data banks of information handled by ever-flashier computers, educators should be aiming for quite different measures of excellence--functionalism, quality, innovation, and the potential for making a difference in the abilities and capacities of students. The goal of a college should be the long-range development of creative, thinking, caring human beings at any stage of their lives.

Unfortunately, these qualities are hard to develop effectively in a lock step depersonalized approach to mass education. Our educational system has been modeled on Second Wave mass production methods, and it is less than adequate in a Third Wave world. Robert Reich makes these observations about education in his book, The Next American Frontier (1983). "U.S.education has been modeled on scientific management. Students are sorted, programmed, and controlled in a high volume, standardized production process.... Countless efforts are made to measure and quantify educational achievement. Professional administrators start from these measures to devise standard rules and procedures for teachers and students. Success in American education is coming to be measured largely by the degree of order and management control in the classroom" (p.215)....People

cannot be trained to participate in flexible-system enterprises when their daily lives are dominated by high volume, standardized institutions" (p.216).

John Naisbitt's tenth megatrend will be an essential ingredient of Third Wave education. The potential for individualization, for personal choice, and for multiple options is exploding all around us. The either/or world of the 1950s is turning into the multiple-option world of the 1990s. It used to be chocolate, vanilla, or strawberry; now its thirty-one flavors. It used to be black Fords, white bath tubs, and green checks. Today, there are 752 different models of cars and trucks sold in the United States--and that's not counting the choice of colors. People used to read Life, Look, and the Saturday Evening Post, but those mass-appeal magazines have given way to thousands of mini-magazines with their carefully segmented audiences of teen-agers, career women, runners, scuba divers, antique collectors and retired people. Regional magazines such as Sunset, New England, Arizona Highways, and Dallas are exceeded in fineness of tuning by neighborhood newspapers which cover all the news that's fit to print between Main Street and First Avenue.

It is inconceivable that education will remain impervious to the multiple-option society. Educators face the delightful challenge of making a more human enterprise of higher education. Other providers of educational services cannot and will not provide a personal education directed toward the development of human potential. That, as I see it, is the unique contribution of higher education to the 21st Century.

References

- Bloom, Benjamin S. "The New Direction in Educational Research: Alterable Variables." Phi Delta Kappan, 61(6), Feb. 1980, 382-85.
- Cleveland, Harlan. "The Public Executive." Speech given at the 66th Annual Conference of the International City Management Association at Kiamesha Lake, New York, September 1980.
- Cross, K. Patricia. "The Rising Tide of Reform Reports." Phi Delta Kappan, November 1984.
- _____. Adults as Learners. San Francisco: Jossey-Bass, 1981.
- Crossland, Fred E. "Learning to Cope with a Downward Slope." Change, July/August, 1980.
- Drucker, Peter. "As Education Heads into a 'Baby Bust,' Competition and Diversity Will Prevail." Chronicle of Higher Education, 22(II), 1981.
- Duea, Jerry. "Presidents' Views on Current and Future Issues in Higher Education." Phi Delta Kappan, April 1981.
- Eurich, Nell. The Corporate Classroom. Carnegie Foundation (In Press).
- Kanter, Rosabeth. The Change Masters. New York: Simon and Schuster, 1983.
- Kerr, Clark. "Education Tomorrow: For Whom? Why?" Address presented to the Western Regional Assembly of the College Board, San Diego, California, January, 1976.
- Kost, Robert J. "Competition and Innovation in Continuing Education," in Alford, Harold J. (Ed.) Power and Conflict in Continuing Education. Belmont, Ca.: Wadsworth, 1980.
- Lynton, Ernest. The Missing Connection Between Business and the University. New York: Macmillan, 1984.
- Muller, Steven. "The Post-Gutenberg University." Current Issues in Higher Education, 1983-84.
- Naisbitt, John. Megatrends. New York: Warner Books, 1982.
- National Commission on Excellence in Education. A Nation At Risk. Washington, D.C.: U.S. Department of Education, April, 1983.
- Panel on the General Professional Education of the Physician. Physicians for the Twenty-First Century. Washington, D.C.: Association of American Medical Colleges, 1984.
- Peters, Thomas J. and Waterman, Robert H. Jr. In Search of Excellence. New York: Harper and Row, 1982.

- Reich, Robert B. The Next American Frontier. New York: Penguin Books, 1983.
- Schultz, Theodore R. Investing in People. Berkeley, Ca.: University of California Press, 1980.
- Sizer, Theodore R. Horace's Compromise: The Dilemma of the American High School Today. Boston: Houghton-Mifflin, 1984.
- Study Group on the Conditions of Excellence in American Higher Education. Involvement in Learning. Washington, D.C.: National Institute of Education, October, 1984.
- Toffler, Alvin. The Third Wave. New York: Bantam Books, 1980.
- Yates, Brock. The Decline and Fall of the American Automobile Industry. New York: N.Y. Empire Books, 1983.