DOCUMENT RESUME

ED 414 981 JC 980 056

AUTHOR	Cross, K. Patricia
TITLE	Developing Professional Fitness through Classroom Assessment and Classroom Research. The Cross Papers, Number 1.
INSTITUTION	League for Innovation in the Community Coll.
PUB DATE	1997-09-00
NOTE	38p.
PUB TYPE	Reports - Evaluative (142)
EDRS PRICE	MF01/PC02 Plus Postage.
DESCRIPTORS	Class Activities; *Classroom Research; Classroom Techniques; Community Colleges; Course Evaluation; *Educational Assessment; Educational Change; Educational Innovation; *Faculty Development; Instructional Effectiveness; Learning Theories; Research Methodology; Research Skills; Student Centered Curriculum; *Student Research; Student Role; Teacher Competencies; Teacher Role; Teaching Methods; *Two Year College Students; Two Year Colleges

ABSTRACT

Classroom assessment and research are effective means of professional development for community college faculty. Assessment tests engage students in monitoring and evaluating their own learning, and encourage teachers to reflect on their classes from a learning perspective. Classroom research is learner-centered, teacher-directed, collaborative, practical, context specific, scholarly, and continuous. It builds upon the skills and knowledge gained in classroom assessment, and is the next step in helping teachers understand the impact of their teaching. To develop professionally, community college faculty need clear goals, concrete suggestions for attaining the goals, high motivation, active involvement, prompt assessment and feedback, and appropriate rewards. Classroom assessment and research fit these conditions, fostering professional fitness and uniting professional competence with a commitment to learning. (Contains 22 references.) (YKH)

Developing Professional Fitness Through Classroom Assessment and Classroom Research

K. Patricia Cross

ALLIANCE FOR COMMUNITY COLLEGE INNOVATION

The Cross Papers
Number 1

League for Innovation in the Community College
Educational Testing Service

Developing Professional Fitness Through Classroom Assessment and Classroom Research

K. Patricia Cross

The Cross Papers
Number 1

September 1997

Acknowledgment

The Educational Testing Service (ETS) has been a key partner in League projects and activities for over a decade. We are indebted to ETS for its generous contributions to the preparation and publication of this first paper in an annual series the League will produce as "The Cross Papers." With support from ETS, this first paper will be distributed to thousands of community college leaders around the world.

Foreword

On September 1, 1996, the Board of Directors of the League for Innovation in the Community College appointed K. Patricia Cross a Senior League Fellow. The purpose of the Senior League Fellow's program is to provide opportunities for key national figures to continue to provide leadership for community colleges following their retirement.

Dr. K. Patricia Cross is internationally recognized as one of the most eminent higher education scholars of our time as indicated in the brief summary of her contributions on page 33, Dr. Cross has been a long-time friend of the League for Innovation, having keynoted a number of its national conferences and having participated as a consultant to a number of our projects. Now as a Senior League Fellow, Dr. Cross will continue to bring her keen insights and extraordinary analytical skills to bear on issues confronting community colleges. Through the series the League has titled "The Cross Papers," Dr. Cross will prepare an annual paper on a key innovation in the community college. The paper will be distributed internationally as a benefit of membership to the 500-plus members of the League's Alliance for Community College Innovation and to other key leaders in the United States and Canada.

For her first paper Dr. Cross examines Classroom Assessment and Classroom Research (CA/CR), innovations that have continued to spread rapidly throughout community colleges since she first introduced the idea in a seminal speech made during the annual convention of the American Association for Higher Education in March of 1986 titled, "Taking Teaching Seriously." In that speech she said, "I can think of no action that would do quite as much for the improvement of teaching and learning as to let a thousand classroom laboratories bloom across the nation. Their purpose would be to discover more effective teaching methods for the classroom researchers themselves, and to establish a foundation of knowledge about college teaching that maximizes learning."

Since that speech she has been deeply engaged in spreading the good news about CA/CR through two key books, numerous articles, and dozens of addresses to colleges and associations on the topic. As a result of her work and that of her colleague, Thomas Angelo of the University of Miami, CA/CR has become deeply embedded in the culture of community colleges and other institutions of higher education as well as one of the most significant innovations of the last decade.

In this current paper, *Developing Professional Fitness Through Classroom Assessment and Classroom Research*, Dr. Cross reviews the basic characteristics of CA/CR and makes a strong case for its application in community college classrooms as an innovative breakthrough in reform efforts, professional development, and increased learning for students. The vision she holds regarding improved teaching and learning as a result of CA/CR and her ability to explain this concept in a simple but creative metaphor makes this paper a key contribution to the literature in higher education.

The League for Innovation in the Community College is honored to present this exceptional paper to our friends and colleagues around the world.

Terry O'Banion
President and CEO
League for Innovation in the Community College

DEVELOPING PROFESSIONAL FITNESS THROUGH CLASSROOM ASSESSMENT AND CLASSROOM RESEARCH

K. Patricia Cross
Senior League Fellow and
Professor of Higher Education, Emerita
University of California, Berkeley

What if the educational institutions of this nation were to generate the same enthusiasm for professional fitness that have been generated for physical fitness over the past twenty years or so? In many ways, we have started down that path, and it is not too far-fetched to draw some metaphorical parallels between the efforts to promote physical fitness and those to develop educational fitness.

Those promoting the physical health of citizens have been telling the American public for several decades now that we are getting soft and flabby, that research shows that we will live longer, feel better, and look better if we follow a sensible regimen of proper diet and exercise. Newspapers, magazines, radio, and television are supplying a steady stream of information about diet and physical fitness. Gyms, exercise machines, nutrition, and diet books are attracting loyal practitioners of the art and science of physical fitness. Indeed, the pursuit of physical fitness has spawned entire new industries and created new careers. Personal trainers, with impressive credentials, design programs for their famous and not-so-famous clients, continuously assess the results, and consult on all manner of real or perceived "problem spots." The manufacture of athletic shoes has become a big and highly competitive industry, with specialized shoes for every conceivable purpose–walking, running, aerobics, tennis, basketball, bicycling; the all-purpose sneaker of a few decades ago has practically disappeared.

It is not hard to draw the parallels to the growing interest in professional fitness. For more than a decade now, critics have been telling educational institutions that we are soft and overweight,

and that we need to develop more academic muscle. Legislatures in most states have placed education on a strict diet, insisting that education budgets have grown fat and flabby, and that healthy growth cannot be sustained in structures that are so out of shape. New careers and industries have appeared.Consultants and staff development specialists have built careers around helping teachers improve their teaching. And there is now a substantial publishing and workshop "industry" presenting books and workshops on a bewildering array of specialized topics–critical thinking, writing across the curriculum, collaborative learning, classroom assessment and classroom research, learning communities, and any number of subtopics under the general heading of technology. The all-purpose "teaching improvement seminar" has given way to dozens of special-purpose workshops.

The high interest in both physical and professional fitness has been fueled by impressive advances in research and assessment. The health of the nation is monitored continuously. Weight gains, smoking, exercise practices, and public attitudes toward health are reported regularly in the media, and the "norms" established for various age groups enable individuals to compare their health goals and practices with those of their fellow citizens. Similarly, there is a steady stream of reports from federal and state offices monitoring student learning. Since the National Education Goals were established in 1990, indicators have been devised and annual reports issued to report educational progress. The National Assessment of Educational Progress (NAEP) monitors the performance of students aged 9, 13, and 17 in science, mathematics, and reading, and issues an annual report card to let states and communities know how they are doing. An impressive variety of measures have been devised to assess progress for each of the seven national goals.[1]

Assumptions about Fitness

There are some heavy assumptions underlying these parallel

[1] For example, participation rates in Advanced Placement Tests, voter registration, science degrees awarded, participation in adult education, use of drugs, rates of prenatal care, use of calculators in the classroom, use of alcohol, etc.

efforts to get the nation "in shape." Briefly, the assumptions are these: That the goals are clear, that practical suggestions exist for attaining the goals, that people are motivated and willing to get actively involved, that prompt and accurate feedback on progress is available, and that appropriate rewards are forthcoming. Let us look briefly at the validity of the assumptions with respect to professional fitness.

The ultimate goal for all education is to improve student learning. Early on, community colleges took pride in their identity as "teaching colleges"–and earlier yet as "peoples' colleges"–emphasizing their two distinctive differences from traditional colleges–open and welcome access, and teaching as the singular mission of faculty members. Today, community college leaders are promoting the concept of "learning colleges," pointing to the need to put student learning front and center on the educational stage. Student learning then is both the goal and the criterion for the success of learning colleges (Barr and Tagg, 1995; Boggs, 1995-96; O'Banion, 1997).

The other assumptions mentioned above flow naturally from acceptance of student learning as the goal and criterion of educational quality. There is a concerted effort from a variety of sources to set forth practical suggestions for the improvement of student learning. A sample of book titles from a recent brochure from Jossey-Bass Publishers indicates the trend toward the practical–*Tools for Teaching, Improving the Environment for Teaching, Teaching in Practice, Mastering the Techniques of Teaching*. The assumption, presumably verified by sales, is that teachers are motivated and eager for practical suggestions about what to do to improve student learning. Workshops are plentiful, are well attended, and are mostly of the "how to do it" type.

Researchers and their sponsors have never worked harder at making their findings known and useful to practitioners. Condensed lists of suggestions for improving learning abound. The best known, and certainly the most widely distributed list, is the Seven Principles for Good Practice for Undergraduate Education (Chickering and Gamson, 1987) which represents a compilation of 50 years of research on college students and is

intended as a set of guidelines for improving teaching and learning. The seven principles briefly stated, as they usually are, remind us that good practice (1) encourages student-faculty contact, (2) encourages cooperation among students, (3) encouragesactive learning, (4) gives prompt feedback, (5) emphasizes time on task, (6) communicates high expectations, and (7) respects diverse talents and ways of learning.

Just prior to the Seven Principles for Good Practice, there were the "three critical conditions for excellence" identified in the report entitled, *Involvement in Learning* (Study Group on the Conditions of Excellence in American Higher Education, 1984). The group of educational researchers who put together that report assured us that, "the quality of undergraduate education could be significantly improved if America's colleges and universities would apply existing knowledge about three critical conditions of excellence–(l) student involvement, (2) high expectations, and (3) frequent assessment and feedback" (p. 17). Then there are the Five Student Learning Imperatives, describing what student affairs specialists should do to enhance the college experience (American College Personnel Association, 1993), and the Five Myths, that are not to be believed, (Terenzini, 1994) condensed from Pascarella and Terenzini's compendium of several thousand research studies (Pascarella and Terenzini, 1991), and a few others that are less well known. Certainly, there is no lack of authoritative information about the findings of research to improve learning. The health professions and the education professions seem equally obsessed with getting research information, in useful form, to the people who can apply it to improve both health and learning. Once the knowledge is available and widely disseminated, improvement depends on motivation.

The parallels between motivation for physical fitness and motivation for professional fitness are striking. We all know physical fitness buffs who have a disciplined schedule of activities, read specialized magazines on walking or running or body building, and who talk, sometimes endlessly, about aerobic heart rates or building "abs." Similarly, we all know faculty who are eager practitioners of the art and science of learning, who attend

workshops and read books and talk with colleagues near and far to pick up new pointers. The number of teachers who exchange "tips" and deeper philosophical thoughts about teaching and learning on the Internet through chat rooms and specialized lists is growing.

Most of us know a second group of people in both the physical fitness and professional fitness worlds who generate a great burst of enthusiasm for self-improvement, set up a determined schedule, attend workshops, buy books and equipment, and then in a relatively short period of time, lapse into their old habits with a moderately guilty feeling that they really should be doing something to improve their "fitness." Exercise machines are consigned to the garage or under the bed, and videos and books on teaching gather dust on the shelves.

And finally, all of us know a third set of people who, if not oblivious to the changes taking place around them, are at least not interested and impervious to any and all attempts to involve them in the latest "fad." Some may be quite obviously out of shape, have been disillusioned by their previous efforts, and have settled for less than optimal performance. Occasionally, an unmotivated person is frightened into a program of self-improvement by a heart attack or the doctor's warning–or by students' low ratings or the dean's suggestion.

The point is that motivation comes in a variety of forms: high and low, spurts and continuous, intrinsic, extrinsic, and coerced. While almost all faculty (99.2 percent), in research universities as well as in community colleges, say that being a good teacher is "essential" or "very important" to them, (Higher Education Research Institute, 1996), that may be a bit like all of us agreeing that our own good health is important to us. Not all of us, however, are doing all we can to assure the long-range goal of good health or good teaching.

The fourth assumption required to get the nation in shape physically and educationally is that assessment and feedback on performance must be prompt and useful. Just as the medical ssion has spent millions devising indicators of physical

fitness, so educators are just beginning to devise indicators of student learning. Some are measures that people can get for themselves–weight and blood pressure for physical fitness, test scores and student ratings of instruction for educational fitness. Increasingly, indicators that were once thought to be the province of trained experts–blood glucose level, for instance–are being made available in kits for self-assessment. I will argue in this paper that kits for self-assessment of teaching effectiveness are just as important as assessments performed by "experts" in educational measurement.

Finally, there is the assumption that good teaching is appropriately rewarded. Most faculty do not believe that it is. A 1995-96 survey of nearly 34,000 faculty members across all kinds of institutions showed that only 12.5 percent felt that faculty at their institution were rewarded for good teaching (*Chronicle of Higher Education*, September 13, 1996, p. A15). That is changing. There is a great deal of effort going into finding better ways to encourage and reward effective teaching at all levels, from grade school through graduate school. The highly influential Carnegie report entitled, *Scholarship Reconsidered*, declared that teaching is a form of scholarship that must be properly rewarded if higher education is to fulfill its fundamental purpose of educating undergraduates (Boyer, 1990). The American Association for Higher Education (AAHE) has established a national Forum on Faculty Roles and Rewards–a program that sponsors an annual national conference, issues publications, and serves as a general clearinghouse about changing reward structures (Rice, 1996).

To realign faculty rewards more clearly with institutional missions of student learning, most reformers are asking the question, How can we better reward good teaching? A question of equal importance is, How can we make teaching more rewarding? The first question concentrates on extrinsic rewards–e.g., promotion, tenure, "teacher of the year" awards; the second on intrinsic rewards–the satisfactions and pleasures of helping students learn. To date, there has been far more attention given to extrinsic rewards than to intrinsic. If teaching is to become a valued profession, it must be intrinsically rewarding as well as nsically rewarded.

It appears that community colleges are well on the way to becoming learning colleges. But progress will depend on fulfilling some of the same assumptions that apply to physical fitness. If community college faculties are to attain professional fitness, they need clear goals, concrete suggestions for attaining the goals, high motivation, active involvement, prompt assessment and feedback, and appropriate rewards. In the section that follows, I shall attempt to show how Classroom Assessment (CA) and Classroom Research (CR) supply these conditions for effective professional fitness.

Classroom Assessment

Classroom Assessment was introduced in the late 1980s just as institutional assessment was attaining high visibility (Cross, 1986; Cross and Angelo, 1988). It is based on the fundamental premise that classroom teachers need a continuing flow of accurate information about what students are learning and how they are responding to the teacher's efforts to teach them. Classroom Assessment is practiced through the use of Classroom Assessment Techniques (CATs) that can be used by any teacher of any discipline to assess students' learning during the semester while there is still time to make changes.

An example of a CAT will illustrate the concept of CA. Classroom Assessment's most famous CAT is the Minute Paper. It works like this: Shortly before the end of a selected class period, the instructor asks students to write brief answers to these two questions: (1) What is the most important thing that you learned in class today? and (2) What is the main, unanswered question you leave class with today? (Angelo and Cross, 1993, p. 148-153).

Like most CATs, the Minute Paper is a teaching tool as well as an assessment device. It requires students to stop and think about what they have learned, to synthesize and articulate an important piece of learning, to express themselves in writing, and to think actively about what they did not understand. In short, it engages students in monitoring and evaluating their own learning. The Minute Paper also engages the teacher in reflecting on the class from a learning perspective. Responses to the Minute Paper are

usually quite varied and often a surprise to the teacher, providing more complete and accurate information than can be gleaned from the traditional "body language" that many teachers use to decipher learning. A community college teacher in Steadman's research (1994, p. 130) wrote on her questionnaire that CATs allowed her to "assess students from their perspective rather than from the teacher's assumptions." And community college teachers interviewed by Steadman commented that many of their students would not volunteer their concerns about learning unless they were specifically invited to do so in a nonthreatening fashion. This was especially true for students from cultures where teachers are accorded considerable respect.

There are many reasons for monitoring learning in the classroom while learning is in progress. But as teachers become more aware of how students are responding to the class, they want to know more about the learning process. For that we need Classroom Research (CR).

Classroom Research

Classroom Research builds upon the skills and knowledge gained in the practice of CA and is a "next step" in helping teachers to understand learning and the impact of their teaching upon it. Whereas Classroom Assessment involves a search for answers to well-defined questions about what is happening during a given class session, Classroom Research involves an investigation into the broader processes of learning. Classroom Assessment, for instance, seeks answers to questions such as, "Did students learn what I was trying to teach today?" or "How did students respond to the small group sessions that we tried today?" Classroom Research, however, might ask how students develop critical thinking skills or what role self-esteem plays in motivation or how collaborative learning affects student involvement in learning. While traditional educational researchers also study these learning issues, it is important to distinguish between CR and traditional educational research. The questions for CR always arise out of the teacher's experience in the classroom, and the motivation for doing the research comes from curiosity about how the students in classroom approach learning.

Classroom Research has the following characteristics, most of which are shared by CA (Cross and Steadman, 1996).

• *CR is Learner Centered.* It focuses primary attention of teachers and students on observing and improving *learning*, rather than on observing and improving teaching. Most faculty development programs concentrate on improving teaching skills, but as the new emphasis on learning reminds us, the ultimate test of teaching skills lies, not always in what is taught, but rather in what is learned. Through systematic and careful study of learning as it takes place day-by-day in the classroom, teachers are gaining insight and understanding into how to make their teaching more effective, and students are gaining the lifelong skills of assessing and improving their learning.

• *CR is Teacher Directed.* It is dedicated to the proposition that college teachers are quite capable of conducting useful and valid research on classroom learning in their own disciplines. While Classroom Research does not obviate the need for technically trained educational researchers, it does change the focus from teachers as consumers of research toteachers as active investigators, engaged in studies of learning in their own disciplines.

• *CR is Collaborative.* It requires the active engagement of students and teachers. In most circumstances, students become partners in the research and share in the analysis and interpretation of the results. Unlike traditional research in which teachers and students serve as "subjects" of the research, Classroom Research is "owned by" the teacher and students of a particular classroom. Classroom Research is also enriched by discussion and collaboration with teaching colleagues. Since the purpose of Classroom Research is to deepen understandings about how people learn, it benefits from full discussion and participation by all who have something to learn and something to contribute.

• *CR is Practical/Relevant.* The questions selected for investigation are practical questions that the teacher faces in teaching the . The primary purpose of Classroom Research is not to

advance knowledge in general or to publish findings, but rather to deepen personal understandings. While Classroom Research projects may be related to theory and topics in the literature, and may be published or otherwise shared with colleagues, the measure of the quality of the project is its contribution to the knowledge and use of the teacher and students *in that classroom.*

• ***CR is Context Specific.*** It is conducted to shed light on the specific questions of an identified classroom. It involves the teaching of a particular discipline to a known group of students. While the results may be generalizable to other populations and other disciplines, Classroom Research does not require technical research skills such as sampling design and tests of statistical significance.

• ***CR is Scholarly and Professional.*** It is intellectually rewarding and professionally responsible. It builds upon the knowledge base of research on teaching and learning. Classroom Research is specifically designed to promote the teaching interests of community college faculty in a manner that recognizes teaching as a scholarly activity that is *enriched by* (not replaced by) practical research on learning.

• ***CR is Continuous.*** Frequently, a Classroom Research project will raise new questions, leading to a cascading of investigations, with new projects emerging from past studies. Classroom Research is also continuous in the sense that changes suggested by the research are treated as experiments requiring continuous evaluation and modification. Classroom Research is more a process than a product; its purpose is more to gain an understanding of learning than to complete a project and report the "findings."

Fulfilling the Conditions for Professional Fitness

In the introduction to this paper, I set forth five conditions that underlie the nation's efforts to develop physical and educational fitness. I would like now to explore the degree of "fit" between CA and CR and the conditions that are necessary for the professional development of community college faculty as scholarly teachers,

able to apply their knowledge of learning to the improvement of their teaching.

1. The Goals Must Be Clear

When community colleges had their most vigorous growth in the late 1960s and early 1970s, access was the priority goal for community colleges. Community colleges were considered to be accomplishing their mission to the extent that they recruited and enrolled large numbers of diverse student populations from the local area. But the tide has turned; access is not enough. "A college," Barr and Tagg (1995, p. 13) state bluntly, "is an institution that exists *to produce learning*." Today, many colleges have learning goals written into their mission statements. The big change is that colleges are now expected to demonstrate through assessment that they are accomplishing their avowed goal of "producing learning."

While the learning of college students is by no means limited to classroom experiences (Pascarella and Terenzini, 1991), classrooms present the major opportunities for learning in community colleges. Astin (1985, p. 133) concludes, from years of research on the impact of college on student learning, that "Students learn by becoming involved." In emphasizing the importance of active involvement, Astin refers to involvement with the people and activities of the college, wherever that may occur–in classrooms, residence halls, campus clubs and activities, and so forth. But the opportunities for involvement in the life of the campus is minimal for the part-time, working adult students that make up so much of the student population in community colleges. For these students, the classroom is *the* place for involvement with peers and teachers. Thus, it is especially important that community college teachers have a working and practical knowledge of the learning process and how it occurs, or fails to, in their classrooms. It is also important to help students assume responsibility for their learning by involving them actively in the study of their own learning through CA/CR.

Since the first rule of developing fitness involves knowing what one is trying to accomplish, the identification of goals is important. ind out what teachers want their students to learn, my

colleagues and I constructed a Teaching Goals Inventory (TGI) and administered it to 2,800 community college faculty members in 15 community colleges (Angelo and Cross, 1993). We found that teaching priorities were more strongly related to the subject matter taught than to any other factor, including full-time vs. part-time teaching assignment, gender, or years of teaching experience.

The last item of the TGI asks teachers which of the following six functions they consider their *primary* role as teachers: 1) teaching students facts and principles of the subject matter; 2) providing a role model for students; 3) helping students develop higher-order thinking skills; 4) preparing students for jobs/careers; 5) fostering student development and personal growth; or 6) helping students develop basic learning skills. Although one or another of these goals may appear to the reader to be the "obvious" priority, responses were spread rather evenly across the options. Twenty-seven percent of the respondents said that they considered "teaching the facts and principles of the subject matter" their primary role as a teacher, but science and math teachers were far more likely to give this response than humanities and social science teachers. The goal of "helping students to develop higher-order learning skills was rated the top priority by 26 percent of the faculty, but it was rated first by far more English and social studies teachers than math and basic skills teachers. Preparing students for jobs and careers was the top priority of 21 percent of the community college faculty, but as would be expected, it was especially important to teachers in business and allied health (Angelo and Cross, 1993, p. 402).

The point is that what teachers want students to learn in their classrooms depends heavily on the subject matter they teach. While it is important for colleges to conduct institutionwide assessments to find out how well the college is performing its multiple learning functions, it is equally important for individual classroom teachers to get good information about whether they are accomplishing their teaching goals. The TGI is also helpful in establishing and clarifying departmental goals. Administration of the TGI within departments opens opportunities for discussion about teaching and helps to build a departmental community with

teachers working together on shared learning goals.[2]

2. Practical Suggestions Must Exist for Attaining Goals

It doesn't do much good to talk about the desirability of fitness without offering some practical suggestions about how to attain it. Citizens are inundated with specific and concrete suggestions for diet and exercise to attain physical fitness, including detailed low-fat recipes and diagrams for strengthening particular muscle groups. Similarly, CA and CR must offer some practical exercises that community college teachers can do within realistic time frames and without advanced training in assessment and research.

Thus, our first step in developing CA was to search the literature and talk with experienced teachers about how they collected information about student learning in their classrooms. The result is the publication of a faculty handbook with 50 detailed "recipes" (Classroom Assessment Techniques or CATs) for assessing learning and students' reactions to instruction. Each CAT recipe gives a brief description, along with a chart showing estimated levels of time and energy required to use the CAT in class. In a brief paragraph or so, each CAT recipe defines the purpose of the CAT, lists the teaching goals that may be assessed using the CAT, offers suggestions for use, provides examples from several different disciplines, gives step-by-step procedures, tells how to analyze the data collected, gives some creative examples of ways to adapt or extend the CAT, and concludes by listing pros, cons, caveats, and references and resources for further information. The enormous popularity of *Classroom Assessment Techniques: A Handbook for College Teachers* (Angelo and Cross, 1993) is probably due largely to its specific and concrete suggestions for use.

The sequel book, *Classroom Research: Implementing the Scholarship of Teaching*, (Cross and Steadman, 1996) also offers practical suggestions about how to attain professional fitness, but it has somewhat different purposes from the handbook on CA. It

[2] The TGI is available in reproducible form in Angelo and Cross, 1993, pp. 393-397. Permission for photocopying and use in colleges is granted.

is designed to encourage group work and faculty study seminars on broad learning issues such as critical thinking, deep vs. surface learning, study strategies, intellectual development, motivation for learning, and the like. The goal is to engage faculty in continuing conversations about teaching and learning and to encourage teachers to join together with teaching colleagues and students in developing a climate of inquiry about learning. Pat Hutchings (1993, v), director of the Teaching and Learning Initiative for the American Association for Higher Education, observes that, "There's a growing recognition that what's really needed to improve teaching is a campus culture in which good practice can thrive, one where faculty talk together about teaching, inquire into its effects, and take collective responsibility for its quality."

The book on CR attempts to do just that through the presentation of four cases about learning issues that arise in four different subject areas in four different kinds of classrooms or learning environments (lecture, lab, group discussion, and a conversation between a teacher and a student in the teacher's office). The cases encourage faculty to analyze the learning situation, using their personal experience as teachers. A review of the literature about what is known through research on each learning issue is presented, followed by a list of references for further information, plus some practical suggestions for doing CA and CR on each learning issue.

Our development of CA and CR has been dominated by the desire to make them practical and useful to classroom teachers whose primary interest is in improving the learning of their students.

3. People Must Be Motivated and Willing to Get (and Stay) Actively Involved

Why do teachers with heavy teaching loads and very little discretionary time get involved in CA and CR? We found in our research that when teachers are asked why they engage in CA and CR, three basic reasons emerge: to evaluate (and improve) teaching, to monitor (and promote) learning, and to increase communication (and collaboration) with students.

Steadman (1994) found in her interviews and open-ended survey questions with community college teachers, that almost half of the respondents (47 percent) volunteered that they used CA to evaluate their teaching, improve it, or both; 61 percent used CA to monitor student learning and/or improve it; 20 percent mentioned improving communication and collaboration with students. In introducing this section on motivation, I put some of the reasons teachers give for using CA in parentheses because it appears that there are different *levels* of involvement in CA/CR, depending in part on the teacher's experience in using these methods.

Steadman found that many teachers use CATs as a kind of customer survey to determine student satisfaction with their teaching. They modify the Minute Paper, for example, to ask what students *liked* about the class instead of what they learned from it. The focus in this use is more on teaching than on learning. While it is perfectly natural to want to know what students think of the class and the teacher, such information probably does not serve very well as a continuing motivation for using CA. In my experience, it is usually teachers just starting to use CA who are most interested in evaluating teaching. Once the teacher becomes more secure in knowing what students think about the teaching, a longer-lasting and more challenging motivation for looking at learning appears. Comments from Steadman's interviews reveal the contrast between the two types of motivations. One teacher compared the use of CATs to "trucks going down the freeway bearing bumper stickers that read 'How am I Driving? Call 1-800-4-Safety.' That's what I ask my students, 'How am I doing? Here's your CAT, let me know'." (p. 98). Others gave reasons such as these for using CA: "to discover the accuracy with which students understood a lesson, and to figure out what I need to review with them further" or "if quite a few students are unclear about something, then it's obvious that I didn't do a good job conveying that topic, so I need to find a good way to convey it" (p. 100). The latter two comments focus attention on using the information from the CA to improve their teaching in order to improve learning. While both uses of CATs are legitimate and helpful, focusing attention on learning, rather than on [illegible]nts' satisfactions with teaching, probably serves as a longer-

lasting, more intellectually challenging motivation to get teachers actively involved in the long-range improvement of teaching and learning.

Another indication of different motivational levels is revealed in the variety of CATs used. In the beginning, most teachers stick fairly closely to the simplest CATs described in the handbook. Steadman found that the most frequently used CATs were the Minute Paper and the Muddiest Point–which is an adaptation of the Minute Paper to ask just one question, "What was the muddiest point in _____?" (The blank might be filled in with "lecture", "discussion", "homework assignment", or "lab experiment." (See Angelo and Cross, 1993, pp. 154-158). But Steadman also found that the third most commonly used CAT was the teacher's own creative invention; it was not from the handbook. That is encouraging. Using a CAT recipe in a routine way eventually becomes boring and trivial to both students and teacher, but creating a CAT, or designing a CR project–often in collaboration with students–to explore a question that is significant for that classroom usually represents a higher level of motivation for involvement.

There is, for example, a difference in motivation between the cook who uses a set recipe over and over again without altering it and the cook who takes pleasure in modifying the recipe to make it creative and interesting. The first cook who adheres to the recipe reduces the task of cooking to a "job," whereas the second, more imaginative cook constantly revitalizes his or her own motivation by regarding cooking as a creative endeavor. As a noncreative cook myself, I can argue that if my cooking is boring and not very motivating, it is competent and at least I don't spend much time at it. If I were devoting my life and the major portion of my waking hours to cooking, however, I would want to do everything possible to develop my motivation and my skills.

Teachers who regard teaching as a "job" often dispatch their obligations with responsible efficiency, but they rarely find joy in their work, and the intrinsic motivation to learn more about teaching and learning is lacking. While I would argue that the c Classroom Assessment of students' learning should be done

by every responsible teacher, Classroom Research will probably appeal to a somewhat smaller proportion of gourmet teachers who know and appreciate fine teaching and are motivated to develop their own skills and interests to the highest possible levels.

Finally, one of the more interesting findings of research on the motivation for involvement in CA/CR is the unmistakable power of collaboration, with students as well as colleagues. It shows up everywhere in satisfactions gained from participation in CA/CR, as well as in motivation for further efforts. Walker (1991, p. 77) found that his use of CA helped students realize that both he and they were after the same basic goal, successful learning. "Instead of engaging in confrontation, students and I found ourselves cooperating, trying to identify the most troublesome topics and exploring ways to understand and teach that which had not yet been learned or taught." Andrew Holm, professor of chemistry at Parkland College (Illinois), comments that, "In the 25 years that I've been teaching at the two-year college, I have seen nothing that's had more of an impact on the teacher/student dynamic than our Classroom Assessment and Research Initiative." Nakaji (1991, p. 86), in reporting on his experience with a CR project, found that "the intense nature of the assessments, the increased personal contact, and the overall tone and philosophy of CR as a tool to benefit students have strengthened and improved the bond between students and myself."

Collaborative work with teaching colleagues is also important to motivation. In our national survey of users of CA/CR, the most common responses to the question, What next steps would you be interested in and willing to take in using CA/CR? were those relating to working with colleagues. Fifty-seven percent said they would like to share ideas and information regularly with others *on their campus*; 49 percent with others beyond their campus, and 48 percent with others *in their discipline* (Angelo and Cross, 1994).

This notion of collaboration, that has turned out to be so important to the motivation of individuals engaged in CA/CR, is perhaps even more important in the engagement of entire colleges in collaborative efforts to improve teaching and learning. The creation of a campus climate that supports continuing study and

conversations about teaching and learning is critically important to excellence in teaching and learning.

Parkland College, a community college with more than 10,000 students and 473 faculty members, located in Champaign, Illinois, has been very successful in demonstrating unusually high morale and motivation among their faculty for working with CA/CR.[3] Their program was launched in the spring of 1996 under the sponsorship of the Center for Excellence in Teaching and Learning, directed by Fay Rouseff-Baker. Fourteen faculty members, from a variety of teaching fields and interests, attended the first semester of workshops consisting of six two-hour sessions. Word spread, and by the next semester, 56 faculty members were participants; by the fall of 1997, 75 faculty members were involved in five different kinds and levels of CA/CR (See Figure 1 on facing page).

Parkland's Classroom Assessment and Research Initiative (CARI) appears to be a growing, developing organism, expanding not only in numbers, but in the formation of collegial groups sharing interests in applying CA/CR to particular aspects of teaching. Among continuing Classroom Assessors and Researchers (CARs) at Parkland, three interest groups emerged: one for teachers interested in diversity issues and the multicultural classroom (CultureCARI), another for those with interests in the uses of technology in the classroom, (techCARI) and a third for those interested in learning issues as they might be addressed through Classroom Research projects. The courses developed at Parkland College are described on pages 24 and 25.

Although the introductory CARI course is a prerequisite for participating in continuing courses, faculty may take any course as often as they wish, since the interaction with each new group of colleagues inevitably adds new topics and new perspectives. Faculty members, old and new, also have an opportunity to

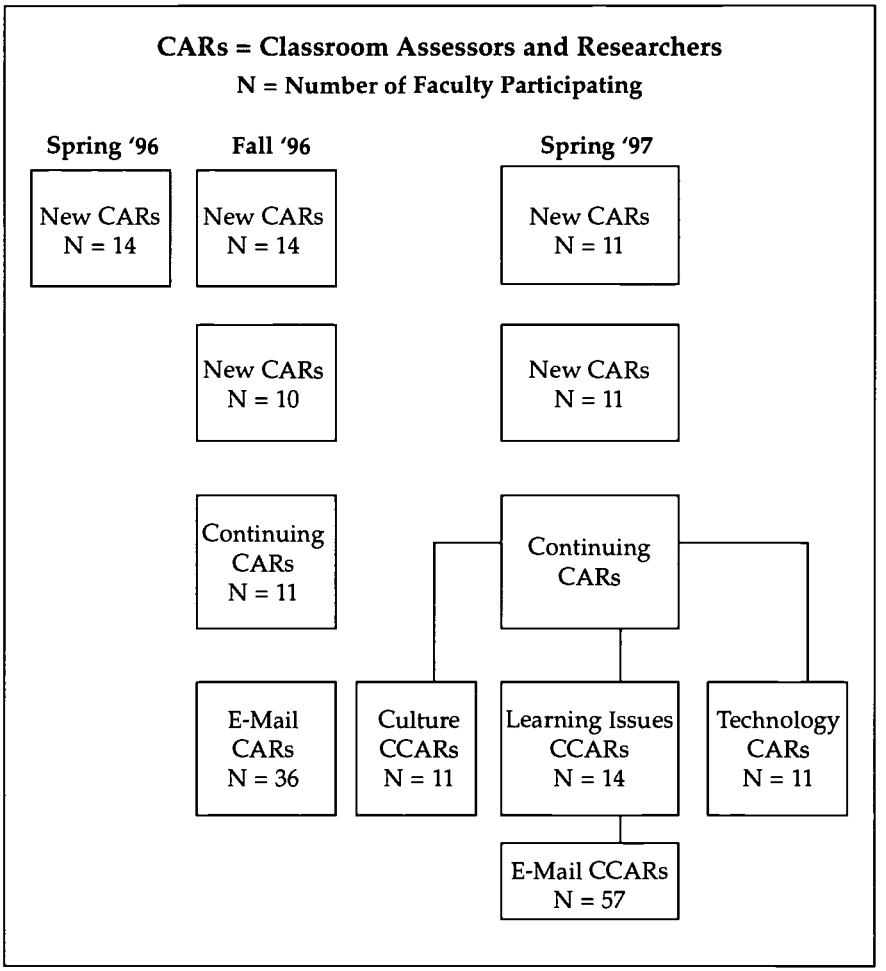
---

3 I am indebted to all of the participating faculty at Parkland, but specifically to Fay Rouseff-Baker, director of Parkland's Center for Excellence in Teaching and Learning, and to Andrew Holm, professor of chemistry and coordinator of CARI, for the illustrations of how Parkland fulfills the conditions for developing professional fitness through the use of CA and CR.

Figure 1

Classroom Assessment and Research Initiative (CARI)

Parkland College



participate in the discussions of CA/CR via e-mail. As the chart shows, this is a popular option for busy Parkland faculty. The e-mail option involves a Friday evening CAT training workshop off-campus with the additional attraction of catered food. A new course is currently under development to explore the relationship between CA and institutional assessment.

CARI, as a dynamic, growing organism, has evolved a structure that emphasizes community, team work, and faculty ownership. Working in close partnership with the director of the Center for Excellence in Teaching and Learning is the faculty coordinator of CARI, Andrew Holm, a professor of chemistry, who mentors the "faculty facilitators" of the workshops and helps them with instructional design and materials. Faculty facilitators work in teams of two per course, offering each other not only support, colleagueship, and wisdom, but also "backup" for those times when work and other demands sometimes seem overwhelming

Courses in the Classroom Assessment and Research Initiative (CARI)
Parkland College, Champaign, Illinois

1. **Introduction to Classroom Assessment and Research**
   In the introductory CARI course for New Classroom Assessors and Researchers, faculty are introduced to basic CATs and methods for administering them, identify their primary teaching goals, use Classroom Assessment Techniques (CATs) to assess whether students are reaching those goals, and use the feedback process to establish a dynamic collaboration with students. During the semester, faculty are required to attend six two-hour workshops, participate in collaborative group activities based on their primary teaching goals, administer CATs to their students, and present a final written Classroom Research Project Report.

2. **Classroom Research on Learning Issues**
   This course is a study and action group of Continuing Classroom Assessors and Researchers who examine the book, *Classroom Research: Implementing the Scholarship of Teaching*, by Cross and Steadman. Additional techniques for doing classroom research are learned.

   This is accomplished, during five one-and-one-half-hour workshops, by examining eight "Learning Issues," using the case studies format that is presented in the textbook. Each faculty member then identifies one Learning Issue as a focus and conducts a Classroom Research Project to examine some aspect of that issue in his or her own classroom.

   The Learning Issues that are explored are:
   - Prerequisite Knowledge
   - Metacognition and Learning Strategies
   - Self-Confidence and Motivation
   - Learning Goals
   - Deep and Surface Learning
   - Student Ratings of Instruction
   - Cooperative (Peer) Learning
   - Intellectual Development and Critical Thinking

3. **CultureCARI: Connecting Cultures in the Classroom**
   CultureCARI is a course for Continuing Classroom Assessors and Researchers who have an interest in diversity issues and the multicultural classroom. The course is based on the belief that CATs are an effective way to address the "invisible forces" that surround issues of diversity, race, and various cultural components.

The faculty use *Classroom Assessment Techniques: A Handbook for College Teachers* by Angelo and Cross as a resource and identify classroom cultural and diversity issues. They develop Cultural Classroom Assessment Techniques, adapt and implement instructional activities, and write a Culture CAT and Classroom Instructional Activity Report. A notebook with relevant articles, Cultural Classroom Instructional Activities, and Culture CATs is completed by the end of the semester. The six two-hour workshops have been used as a design and support group for faculty meeting diverse student needs.

4. **TechCARI**
   The creation of TechCARI was a response to faculty interested in learning more about technology and teaching. TechCARI, following the successful model of the introductory CARI series, has two key components: (1) classroom assessment and research, and (2) supporting, challenging, and encouraging colleagues.

   Faculty participants apply what they learned in the introductory CARI series to issues related to using technology to enhance and extend learning. Group discussions and presentations by the participants foster collaboration and a supportive environment for exploring technology as a learning tool. During spring 1997, six two-hour sessions are focusing on developing technology-focused CATs (TechCATs) and teaching strategies which incorporate technology. TechCARI participants are using FirstClass, an electronic conferencing software program, in order to allow discussion without requiring a set meeting time.

5. **E-Mail Discussion Group**
   The Classroom Assessment and Research via e-mail discussion group is available for faculty who are unable to attend a full Introduction to Classroom Assessment and Research series but do attend a two-hour orientation session. CARI, TechCARI, CultureCARI, and Classroom Research on Learning Issues participants who are interested in discussing teaching/learning issues and classroom assessment with a larger group of faculty are also encouraged to join the discussion group. Over 50 faculty are currently participating in this asynchronou discussion group.

6. **Proposed Course**
   At this writing, a new CARI course is being designed to explore the relationship betweenClassroom Assessment and the other major initiative, Institutional and Academic Assessment.

Prepared by: Andrew Holm and Fay Rouseff-Baker

and exhausting. An eight-member faculty advisory board represents faculty ownership and determines the policies of CARI.

Parkland has been phenomenally successful in involving part-time faculty in this program of professional fitness. It gives part-time instructors, who all-too-often exist on the margins of teaching professionalism, an opportunity to hone their skills and understandings, and equally important, to get to know full-time faculty and to feel included and recognized in the common ng mission of the college. Diana McDonald, a part-time

instructor in composition at Parkland, commented that the CARI courses that she had taken gave her "new inspiration, a new context for evaluating my teaching goals, and a new way to understand the dynamics of learning. Most of all, its techniques are a way to promote academic success, especially for more needy students, without compromising the rigor of college academics or the essential goals of education." This part-time instructor became an integral part of the college by serving as a facilitator of CARI courses.

4. Prompt and Useful Feedback Must Be Available

The primary purpose of CA is to obtain prompt and useful feedback about students' learning. Classroom Assessment was introduced partly in support of and partly in criticism of the great amount of energy that is going into the national assessment movement requiring colleges to collect data on what students are learning in college. No one can doubt the necessity for feedback from institutional assessments if we hope to improve the overall quality of education. Institutional assessments, however, have some obstacles to overcome in implementing improvements.

In the first place, the data from institutional assessments are usually not prompt. Indeed, it is always months, and often years, before the feedback on student learning is available. And sometimes it is never really available in useful form to faculty, having been prepared instead to meet the requirements of accrediting agencies and statewide offices. Secondly, institutional assessments are usually summative rather than formative, which means that they report on what *did* happen rather than on what *should*. Final exams and term papers are examples of summative evaluations. They tell what students have learned, but they offer no opportunity to improve on that particular assignment; it is over and done with. The same might be said of student evaluations of instruction. The class that is being evaluated is over and done with, and any improvements must await the next class of different students. Formative evaluations, in contrast, provide guidance on what needs to be done while the teaching and learning is in process. Classroom Assessment gives both students and teacher an opportunity to implement suggestions for improvement while that class is still in progress.

The third difficulty with institutional assessments is that it is often hard to get faculty professionally involved. The task is usually assigned to an "expert" in the administrative offices, and often faculty find it hard to relate the findings to their teaching. The advantage of CA/CR is that it gets faculty–and students, who rarely get any feedback at all from their participation in institutional assessments–involved in the assessment process, and it provides prompt and relevant feedback while there is time and motivation to make changes.

The proposed CARI course at Parkland College that hopes to explore the relationship between CA and institutionwide assessment programs is exciting because it appears to combine the strengths of the close personal involvement of faculty in CA with the communal faculty goals of improving student learning across the curriculum of the college.

5. Appropriate Rewards Must Be Forthcoming

In an effort to understand more about the rewards to teachers in using CA and CR, we mailed a 12-item questionnaire to a national sample of college teachers thought to be familiar with CA/CR.[4] Among other things, we asked them to what degree certain incentives would motivate them to use CA/CR more often or more extensively. The percent of faculty indicating the motivating power of various incentives is shown in Figure 2 on page 28.

The interesting thing about this chart is that it suggests that teachers are more interested in using CA/CR to enhance their professional competence than they are in receiving external recognition for it. The highest motivators are those that have the potential for helping teachers develop professional skills–joint projects with colleagues, workshops, and release time. Incentives attracting relatively low numbers of teachers are those having to do with promotion, stipends, or recognition through publication. Steadman (1994) found similar results. She observed that when

[4] In the spring of 1994, we sent a 12-item questionnaire about CA and CR to 1,266 college teachers and administrators drawn from mailing lists of people from community colleges and four-year colleges thought to be familiar with CA. After a follow-up reminder, we ed 688 replies for a 53 percent response rate. The study (Angelo and Cross, 1994) t yet been published.

Figure 2

Incentives for Using CA/CR

POSSIBLE INCENTIVES FOR USING CA/CR	DEGREE OF MOTIVATION (%)		
	A GREAT DEAL	SOME	NONE
Administrative support for a well-organized, ongoing campus or schoolwide project	51	30	6
Support to attend workshops/conferences	51	30	5
Release time (1 course) for carrying out significant CR	41	26	16
An option to substitute CA/CR for committee work/service in the performance evaluation process	33	27	19
The option to include CA/CR in my teaching portfolio	25	31	24
A small stipend (e.g., less than $1,000 per year)	21	36	24
Opportunities to publish my CA/CR work	20	36	25

she used open-ended surveys or interviews with community college teachers using CA, "Virtually no respondents mentioned extrinsic rewards, such as stipends or recognition" (p. 85). It was only when prompted by a check-off type item that it seemed to occur to community college teachers that extrinsic rewards might be possible.

Nevertheless, busy faculty members need and want some form of tangible recognition that the college appreciates their efforts. Parkland College has devised a modest system of rewards that seems to work effectively. Among the tangible rewards are the provision of CA/CR textbooks (Angelo and Cross, 1993; Cross and Steadman, 1996), Parkland notebooks, a $50 stipend for faculty new to CA/CR, (continuing participants receive no stipend), certificates of completion of CA/CR projects, and group photos of "Graduating CARI classes." Faculty facilitators receive a stipend, and their names are added to a plaque in the Center for Excellence in Teaching and Learning.

Notice in the table above that it is quite clear that administrative support is desired, and the Parkland experience would suggest it is necessary. The Center for Excellence in Teaching and

Learning at Parkland College is continually engaged, behind the scenes, in a myriad of administrative support functions that provide the essential foundation for any successful program: sending out flyers, handling registration for courses, producing the notebooks that serve as the learning materials for the courses, responding to facilitator requests, and last but not least in the minds and stomachs of faculty members everywhere, making arrangements for catering the light refreshments that seem to be a draw to faculty, and in any case, serve as a tangible recognition of the college's interest in their work. The Parkland College leadership has also been remarkably imaginative and creative in anticipating new directions and moving ahead to provide new and interesting options for faculty who have demonstrated their interest in professional development. In that manner, CARI is not simply a service to be provided, but an actively growing and changing organism of the college.

While our national survey of teachers from both community college and four-year liberal arts colleges found very little interest in publication, Steadman found a rather surprising interest in publication among her sample of community college teachers who were involved in CA/CR. Only 4 percent of her respondents said that publication would have *no* motivating value for them, or put the other way, 86 percent indicated that the opportunity to publish would have at least some appeal. While publication is not part of the formal reward structure in community colleges, it does offer an opportunity for recognition from one's colleagues that is often missing from teaching. Weimer (1993) reports that there are now approximately 50 discipline-specific journals devoted largely to matters of pedagogy, and these make natural outlets for publication for teachers whose scholarly interests lie in research on teaching rather than in research in their discipline. With the growing emphasis on the "scholarship of teaching" (Boyer, 1990), perhaps we should not be surprised that teachers are as interested in sharing their scholarship with colleagues as more traditional researchers are in sharing theirs. The caution, of course, is that the basic purpose of CA/CR is to improve the knowledge of teachers and students about learning in their own classrooms; it is not to ...ice reputations through publication. There is some merit

however, and apparently some interest, in sharing one's knowledge with colleagues, and using CA/CR as a platform for doing that may be beneficial to all concerned. Consulting on, and participating in, workshops is another outlet for working with peers that is deservedly popular with community college teachers. Teachers at Parkland are involved in a variety of activities demonstrating their CARI projects on and off the campus.

A reward that is not much talked about in the literature of education is the intrinsic reward of establishing connections with one's professional peers. Teaching is, in many ways, a lonely profession, without much opportunity for building colleagueship. But the desire for building a community of teaching professionals, sharing common interests, is reflected in all of our data and experience with CA/CR. We found high interest in activities that involve some form of interaction with teaching colleagues. Originally, we thought that the appeal of CA would lie in its independence from the extensive conversations and committee work often involved in reform, but our data and experience indicate quite the opposite. Again and again, in research as well as in practice, faculty express a desire for making connections with their peers. When Parkland College evaluated faculty responses to their CARI courses, they found the opportunity for social interaction rated among the most enjoyable aspects of their training. Faculty said they enjoyed, "the peer interaction," and "the exchange with other like-minded faculty from widely divergent disciplines." One teacher captured the "high" of Parkland's CARI courses when she noted that one of her greatest rewards for participating in the training courses was, "Being able to talk with one another. I'm so impressed with us!" That, not so incidentally, is an intrinsic reward of no small consequence for community college faculty members who often face an uphill battle for respect and self esteem *as teachers.*

It appears that CA and CR are regarded by many of its most loyal practitioners as a professional social activity, offering opportunities to talk about teaching and to share one's knowledge and concerns with colleagues.

Conclusion

One of the important lessons learned from national efforts to promote physical fitness is that the support, interest, and approval of friends and peers is highly beneficial in sustaining enthusiasm and motivation. While anyone can profitably "work out" alone, the rapid rise of gyms, walking clubs, public jogging paths, and the like attests to the value of helping people to feel part of a larger community with shared values and goals. Similarly, teachers can profitably assess and study the learning of their students in the privacy of their own classrooms–and many do. However, the value of creating a campus climate in which the spirit of inquiry about teaching and learning is contagious has been amply demonstrated in our experience with CA/CR and in the national experience with faculty development (Hutchings, 1993).

There is some evidence that community college faculty felt a loss of the "community spirit" that was characteristic of community colleges in the heydays of the 1960s and 1970s when so many community colleges were founded. By the early 1980s, many community college faculty were expressing poignant disappointment in the institutional climates of their colleges. When I asked the various constituencies of 18 geographically dispersed community colleges to rate the *Is* and *Should Be* importance of 20 institutional goals, faculty (N=1,064) rated the creation of a sense of community *the* most important goal for their college (first on *Should Be* goals) and near the bottom in actual accomplishment (18th out of 20 on *Is* goals). The discrepancy between what existed and what was thought desirable was far greater on "community" than on any of the other 19 institutional goals. I concluded then that community colleges were on "a plateau between two periods of high energy and a sense of mission in the community colleges. The old ideals that sparked enthusiasm and the sense of common purpose in community colleges have receded," I wrote, "and new ideals have not yet emerged to take their place" (Cross, 1981, p. 113).

In the late 1980s, the commission on the Future of Community Colleges (1988), emphasized the importance of "community" in community colleges when they entitled their report, *Building*

Communities: A Vision For A New Century. The brief, but memorable preamble to their report stated simply that, "The term *community* should be defined not only as a region to be served, but also as a climate to be created." They declared that "the most essential point" of their vision for community colleges was this: "At the center of building community there is teaching. Teaching is the heartbeat of the educational enterprise and, when it is successful, energy is pumped into the community, continuously renewing and revitalizing the institution" (p. 8). In joining together the importance of developing professional competence in teaching and the bonding of such professionals into a community of dedicated teachers, the Community College Commission foreshadowed the emerging nationwide emphasis on the "scholarship of teaching" and the accountability of all educational communities for maximizing students' learning (Boyer, 1990).

I believe that CA/CR is one way to unite the common values of high professional competence with the communal commitment to learning. With the new emphasis on teaching as an important and heretofore undervalued form of *scholarship* throughout all of higher education, and with the articulate redefinition of community colleges as Learning Colleges, I believe that community colleges are ready to step off the plateau that I saw in my data of more than a decade ago, with a renewed sense of common purpose in the mission of the Learning College. If that is to happen, however, professional fitness needs to be high on the agenda, widely shared, and widely practiced.

REFERENCES

American College Personnel Association. 1993. *The Student Learning Imperative: Implications for Student Affairs*. No. ACPA, Washington, D.C.

Angelo, T. A., and Cross, K. P. 1993. *Classroom Assessment Techniques: A Handbook for College Teachers, Second Edition*. San Francisco: Jossey-Bass.

Astin, A. W. 1985. *Achieving Educational Excellence*. San Francisco: Jossey-Bass.

Barr, R. B., and Tagg, J. 1995. "From Teaching to Learning: A New Paradigm for Undergraduate Education." *Change*, November/December: pp. 13-25.

Boggs, G. R. 1995-96. "The Learning Paradigm." *Community College Journal*, Vol. 66, No. 3. December/January: pp. 24-27.

Boyer, E. L. 1990. *Scholarship Reconsidered: Priorities of the Professoriate*. Princeton, N.J.: Carnegie Foundation for the Advancement of Teaching.

Chickering, A. W., and Gamson, Z. F. 1987. "Seven Principles for Good Practice in Undergraduate Education." *The Wingspread Journal*, Vol. 9, No. 2. (See also AAHE Bulletin, March 1987.)

Commission on the Future of Community Colleges. 1988. *Building Communities: A Vision For A New Century*. Washington, D.C.: American Association of Community and Junior Colleges.

Cross, K. P. 1981. "Community Colleges on the Plateau." *Journal of Higher Education*, Vol. 52, No. 2, March/April: pp. 113-123.

___. 1986. "A Proposal to Improve Teaching." *AAHE Bulletin*, Vol. 39, Vol. 1: pp. 9-15.

Cross, K. P., and Angelo, T. A. 1988. *Classroom Assessment Techniques: A Handbook for Faculty*. Ann Arbor, MI: National Center for Research to Improve Postsecondary Teaching and Learning, University of Michigan.

Cross, K. P., and Steadman, M. H. 1996. *Classroom Research: Implementing the Scholarship of Teaching*. San Francisco: Jossey-Bass.

Hutchings, P. 1993. *Using Cases to Improve College Teaching*. Washington, D.C.: American Association for Higher Education.

Nakaji, D. M. 1991. "Classroom Research in Physics: Gaining Insights into Visualization and Problem Solving." *In Classroom Research: Early Lessons from Success*, edited by T. A. Angelo: pp. 79-87. New Directions for Teaching and Learning, No. 46. San Francisco: Jossey-Bass.

O'Banion, T. 1997. *A Learning College for the 21st Century*. Washington, D.C.: American Association of Community Colleges and American Council on Education, Series on Higher Education, Phoenix: Oryx Press.

Pascarella, E. T., and Terenzini, P. T. 1991. *How College Affects Students*. San Francisco: Jossey-Bass.

Rice, R. E. 1996. *Making a Place for the New American Scholar*. Washington, D.C.: American Association for Higher Education.

Steadman, M. H. 1994. *Implementation and Impact of Classroom Assessment Techniques in Community Colleges*. EdD Dissertation, University of California.

Study Group on the Conditions of Excellence in American Higher Education. 1984. *Involvement in Learning: Realizing the Potential of American Higher Education*. Washington, D.C.: National Institute of Education.

Terenzini, P. T., and Pascarella, E. T. 1994. "Living with Myths: Undergraduate Education in America." *Change*, Vol. 26, No. 1, January/February.

Walker, C. J. 1991. "Classroom Research in Psychology: Assessment Techniques to Enhance Teaching and Learning." In *Classroom Research: Early Lessons from Success*, edited by T. A. Angelo: pp. 67-78. New Directions for Teaching and Learning. No 46. San Francisco: Jossey-Bass.

Weimer, M. 1993. "The Disciplinary Journals on Pedagogy." *Change*, Vol. 25, November/December: pp. 44-51.

K. PATRICIA CROSS

K. Patricia Cross is the David Pierpont Gardner Professor of Higher Education, Emerita at the University of California, Berkeley, and Senior League Fellow at the League for Innovation in the Community College. Cross has had a varied and distinguished career as a university administrator (Assistant Dean of Women at the University of Illinois and Dean of Students at Cornell University), researcher (Distinguished Research Scientist at Educational Testing Service and Research Educator at The Center for Research and Development in Higher Education, University of California, Berkeley), and teacher (Professor and Chair of the Department of Administration, Planning, and Social Policy at the Harvard Graduate School of Education and Professor of Higher Education, University of California, Berkeley).

The author of nine books and more than 200 articles and chapters, Cross has been recognized for her scholarship by election to the National Academy of Education, receipt of the E. F. Lindquist Award from the American Educational Research Association, the Sidney Suslow Award from the Association for Institutional Research, and the Howard Bowen Distinguished Career Award from the Association for the Study of Higher Education.

Past president of the American Association for Higher Education, she has received a number of awards for leadership in education, among them the 1990 Leadership Award from the American Association of Community and Junior Colleges and the 1990 award for outstanding contributions to the improvement of instruction from the National Council of Instructional Administrators. She has been awarded 14 honorary doctorates and listed in Who's Who in America.

Cross serves on the editorial boards of six national and international journals of higher education. She has lectured on American higher education widely in the United States and abroad in England, France, Sweden, Germany, the Soviet Union, Japan, Australia, Hong Kong, and Holland. Her interests are primarily in changing college student populations, adult learning, and the improvement of teaching and learning in higher education.

Cross received her bachelor's degree in mathematics from Illinois State University and master's and Ph.D. degrees in social psychology from the University of Illinois.

http://www.league.org

26522 La Alameda, Suite 370
Mission Viejo, California 92691
(714) 367-2884 • FAX (714) 367-2885

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement (OERI)
Educational Resources Information Center (ERIC)

NOTICE

REPRODUCTION BASIS

☒ This document is covered by a signed "Reproduction Release (Blanket)" form (on file within the ERIC system), encompassing all or classes of documents from its source organization and, therefore, does not require a "Specific Document" Release form.

☐ This document is Federally-funded, or carries its own permission to reproduce, or is otherwise in the public domain and, therefore, may be reproduced by ERIC without a signed Reproduction Release form (either "Specific Document" or "Blanket").