

TOMORROW'S STUDENTS AND THE ECOLOGY OF THE LEARNING PROCESS

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The topic that I have been given for this lecture "Tomorrow's Students and the Ecology of the Learning Process" intrigues me because it is deceptively straightforward in defining the task, but the task is so complex that it can't be talked about in a straightforward manner. I think I can present some useful information about tomorrow's students, and we know something about learning processes, but when I contemplate dealing with the multiple interrelationships suggested by the word "ecology," I am reminded of the story of the last survivor of the Johnstown Flood. Even on his death bed, this survivor could not induce anyone to listen to his tales of the horrors of rising water after the dam burst, but when he got to Heaven, St. Peter told him that he could have one wish gratified before he passed through the pearly gates. The old man asked that everyone be summoned to hear him discourse on the Johnstown Flood. He had barely begun his remarks when St. Peter nudged him and whispered, "I forgot to tell you that Noah is in the audience."

I know that there is at least one Noah in this college since I have read Urie Bronfenbrenner's brilliant analysis of the experimental ecology of education (1976), and I strongly suspect that this audience is full of Noahs. Since I am not a survivor of even a modest flood, but of the drought-stricken west, I think I would do well to limit my analysis to

two selected relationships: 1) those between students and institutions of higher education, and 2) those between institutions of higher education and the broader society.

Cornell, as an institution, finds itself in an environment of societal expectations for higher education. In recent years, society's expectations have been enunciated through patterns of government funding, recommendations of national study commissions, such as the Carnegie Council, in the explosion of reports from state planning committees, and, of course, in the voluminous literature of education in both the popular and professional press.

Nationally, the highly visible issues concern open admissions in contrast to selective admissions, commuter campuses rather than residential campuses, service to the local community over service to a national constituency, and attention to the needs of disadvantaged undergraduates over the needs of graduate students. In brief, the educational priorities at the moment are seemingly more in tune with the mission of low-tuition, open admissions, teaching institutions than with selective, high tuition, research Universities. But there is nothing new about society's lavish attention to its newest institutions.

Historically, when society has wanted a new job done in education, it has established new institutions to do it. We established the land grant institutions when the needs of the country were for technical and agricultural growth and production. A century later, when the country was ready to offer two years of postsecondary education to every citizen who wanted it, we established the community colleges with the societal directive to educate everyone who walks through the open doors.

But it looks now as though the extravagance and ease of creating new institutions and hiring new people to do new jobs is coming to an end. It may be that existing institutions of higher education will have to be flexible enough, or perhaps threatened enough, to take on new educational tasks deemed important by society. That is not easily accomplished.

Clark Kerr (1977, p 41) has predicted that nothing much is going to happen in higher education until the year 2000, since "Higher Education is tenured in by its faculty and walled in by its physical plant for the next quarter century." It won't be until the turn of the century that half of the faculty, most of whom were hired in the growth years of the 1960's will retire; buildings constructed in the 1950's and 60's will need to be remodeled or replaced, and the grandchildren of the World War II babies will begin arriving in college. All of this will provide the new blood and the new growth that stimulates change. For the next 25 years, people who don't like change can probably relax, says Dr. Kerr (1976).

I'm not so sure. One of the issues high on the agendas of most state planning commissions is the continuing education of adults. And there is evidence that higher education is responding with some enthusiasm to serving this need. In this transition period, between growth and no-growth years for higher education, there is a mixture of approaches to the education of adult part-time students. Some states such as New York and Minnesota, for example, have established new institutions such as Empire State and Minnesota Metropolitan to do a new job. Other states, such as California and Massachusetts, have tried to talk existing institutions into an interest in taking on new tasks.

Nationwide, there has been a lively response at the institutional level as colleges of all kinds have made an effort to attract so-called

non-traditional learners, in full awareness that traditional students will be in short supply in the 1980's. A national survey of colleges and universities conducted in 1972 showed that there were between 1000 and 1400 non-traditional programs in the country, most of them off campus, most geared to the needs of adult learners, and most established since 1970 (Ruyle and Geiselman, 1974). Lately, the talk, the studies, and the action have escalated sharply.

Adults now constitute the fastest growing sector of American higher education. The spectacular growth is the result of changing demographics as well as changing lifestyles. Demographically, the World War II baby bulge is moving into the adult years. Those born in 1957 at the peak of the birth rate are now 20 years old, and those born at the beginning of the birth explosion are almost 30.

Indeed the nation is growing older. During the present decade, the number of 18-24 year olds in the population will grow a modest 8 percent, while 25-34 year olds will increase a whopping 44 percent. By the year 2000, says the National Center for Education Statistics, "the United States population will be dominated by persons in their middle years (Golladay, 1976 p. 12)."

But the increase in adults seeking education is growing even faster than their numbers in the population. In 1975, over 17 million adults participated in adult education, nearly double the number of college students enrolled for degree credit. During the three year period between 1969 and 1972, the number of adults participating in adult education increased three times as fast as their numbers in the population. The rate of increase in four-year colleges and universities was 19 percent, but the community colleges and technical institutes experienced

a huge 65 percent increase (Guilford, 1975). Between 1972 and 1975, the community colleges maintained their substantial lead, with a 56 percent increase in part-time students. The average age of community college students today is 28 and growing older.

The demographics of the birth statistics have already had an impact on higher education, but there are implications beyond mere numbers. It seems probable, for example, that we can look for a "promotion squeeze" in the labor market as the large, well-educated baby boom generation attempts to move past the lower rung of the occupational ladder (Morrison, 1976, p. 15). Following the retirements of leaders from a relatively small older generation, the competition generated within the large upcoming generation will become intense, and it appears that at least some career ladders will become severely congested. The escalating opportunities for women and ethnic minorities on career ladders will further exacerbate the situation. The result will probably be increases in the rate of mid-life career switching and a desire to improve competitive advantage through career oriented adult education. Education for career change as well as for job advancement is a staple of adult education now, and it is bound to grow in importance.

Another factor in the predicated rise of adult education lies in the research finding that the more education people have, the more they want. Whereas 52 percent of the college graduates are engaged in some form of continuing education, 37 percent of the high school graduates and only 12 percent of those without high school diplomas are. The average person 25 years of age or older now has more than 12 years of schooling, which means that the average adult in the

United States is ready for postsecondary education. Nevertheless, only one third of the adult learners in the United States are enrolled in courses sponsored by two- and four-year colleges despite the fact that 85 percent of today's adult learners are high school graduates (Guilford, 1975).

Other factors have also been considered in the predictions. Changing lifestyles are calling for less emphasis on material possessions and more on self-realization and the improvement of the quality of life. Although job-related education is the most popular form of continuing education, enrollments in courses for personal growth and social and recreational activities are growing more rapidly now than enrollments in occupational education (PER Report, December 6, 1976). In the final analysis, whether people learn for fun or for job advancement, the likelihood is that with the explosion of knowledge and the constant change in most occupations, continuous learning will become a necessity.

Indeed the capacity of the populace to learn new things will become a necessity for society as well as for individuals. The major problems faced by society as we move into our Third Century seem to call for a lot of public cooperation and a general understanding of the issues. To cite a recent example, the whole question of conservation--of natural gas in the East and water in the West--has demanded unusual cooperation and understanding on the part of the public. Much of the educational effort has been undertaken by the media, but a little learning stimulates the desire for more. The dean of extension of one of our largest California programs told me recently that they just couldn't find enough teachers to keep up with the demand for extension courses related to weather, conservation, and ecology.

Institutions of higher education then exist, not as self-directed institutions, free to independently determine their directions, but as part of a social system with educational needs and expectations. At the same time, most of the talk in educational circles today concerns the interests of institutions in their own self-survival. As a sometime cynic, I might observe that the instinct for self-survival on the part of institutions has probably done more to spark the escalating continuing education movement than any other factor. Some of the eagerness to serve adult learners springs from idealistic motives such as providing equal educational opportunity and improving the quality of life. But much of it comes from frankly materialistic motives on the part of colleges and universities. Conducting "market surveys," designing attractive and convenient programs, and finding adult bodies to fill the seats left vacant by the shrinking 18-23 year old population has become a major preoccupation of the increasingly competitive segments of post-secondary education.

Furthermore, colleges and universities have not been left alone to fight it out among themselves. Public school systems enroll 14 percent of the adult learners, and employers and community agencies account for almost 30 percent (National Advisory Council on Extension and Continuing Education, 1975). As the competition heats up, the entrepreneurs of business and technology are joining in the scramble. The chairman of the board of one of America's largest producers of computers recently suggested that the way to solve the problem of the escalating costs of our labor-intensive system of education is to turn much of the responsibility of education over to "private, competitive enterprise." In the February issue of Phi Delta Kappan, William Norris (1977, p. 451) wrote that "The most

direct and effective way to get [higher-quality, easily available education at lower cost] is for private companies to provide the appropriate technologies, marketing, and leadership to glue together enough governmental and institutional support to provide a better alternative." And, of course, private industry sees a potential gold mine in the delivery systems of some of the new technologies that can reach millions of potential learners, making high cost production and programming feasible.

For all the competition, the National Council on Extension and Continuing Education (1975, p. 13) claims that, "The adult, part-time students...exist in such large numbers and demand such a variety of educational services that all of the resources of postsecondary institutions together are insufficient to meet their demands."

All of this description of the social environment and its relationship to education brings me to the second part of my assignment which is to say something about tomorrow's students. I don't suppose you will be surprised to learn that I am going to contend that adult part-time learners will constitute the majority of tomorrow's students. As a matter of fact part-time learners constitute the majority of today's students. "In 1972, for the first time in American history, approximately half of the students (degree credit, nondegree credit and noncredit) in postsecondary institutions participated on a part-time basis (The Committee on the Financing of Higher Education for Adult Students (1974, p. 2)."

If part-time learners are to be tomorrow's college students, some implications are immediately clear. First and foremost will be the recognition that for most people, the college years will parallel

life rather than constitute a sequential cross-section of it. Most students will carry the usual adult responsibilities of job, marriage, and family, and they will be unable to immerse themselves in the social and intellectual life of what some will nostalgically cherish as the community of scholars. Community for part-time learners exists, not in the single location of campus, but in multiple locations of job, neighborhood, and perhaps a number of separate learning locations, including museums, public libraries, television sets, and community learning centers.

A related observation about the nature of tomorrow's student comes from researchers and practitioners who note that adult learning is motivated by the desire to solve immediate and practical problems. Adults are less patient than traditional college students with an inefficient use of their learning time, and they are interested, not so much in storing knowledge for use at some future time, as in applying knowledge to life goals or to special projects that seem important to them. Young people expect to learn more or less what they are told to learn. Adults employ more rigorous tests of relevency.

At the same time, adults possess cognitive maps of considerable complexity. They will want to know how new knowledge relates to their own thoughts and experiences. New learning will have to be incorporated into an existing framework, and this simple fact will require considerable change in both the measures and the methods of traditional instruction.

The tip of the iceberg with respect to the measures of learning, has surfaced in recent years in the form of nationwide debate over the virtues and vices of granting academic credit for so-called "experiential learning." There is not much argument with the logic of non-traditionalists

who insist that the time and place measures of traditional education are inadequate indicators of learning. We know full well that quality learning can and does occur outside the classroom. Indeed, we have recognized it for years in the acceptance of the Advanced Placement Tests, and more recently, through the College Level Examination Program (CLEP) and College Proficiency Examination Program (CPEP). Ninety-three percent of the colleges in the country now grant credit-by-examination (Ruyle and Geiselman, 1974).

Although the concept of demonstrating proficiency on written examinations is widely accepted by academics, the granting of credit for life experiences is somewhat more controversial. Nevertheless, half of the colleges in the country are granting credit for various kinds of non-classroom learning experiences, such as volunteer work in a community agency or a completed work such as a book, patent, or painting (Ruyle and Geiselman, 1974). One stimulus for the recognition of experiential learning has been the CAEL project (Cooperative Assessment of Experiential Learning) which is a consortium of Educational Testing Service and over 250 colleges working together to develop better measures of experiential learning under funding provided by the Carnegie, Lilly, and Ford Foundations and the federal government.

I think there is a good chance that tomorrow's students, entering or returning to college with a wealth of learning experiences, will force a modest revolution in our measures of learning, but more importantly they will force us to rethink our curricula and methods of instruction.

The cutting edge of adult education is on more individualization of program and more self-direction of learning activities. Although adults are fairly conservative when it comes to preferences for the delivery of

education, most studies report that the majority of potential learners prefer approaches other than on-campus lectures. The Central New York study, for example, found that while 21 percent preferred lectures, 27 percent preferred workshops, and 52 percent preferred something else or a combination of approaches (Wilson, Saltford, and Veres, 1975).

Certainly the new technologies have not caught on yet, but since there is a strong tendency for people to like what they know in education, most futurists are predicting that as people become familiar with the new methods that are proliferating in adult education, they will come to prefer those that offer convenience and flexibility. It does seem clear that the enormous diversity of learning needs, coupled with the more individualistic goals of adult learners, will call for greater flexibility and more alternatives in the delivery mechanisms of higher education.

When it comes to the subject matter interests of adults, there are two ways to study preferences. One is to survey the adult population to ask what educational programs and services they would like; the other is to look, not at what people say, but at what they do i.e. to study the choices and characteristics of participants in continuing education. Since today's studies usually show that from 60 to 80 percent of survey respondents say they would like to participate in new learning experiences but only 10-15 percent actually enroll, there may be considerable discrepancy between the wish and the action, and there may be significant differences between the characteristics of participants and non-participants.

Generally speaking, the dozens if not hundreds of "needs assessments" conducted under institutional, regional, state, and national auspices agree that vocational learning leads the interests of adult learners by a substantial margin, followed by hobbies and recreation, general

education, home and family life, personal development, and public affairs. When investigators look at the courses adult learners actually take, vocational education assumes less importance and recreation, general education and education for personal development rise in popularity (Carp, Peterson, and Roelfs, 1974). This difference between what adults say they are interested in and what they participate in probably reflects the higher class status of actual learners compared with would-be learners. Poorer, less well-educated groups tend to favor on-the-job training offered by employers, whereas many middle and upperclass learners use learning projects for personal growth and development as well as for job advancement.

Virtually all of the studies that have been done, and they are legion, agree that the participants in continuing education at the present time are the privileged members of society. Compared to the population at large they are disproportionately young, white collar, well-educated, and well-to-do. It is fair, I think, to characterize them as the ambitious, upwardly mobile middle class.

Since many of the leaders of the adult education movement are avowed egalitarians, arguing for the elimination of the final barriers to higher education, one of which seems to be age, the relatively privileged status of today's adult learners is a matter of some concern. One analyst (Bowen, 1977) has made the interesting observation that the inequalities in educational attainment among the various segments of society are at a peak in the United States right now. In the 1800's people were educationally equal because very few had progressed beyond the eighth grade. By the year 2025, the majority of the population will have attended college and educational disparities will once again be minimal. But right now, about

one-fourth of the population have eighth grade educations, one-half have high school educations, and one-fourth have attended college. This maximized disparity in the educational attainment of various segments of the population, accounts in part for the intensity of society's concern for equal educational opportunity.

Since today's participants in continuing education tend to be privileged rather than underprivileged, I predict that, in the absence of societal intervention, continuing education will rival college degrees in preserving the educational gap between the "haves" and the "have nots." Historically the privileged classes have opted for increasingly "higher" or more advanced education to enhance and preserve their status. But I think it is somewhat more likely that continuing education rather than graduate education will be the more feasible route to desirable socioeconomic status in the future. Employers will ask, not what advanced degrees do you have, but what learning activities have you undertaken in the last five years? Indeed, with the rapid change in knowledge, the answers to the latter question are likely to be more valid indicators of potential than our present assumption that credentials are good for a lifetime.

If society is serious about removing barriers to educational opportunity based on socioeconomic status, the cost will be high. The ACE Committee on the Financing of Higher Education for Adult Students (1974) found massive financial discrimination against part-time learners, and the majority of adults receive no financial aid. Yet I have been unable to locate a single study in which cost was not listed by adults as a major barrier to their continued education. One new study demonstrates that adult enrollments could be doubled by establishing a new two-year college where none existed before, or by

lowering the tuition from \$400 per year to zero (Bishop and Van Dyk, 1977). There is a message I think, in the findings of your own New York Central Region study of adult learning needs and educational resources. It was reported there that of six sponsors of educational services for adults, the highest charges were made by institutions of higher education (Wilcox, Saltford, and Veres, 1975). Cost factors will determine, to a considerable extent, the nature of tomorrow's students in higher education. In the absence of public funding, the adults given new opportunities for mid-life career change or promotion or the enrichment of life will be those who can afford it. The present pay-as-you-learn policies in continuing education are already revealing the danger signs.

Although blacks constituted ten percent of the adult population in 1975, they represented less than seven percent of the participants in adult education, and things seem to be getting worse instead of better. The greatest decline is occurring, not in the younger age group where we might rationalize that young blacks are moving from part-time into full-time education, but among middle-aged blacks where participation rates went from nine percent in 1969 to seven percent in 1972 to six percent in 1975 (NCES, 1969, 1972, and 1975).

Were there to be a commitment to a learning society in which all segments of the society had truly equal access to postsecondary education, then Howard Bowen (1974) an educational economist estimates that college enrollments, far from leveling off at a steady state, would double. Bowen goes on to make a convincing case that education should not be considered part of the market economy in which supply is predicated on demand. Rather, the supply of education should be determined by public and philanthropic policy. When the society decides it wishes to invest in more education,

it should widen the opportunities through lowering the cost, creating new colleges, and in general stimulating demand. Historically the great growth periods of higher education in this country have been produced, not by market demand, but by public policy that created land-grant institutions, the G.I. Bill, and the community colleges. In the absence of clear public policy, adult education will surely grow, but probably at a modest rather than a spectacular rate.

Ultimately, I think the concept of lifelong learning will be implemented by society. When and to what extent it will involve today's institutions of higher education is hard to say. Many people who talk about the Learning Society think of it as noninstitutionalized education, a la Ivan Illich and his deschooling of society. There is at least some evidence that a noninstitutionalized Learning Society is much closer than we think. Indeed it may already exist.

A group of researchers in Toronto have been studying what they call "highly deliberate efforts" of men and women to learn. They conclude that 98 percent of the population conduct at least one learning project per year. They define a learning project as a series of related episodes adding up to at least seven hours in which the primary intention of the person is to gain and retain certain definite knowledge and skill (Tough, 1971). While less than one percent of the learning projects were undertaken for credit, interviews revealed that the typical adult engages in eight learning projects per year, averaging 90 hours per project. That means that the typical person in today's society spends between 700 and 800 hours per year in "highly deliberate efforts" to learn. Findings showed tremendous variation, of course, all the way from

zero hours to more than 2500. Professors and politicians ran a close race for the most eager learners, whereas mothers and elementary school teachers fell to the bottom of the list. The explanation given for the poor showing of the latter groups was that day-to-day problem solving left little time for new learning. Examples of self-directed projects, from the Toronto interviews were these (Tough 1971, p. 34-35):

A lawyer set out to learn about air crash law after the husband of a client was killed in a plane accident

A woman working for a children's aid society had to learn legal as well as counseling procedures when she was assigned several battered child cases.

An engineer began a learning project when he was asked to design a new sturdy tape recorder for underwater use.

On the more formal side, but still non-credit, are the workshops and institutes that constitute the growing sector known as continuing professional education. The term "mandatory adult education" is used to describe the growing tendency of states to legislate continuing education for certain professions and technical occupations. In California, for example, accountants must accumulate 80 additional hours of education every two years in order to retain their licenses. Professional associations can also require continuing education. The American Academy of Family Physicians requires 50 hours of continuing education each year plus the passing of an examination every seven years for physicians to maintain their specialty. The trend toward mandatory adult education will almost certainly accelerate, and it will call for some rethinking about curriculum and delivery systems on the part of educators.

Today's trends probably tell us something about tomorrow's realities, but historically most trends in higher education have been viewed quantitatively, and the great growth of higher education lies in the past. The future will not be a simple extension of the past in which the major challenge is to offer increasing amounts of education to increasing numbers of people. For hundreds of years, American egalitarians have been able to point to some previously excluded segment of the population that should be included in higher education. Now, for the first time since 1636, American higher education has run out of new constituencies to recruit. Conceptually, although not yet practically, all segments of the population have been considered in the egalitarian thrust that has been responsible for most growth and change in higher education throughout history. It is hardly prophetic to suggest that by the year 2000, higher education will be serving blacks and whites, males and females, old and young, urban and rural, the able and not-so-able. Even the predicted rise in adult enrollments will not constitute significant growth for higher education since it takes four or five part-time students to equal one full-time student. Furthermore, adult students are nowhere near as dependent as traditional students on institutions of education to satisfy all of their learning needs. Thus growth in scope and services is not likely to replace growth in numbers as the challenge of the future. Differences in kind rather than differences of degree will dominate the future. And doing different things is almost always more difficult than doing more of the same thing.

The qualitative change in the relationship between students and campuses is symbolic of a number of changes that have been taking

place. The physical campuses that give many colleges their feelings of distinctiveness have been eroding conceptually for years. From a nationwide perspective, the geographical boundaries that formerly marked the walls of the academic community have expanded and finally disappeared into the broader community. First, there were the intimate, sometimes walled-in, residential campuses of the liberal arts colleges, then came the massive campuses of the land-grant universities, then the outreach campuses of the community colleges, and most recently the "colleges without walls" of the nontraditional movement. Increasingly, it is possible to earn a college degree without entering the ivied halls or even setting foot on a physical entity known as a campus. In the three years between 1972 and 1975, the number of state-based external degrees went from 28 degrees in 14 states to 90 degrees in 27 states (PER Reports, August 2, 1976).

Like it or not, society has been moving in the direction of establishing a much looser relationship between students and their colleges. The trend is evident, not only in physical terms, but also in college social life, in the disappearance of in loco parentis, and in the fact that most students now attend two or even three colleges before graduation, thus weakening still further the bonds between students and colleges.

I have been talking this evening about national trends in higher education, and I have implied that Cornell exists in an environment of societal expectations for education. I have not meant to suggest, however, that Cornell's future lies in slavish conformity to some national trend. As a matter of fact, there are so many "trends" going

on in higher education right now that to predict from one or two would be hazardous and foolhardy. There is, for example, a strong national trend toward increased alternatives and options in higher education for both students and colleges. Although the majority of students no longer live on campus, a given student today, in marked contrast to previous generations, may select a small intimate college, a residential research university, a commuter urban institution, a college without walls, or an external degree via television and computer. Colleges, too, are choosing alternative futures. While Penn State is busy establishing a network of university centers to reach people in more than 250 locations throughout the state, other universities are emphasizing continuing professional education, in which an on-campus residential experience is an important part of the learning. While Empire State concentrates on individualized learning contracts, an equally new and nontraditional institution, the University of Mid-America, is working on the televised delivery of education to a largely rural population. In other words, there are alternative futures for institutions of higher education. Some will make their greatest contribution by aiming for the center where the largest numbers of students are. Others will make their contribution by selecting a particular mission and clientele and serving those needs well.

It seems clear to me that the one imperative in the competitive years ahead is that all forms of education will have to become much more consumer-oriented than they have ever been. Education is no longer a seller's market in which students feel grateful for educational opportunity. Post-secondary education is viewed by students-- and by society -- as a right, not as a privilege. Providing people

with their rights is a new ball game for most of higher education. Far from being a time of no change for institutions, I think the years remaining in this century may be some of higher education's most interesting and most critical.

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