THE FUTURE OF TEACHING AND LEARNING IN COMMUNITY COLLEGES

K. Patricia Cross

Harvard Graduate School of Education

The Dallas Community Colleges are engaged, along with hundreds of other institutions across the nation this year, in a planning process that raises the most basic questions about what colleges should be doing to prepare students for life in the 21st Century.

I don't know what the world will look like in 15 years. No one does, but there are probably more futurists at work today and more interest in reading and thinking about the future than at any previous time in history. John Naisbitt (1982) entitled his book on the future Megatrends to suggest that we live at the confluence of more major changes than any previous generation. Perhaps the one thing that we can predict with some certainty is that the world will continue to change and that education is the best way we know of to prepare people to adapt to change.

Attention to the importance of education to our economic and social well-being skyrocketed to public attention a year or so ago with the release of the report entitled A Nation at Risk. In

- -

Presented to the Dallas Community College District, February 13, 1986.

colorful and endlessly quotable language, it informed the public that, "The educational foundations of our society are presently beeing eroded by a rising tide of mediocrity..." (p.5, 1983). Nationwide, that report kicked off more than three hundred state task forces and blue-ribbon committees to make recommendations for the improvement of education in the fifty states. Higher education has since come forth with its own reports on excellence, and legislators, educators, and the general public are more than busy considering and implementing suggestions for reform.

There is always the hope--within the academy itself, I think--that all of this emotional appeal for action will not go for naught. Personally, I don't regret the attention education is getting these days. I think it has the potential for leading to vastly improved educational experiences for students. And that, we should remember, is the point of all of the hullabaloo--improved learning experiences for students.

Strangely enough, I don't think that "improved learning experiences for students" has been the focus of much of the attention in higher education. In some cases, we have the shoes on the wrong feet. Whereas we should be clamoring for better colleges for students, we seem to be demanding better students for colleges. State reforms that raise admission standards for college entrance, for example, are at their best, calling for improved learning experiences for high school students, but they do not address--indeed they avoid-- the issue of improved education for college students. That is where I want to begin

this morning.

First, we will need to have some notion of what kind of education today's college students need to survive and prosper and make their contribution to the society of the 21st Century. The Year 2000 is only fifteen years away. Today's entering college students will be in their mid-thirties by the turn of the Century, getting ready to assume positions of leadership. What kind of people do we want them to be? What should they know and be able to do? What values should they have? They will be determining the direction for society, and their education is important to us, to them, to the nation, and to the world.

Futurists have not been notably successful in predicting what the world will look like even fifteen years in advance. The steeper the slope of change, the more difficult planning becomes. I don't know, for example, whether Alvin Toffler's "electronic cottage" will be a reality of the 21st Century. If so, education will be so radically changed that I doubt we can see the total impact clearly enough to make reasonable plans. Our task, however, is not to prepare students for life in the electronic cottage, but to prepare them to adapt to a world of change. What students know when they leave college will not be nearly as important as what they are capable of learning.

The explosion of knowledge is so great right now that scientific and technical information doubles every 5 1/2 years. Fortunately, students don't remember much of the content that we work so hard to teach them. If they did, their information about yesterday's world would make them candidates for early

retirement, in favor of new college graduates who had more accurate and up-to-date information.

It has been said that education is what remains after content has been forgotten. One way to approach planning for the future of higher education is to ask, what do we hope remains after content has been forgotten?

If we phrase the question that way, it casts a new light on what we mean when we speak of excellence in education. Does educational excellence mean high scores on achievement tests that measure mastery of subject matter content? Yes, in part. Given the assumption that students need always to stand on the shoulders of generations that preceeded them, we want students to know what we know so that they don't perpetually reinvent the wheel. But education is far more than the transmission of knowledge. Indeed, were we to content ourselves with the transmission of knowledge, we would be moving backward, with each new generation learning only part of what we know. More important, is how our students think about learning. If they graduate from college thinking they have completed their education, then we have failed to educate them. Mortimer Adler (1982, p.11) puts it this way, "Schooling, basic or advanced, that does not prepare the individual for further learning has failed, no matter what else it succeeds in doing."

Increasingly employers are asking for people who can adapt to changes in jobs and procedures, who can interpret trends and analyze problems, on a variety of levels--in the shop as well as at the top. Peters and Waterman, the authors of <u>In Search of</u>

Excellence call it "productivity through people." In the Industrial Revolution, productivity was achieved through putting money into more efficient machinery and plant expansion. The idea was to produce more at less cost. In the post-industrial society, productivity comes from knowledge and people who know how to generate it and use it. A good idea can be worth millions today--so much that Rosabeth Kanter (1983, p.18) says "Idea power is the most important economic stimulus of all."

No wonder that employers, states, and the nation are so interested in an educational system that will result in people who have "idea power." Ideas are far more important to our world than information which has become both plentiful and cheap. "Running out of information is not a problem," says John Naisbitt, "but drowning in it is" (1982, p.24). The well-stuffed mind has lost its value; it has simply been outclassed by the computer.

The abilities that become valuable in our kind of world are the skills of synthesis and application. Those of you familiar with the taxonomy of cognitive skills will recall that synthesis and application are more advanced cognitive skills than recall and comprehension. The age of computers and telecommunications calls for higher levels of congitive development, and institutions of education are going to have to find ways to rise to the new demands.

The demand for higher levels of cognitive development has an analogy in today's perception of physical fitness as a developmental process. Before machines replaced human muscle

power, there was little need for physical fitness programs. People got more than enough exercise on the job. But the purpose of the exercise was to get the work done, not to develop the body or to keep it physically fit. When machinery replaced muscles on the job, people moved to a higher level of physical development. They became free to be more like a human and less like a machine. Instead of the over-developed forearms, for example, of yesterday's steel workers, today's more sedentary workers are likely to exhibit more balanced physical development, engaging in a program of exercise that promotes their human health and well being.

Perhaps the age of the computer will have a similar impact on cognitive development. Instead of performing the low level congitive skills of memory and recall, which are handled better by a computer today, human beings are now free to concentrate on higher level development that includes analysis, synthesis, and the ability to use knowledge.

Following this line of reasoning, I asked myself how educators might go about developing a program of "Learning Fitness" comparable to the physical fitness movement that has so captured public fancy as the Industrial Revolution plays itself out. Let me give some examples of how the concepts behind physical fitness apply equally well to learning fitness.

1. The dissemination of research on physical fitness has been helpful, and the general public proved fairly easy to reach and to teach. Smoking has declined, jogging has increased, knowledge about the cardiovascular system has spread, and many

people know the difference between exercising to develop muscle strength and exercising to develop heart and lung capacity. If learning fitness came to be perceived as important as physical fitness, would not people be eager for more knowledge about how to attain it?

2. Fitness is developmental. It is clearly understood that no one can give people physical fitness--not Nautilus, not Adidas, not Jane Fonda, and not the national and local park and recreation system. People understand that it takes time and requires their own personal investment. Experts can diagnose, prescribe, and offer feedback, but in the final analysis, both physical fitness and learning fitness are qualities that people must attain for themselves. The best we can do is provide the environment, the equipment, and the support system to enable people to develop themselves.

3. We cannot modify the rules of physical fitness to take account of the life circumstances of the aspirant. We can't, for example, suggest that adults invest less time in the process because they have job and family responsibilities--although we can certainly make jogging tracks available, put exercise rooms and swimming pools in hotels, make the hours of Nautilus consistent with adult schedules, deliver inspiration, information, and yes, even images of fellow fitness buffs dancing to the beat of aerobic music on television.

4. We can't make everyone equal in physical fitness. Everyone can improve, and everyone can do something--even if from a wheelchair or in homes for the elderly. But the challenge must be

consistent with the ability and condition of the learner. Today's concept of physical fitness is basically non-competitive. Sure, there are a few super stars who win the Boston Marathon, but for most people the companionship of running together and the feeling that they are doing something good for themselves is enough.

5. Fitness must have some payoff; it has to work. People need the reinforcing feedback of feeling better, looking better, and in general taking pride in their accomplishment. One of the interesting things about physical fitness is that people are willing to wait for long-term results. Joggers do have to see improvement, but it does not need to be today or tomorrow. Indeed, the current advice seems to be that intermittent exercise is better than constant pushing and that muscles need time to recover and time to grow and develop.

6. Fitness is never finished. We cannot participate in a rigorous well-balanced program as young people and hope to remain fit for the rest of our lives. We will all slip out of shape from time to time, but we should learn early in life what being in shape feels like and we should know how to get in shape.

7. Fitness is for amateurs. There is no mystique about it, and experts do not intimidate. Although body builders and marathon athletes may know everything there is to know and do everything there is to do in developing their own expertise, they do not deter the rest of us from knowing what works for us.

8. Fitness does not require large expenditures of money. Wearing the right shoes will surely help, but stylish jogging outfits and fancy equipment are incidental, and lack of funds is

rarely heard as an excuse for doing nothing.

9. Fitness is active. No one ever became fit by watching someone else or listening to descriptions of fitness. People who are models of fitness can inspire; experts can demonstrate exercises and skills; and reading assignments can inform and develop appreciations; but in the final analysis, the only way to develop fitness is to engage actively in the activities that are known or thought to lead to that goal.

If the goal of a good college is to prepare students for a lifetime of active learning, what do we know from research and experience about the processes of teaching and learning and how to improve them?

One of the better applications of research knowledge on teaching and learning in higher education is found in the recent NIE Report on educational reform entitled, Involvement in Learning (Study Group on the Conditions of Excellence in American Higher Education, 1984). The committee of educational researchers who wrote the report conclude that "The quality of undergraduate education could be significantly improved if American colleges and universities would apply existing knowledge about three critical conditions of excellence--(1) student involvement, (2) high expectations, and (3) assessment and feedback"(p.17).

They define student involvement as the amount of "time, energy and effort students devote to the learning process" (p.17). It doesn't take research to convince any teacher that involvement in learning is critical; our own learning experiences and those of our students offer ample testimony. But the

two fundamental principles derived from research by the authors of the NIE Report bear highlighting:

1. The amount of student learning and personal development associated with any educational program is directly proportional to the quality and quantity of student involvement in that program, and,

2. The effectiveness of any educational policy or practice is directly related to the capacity of the policy or practice to improve student involvement in learning (Study Group, 1984, p.19).

Those two principles reflect some twenty years of research on college students, much of it distilled in Sandy Astin's (1985) new book, Achieving Educational Excellence. His contention, adopted by the NIE panel, is that students who are involved in almost anything on the campus, are more likely to learn and less likely to drop out than students who remain on the periphery. Students who live on campus are significantly more likely to graduate than commuters. This positive effect occurs in all types of institutions and among all types of students regardless of race, gender, ability, or family background. Holding a part-time job on campus, participating in athletics, student government, honors programs and almost anything else that brings the student into closer contact with faculty and fellow students seems to result in a closer identification with the college with the attendant positive effects on student retention.

The problem for community colleges is that it is extra-ordinarily difficult to get commuting students involved in the

life of the college. Because residential living and student activities are not significant aspects of the community college environment, the burden of involving students falls heavily on classroom teachers. Research suggests that community college teachers are rising to meet this demand; they more likely to strive for student involvement in the classroom than are teachers at the 4-year college level (Wilson, et al., 1975). And they are somewhat less likely than their counterparts in 4-year colleges to make the unwarranted assumption that students are learning when teachers are talking.

There is also some evidence in the research of the past several decades to suggest that community college teachers are more concerned about individual differences, more student-oriented, and more likely to provide feedback on performance than are faculty in 4-year institutions (Wilson, et al., 1975). Thus community college teachers score reasonably well on two of the three major recommendations of the NIE report; they do strive for active student involvement, and they do appear somewhat more likely to check on student progress and to provide feedback on performance.

Where community college teachers seem to fall short is in holding high expectations for their students. Dick Richardson (1983, p.79) concluded from his research on community college instruction that "the response of [community college] faculty members to the perceived low literacy skills of their students was to reduce demands rather than to require students to improve skills."

No one can escape the growing movement now among community colleges to raise expectations and to demand performance. So far, there is every indication in the evaluations that are being conducted that students will rise to meet the new demands (McCabe, n.d.). This suggests that we do students and the profession of education a disservice when we assume that students admitted to college under liberal open-admissions policies are either unable or unwilling to meet demands for high-level performance.

Good teaching exists in a variety of forms, and nowhere is teaching more challenging and more difficult than in community colleges, with their exceptionally wide range of student activities.

Joseph Axelrod wrote a book in 1976 that bears re-reading. It is entitled The University Teacher as Artist, and is based on the observation of hundreds of humanities teachers at work in their classrooms and on interviews with more than sixty faculty members regarding their views on teaching. Although his research involved humanities teachers in 4-year institutions, there is every reason to think that we would find the same types of teachers at community colleges and across a wide spectrum of teaching fields.

Let me describe briefly the four prototypes of evocative teachers that Axelrod identified through his research.

Although Axelrod's prototypes all happen to be men, I'll modify the descriptions a little bit to make them more realistic by including some women teachers in the

prototypes. Professor A emphasizes the mastery of subject matter. His task, as he sees, it is to cover the materials of his discipline in a systematic way in order to help his students master those materials. He prefers "an emotion-free atmosphere" in his classroom, and he maintains a cool and rational approach. He conceives of knowledge as a product rather than a process--i.e. knowledge is something that people have, rather than an on-going activity of the mind. Student growth, to Professor A, is demonstrated by movement from ignorance to knowledge (p.18,19).

Professor B, like Professor A, is instructor-centered in that she emphasizes the primary role of the teacher as authority and model. But Professor B believes that her major task is to provide students with a model of the educated mind. It is not really subject matter that is at the center of class activity, but rather the demonstration of a well-educated person at work (p.25). Professor B is one of the best known and most colorful figures on campus. She makes no effort to cover the subject matter systematically; her task, as she sees it, is to demonstrate how to handle her discipline. She conceives of knowledge as process rather than product, and classtime is spent demonstrating "not a set of static products, but an ever-changing, ever-alive activity" (p.26).

The other two prototypes identified by Axelrod are student-centered, not so much because they emphasize the discussion method of teaching, as because they see the student as the central focus of the classroom activity. Professor C places

major emphasis on the development of the mind, whereas Professor D is convinced that intellectual development cannot be split from other aspects of student development. Whereas Professor C concentrates on developing the higher level cognitive skills, such as analysis and the use of reason, language, and problem-solving, Professor D emphasizes wholeness and believes that faulty members should work with others in the college environment to effect the development of the whole person.

Mottos can be devised for each of the research prototypes. For Professor A, who emphasizes principles and facts, the motto is "I teach what I know." For Professor B, modeling the educated person, the motto is "I teach what I am." The motto for the student-as-mind prototype, is "I develop minds," and for the professor interested in intellectual, emotional, aesthetic, and other aspects of the whole person, the motto is "I develop people."

I could ask you which professor you identify with. I could ask which constitutes excellence in the classroom, and I suspect that all four prototypes would appear in your answers. Research suggests that community college teachers are more likely to be student-centered than instructor-centered, and they are more likely than 4-year college faculty to emphasize personal development over subject-matter mastery (Wilson, et al., 1975). But it seems clear from Axelford's descriptions and interviews that all four of these prototype teachers are <u>involved</u> in teaching. They are all considered good teachers. To some extent, they all involve students in learning. One could easily

make the case that we are fortunate to have such diversity in teaching styles on our campuses. But their presence certainly complicates definitions of excellence, and it causes all kinds of problems for advocates of measuring student outcomes. These four prototype teachers have four rather different outcomes in mind for their students. Mastery of subject matter is the easiest to measure and perhaps the narrowest of the teaching goals. It is, I believe, what most people think of when they talk about educational excellence, and many legislators and quite a few educators would be satisfied if students knew their subject matter. The massive movement toward statewide achievement testing is testimony to the prevalence of what I perceive to be at best an incomplete definition of excellence, given the type of world I expect to be living in, with its rapid obsolescence of information and its high demand for creative application and lifelong learning. Some contend that measuring student mastery of subject matter is at least a step in the right direction. I must admit that it does call attention to the need for raised expectations for student performance, and it does provide feedback to the educational community on how well we are accomplishing one small piece of our task. But improved performance on achievement tests should not be permitted to substitute for educational excellence. As Alfred North Whitehead remarked more than half a century ago, "A merely well-informed man is the most useless bore on God's earth" (1929).

There are some subjects, however, where mastery of subject matter content is clearly the goal. I used to be a math teacher,

and I know that it is impossible to build toward anything that might be considered the enlightened or self-propelled learner without first teaching the basic skills. Benjamin Bloom (1984) and his colleagues at the University of Chicago have presented persuasive evidence that we do know how to improve teaching for subject mastter mastery. Bloom compared three methods of teaching-- tutoring of two or three students at a time, mastery learning with thirty students per teacher, and conventional classroom teaching with a ratio of thirty students to one teacher. He found that the average tutored student out-performed 98% of the students in the conventional classroom and that the average mastery learning student out-performed 84% of the students in the control classes.

The idea of tutorials is liked by most academics, but is considered far too expensive for massive implementation. But mastery learning is both efficient and effective <u>when the goal is to master subject matter content</u> (See Cross, 1976), and the ideas behind both tutoring and mastery learning, are those articulated in the NIE report. They are to increase student involvement, to expect and require high levels of performance, and to provide assessment and corrective feedback.

These major criteria for improving subject matter mastery can be incorporated into a variety of instructional methods, but the Personalized System of Instruction (PSI) is the trade name of an instructional method designed to maximize student involvement, provide corrective feedback, and operationalize demand to meet pre-determined standards.

Ten years ago, I wrote a book entitled, Accent on Learning (1976), which included my review of the appropriateness of mastery learning and PSI for community colleges. The method, which was just being introduced in higher education, seemed to me to hold special promise for college teachers struggling to teach basic skills to New Students (Cross, 1971), shockingly underpreprepared for college-level work. Thus, I am delighted to find that the evaluations of PSI over the past ten years have produced a steady stream of positive findings. James Kulik (1982) of the University of Michigan, recently made a careful study of research comparing PSI with conventional classroom lectures. He reported that 80% of the studies found PSI significantly better than control classes when it comes to student achievement. And in a meta-analysis of 75 of the best studies, he found that PSI boosted average student achievement on final examinations from the 50th to the 70th percentile. That is a very impressive finding. Of special interest to developmental studies teachers in his finding that PSI seems to be as effective for low-aptitude as for high-aptitude students, and student ratings of the value of the courses were nearly always higher for PSI.

We have made considerable progress in our understanding of how to teach the basic skills. That is not all that we should expect of a college education, but it is something. And it is cause for celebration that when classroom teachers, researchers, and evaluators work together on defining and addressing a problem, we can demonstrate progress.

I entitled these remarks today "The Future of Teaching and

Learning in Community Colleges." I think that future varies from promising to extremely promising. It is promising because the evidence is strong that most community college faculty want to be teaching in so-called "teaching institutions." In the recent study by the Carnegie Foundation, 92% of the community college faculty polled considered themselves primarily teachers, and 88% think teaching should be the primary criterion for promotion. Not surprisingly, community college faculty were more likely than any other group of faculty polled to say that teaching would be easier if entering students were better prepared. But 75% of the faculty of the most selective research universities in the nation say the same thing about their students. I confess that I think teaching graduate students at Harvard would be easier if they were better prepared.

If the current drives for excellence in education accomplish what we all hope they will accomplish in elementary schools and high schools, then community college teachers can look forward to better students in the future. However, those reforms won't really address the question of what higher education should be doing to add value to the students' education. For that we need more knowledge about the teaching-learning process.

Given its importance to the social and economic progress of the nation, research on teaching and learning has made what can only be called a pitiful contribution to knowledge so far. University professors are fairly comfortable studying cognitive development and even learning, but very few study college-level teaching. One can only speculate on why teaching receives so

little attention from university researchers. Is it threatening? Is it just too difficult? Is it not quite academically respectable to study teaching? Although I have puzzled over the question, I fail to come up with any very satisfactory explanation for the massive avoidance of research on college teaching.

In any event, it seems to leave this field of research wide open for community college teachers, who are probably better situated than anyone else to observe the impact of teaching on learning.

Let me tell you why that is so. In the first place, students who do not learn easily offer a richer resource for study than facile learners who are generally less dependent on teaching skills. Secondly, I suspect that the methods for studying teaching may not be compatible with the currently prestigeful quantitative measures that are favored by university researchers. The study of the teaching-learning process may call for more intimate involvement in teaching with its hunches, close observations of student reactions, and trial and error experimentation. Finally, because community colleges are "teaching institutions" there is more attention on the part of the faculty to teaching, generally more knowledge about it and more sharing of information and observations. In short, the environment of the community college is quite condusive to the study of teaching.

Next month at the Annual Meeting of the American Association for Higher Education, I am going to propose the development of a new breed of college teacher that I call a Classroom Researcher.

A Classroom Researcher is one who uses the classroom as a laboratory for the study of teaching and learning. Although most good teachers are constantly observing student responses, diagnosing special problems, and experimenting with various teaching approaches, there is no formal methodology for systematic classroom research and no common language for sharing findings.

I believe that we will make more progress toward our goal of excellence in higher education if we encourage 1000 classroom researchers to bloom in the classrooms of community colleges and other teaching institutions across the nation.

Graduate schools, for their part, might train potential college teachers in the research methods appropriate for classroom researchers, and they should provide field experience in teaching where students have the opportunity to apply their research methodologies in the classroom. But I do not think university research has been very fruitful in helping practitioners teach more effectively, and I think it is time to turn to the talents of community college teachers who are closer to students and to learning problems.

I think there could be no better conclusion to these remarks on the "Future of Teaching and Learning in Community Colleges"

than to say the future is pretty much in your hands. Community college faculty members have much to contribute to the improvement of college teaching through research as well as practice.

1/24/86

REFERENCES

Adler, Mortimer S. The Paideia Proposal. New York: Macmillan, 1982.

Astin, Alexander. Achieving Educational Excellence. San Francisco: Jossey-Bass, 1985.

Axelrod, Joseph. The University Teacher as Artist. San Francisco: Jossey-Bass, 1976.

Bloom, Benjamin S. "The Search for Methods of Group Instruction as Effective One-to-One Tutoring." Educational Leadership, May 1984.

Cross, K. Patricia. Beyond the Open Door: New Students to Higher Education. San Francisco: Jossey-Bass, 1971.

Cross, K. Patricia. Accent on Learning. San Francisco: Jossey-Bass, 1976.

Kanter, Rosabeth. The Change Masters. New York:Simon and Schuster, 1983.

Kulik, J.A. "Individualized Systems of Instruction." In H.E.Mitzel (Ed.), The Encyclopedia of Educational Research. New York: Macmillan, 1982.

McCabe, Robert H. A Status Report on the Comprehensive Educational Reform of Miami-Dade Community College." (n.d.).

Naisbitt, John. Megatrends. New York: Warner Books, 1982.

A Nation at Risk. National Commission on Excellence in Education. Washington, D.C.: U.S.Department of Education, 1983.

Peters, Thomas J. and Waterman, Robert H. Jr. In Search of Excellence. New York: Harper and Row, 1982.

Richardson, Richard C. Jr. and Associates. Literacy in the Open-Access College. San Francisco: Jossey-Bass, 1983.

Study Group on the Conditions of Excellence in American Higher Education. Involvement in Learning. Washington, D.C.:

Whitehead, Alfred North. The Aim of Education and Other Essays. New York: Macmillan, 1929.

Wilson, R.C. and others. College Professors and Their Impact on Students. New York: John Wiley, 1975.