CHAPTER ONE

CREATING SIGNIFICANT LEARNING EXPERIENCES

The Key to Quality in Educational Programs

We won't meet the needs for more and better higher education until professors become designers of learning experiences *and not teachers.*

—LARRY SPENCE (2001)

Every year, in the United States alone, more than five hundred thousand college teachers prepare to teach classes, and more than fifteen million students come to learn. Most of us teach four to eight courses a year. As we engage in this task, we have two options. We can continue to follow traditional ways of teaching, repeating the same practices that we and others in our disciplines have used for years. Or we can dare to dream about doing something different, something special in our courses that would significantly improve the quality of student learning. This option leads to the question faced by teachers everywhere and at all levels of education: Should we make the effort to change, or not?

Given the scale of education and its significance for individual lives and society at large, the response of teachers to this perennial question is of immense importance. What are the factors affecting our response? This chapter and this book will present some ideas on this question. As Spence asserts in the quote that opens the chapter, I too will argue that college teachers need to learn how to design courses more effectively for higher education to significantly improve the quality of its educational programs.

The primary intent of this opening chapter is to describe the unusual and exciting situation in higher education at the present time. A variety of developments have created an extremely strong need to improve the quality of our educational programs. At the same time a wealth of new ideas on teaching have emerged in

the last few decades that offer college teachers unusual opportunities to make a creative response to this situation. Near the end of this chapter I will present the reasons why course design, in my view, is the right place to integrate several of these new ideas and, at the same time, constitutes the single most significant change most teachers can make to improve the quality of their teaching and of student learning.

How Satisfactory Are Current Forms of Instruction?

When examined from outside the academy, our present teaching practices appear to be not only adequate but even quite good. The demand for our services remains high. The percentage of graduating high school students that choose to come to college is over 50 percent and continues to rise. The percentage of adults enrolling in some kind of higher education program also remains strong and growing. And American higher education continues to be very attractive to students from around the world.

But when we examine the situation from *inside* the academy and look at the quality of student learning, we find a more disturbing picture. How well are college students learning what they should be learning? People obviously have different views about what they think students ought to be learning in college, but most people would be concerned about the following results from a Gallup survey of college seniors (Heller, 1989):

- 42 percent were unaware that the Koran is the sacred scripture of Islam.
- 42 percent could not locate the Civil War between 1850 and 1900.
- 31 percent placed Reconstruction after World War II.

However, while it is disturbing that almost half of our college graduates are not acquiring even a rudimentary level of general knowledge, many would argue, myself included, that "memorized knowledge" is not the primary goal of higher education. Colleges and universities should be focusing their efforts on developing people who can engage in complex thinking and reasoning. How are we doing on that score?

Amiran (1989) conducted an extensive and multifaceted study of college student performance on tests on reflexive thinking and metacognition and came to the following conclusions:

- *Reading:* Students could identify the main points and supporting evidence in essays, but they showed little growth during their college years in their ability to

identify the implications of the essay, articulate the author's assumptions, or to see the relationship between the article and their own lives and society.
- *Reflexive thinking:* Few students proved adept at reflexive thinking. They lack problem-solving and reasoning skills and are very weak in recognizing the assumptions that have to be made to solve given problems.
- *Scientific reasoning:* Students know little about scientific reasoning, empirical scientific methodology, the importance of establishing a control for establishing cause-effect relationships, or researcher bias.
- *Historical reasoning:* Students were weak both in terms of establishing a chronology of events and in terms of seeing causal relationships between or among events.

This data suggests that higher education is currently turning out graduates who neither have a good general knowledge nor know how to engage in the kind of complex thinking and reasoning that society today needs. Why might this be?

Cause of These Shortcomings

The basic problem is that, although faculty members want their students to achieve higher kinds of learning, they continue to use a form of teaching that is not effective at promoting such learning. When interviewed, faculty often make reference to higher-level learning goals such as critical thinking. But they have traditionally relied heavily on lecturing as their main form of teaching. In one study of eighteen hundred faculty in five different types of institutions (including small private colleges), 73–83 percent chose lectures as their primary method of instruction (Blackburn and others, 1980). Although those percentages have probably dropped slightly in the last decade, my interactions with faculty suggest that lecturing is still by far the dominant mode of teaching.

What kinds of results does lecturing, even good lecturing, produce? A long history of research indicates lecturing has limited effectiveness in helping students

- Retain information after a course is over.
- Develop an ability to transfer knowledge to novel situations.
- Develop skill in thinking or problem solving.
- Achieve affective outcomes, such as motivation for additional learning or a change in attitude.

In a carefully designed test at Norwich University in England, teachers gave a lecture specifically designed to be effective (McLeish, 1968). Students were given a test on their recall of facts, theory, and application of the content. They were

allowed to use their own lecture notes and even a printed summary of the lecture. At the end of the lecture, the average level of the students' recall of information was 42 percent. One week later, even with the benefit of taking the same test a second time, students' recall had dropped to 20 percent.

In another study in the United States, students who took a year-long, two-semester course on introductory economics were compared with students who had never had the course at all (Saunders, 1980). Over twelve hundred students in the two groups were given a test on the content of the course.

At the end of the course, students who took the course scored only 20 percent higher than students who had never had the course. Two years later, the difference was 15 percent. Seven years later, the difference was only 10 percent.

Collectively the results from these and other studies (many of which are summarized in an excellent study by Lion Gardiner, 1994) suggest that our current instructional procedures are not working very well. Students are not learning even basic general knowledge, they are not developing higher-level cognitive skills, and they are not retaining their knowledge very well. In fact, there is no significant difference between students who take courses and students who do not.

Are People Concerned About These Problems?

Clearly not everyone is concerned about the results of present forms of instructional practice; otherwise there would be greater pressure to make substantial changes. On the other hand, when one looks carefully at the reactions of many faculty, students, and the public to the quality of student learning, one finds an awareness, perhaps even a growing awareness, that something is not right.

Faculty Concerns. When I talk to faculty, many say their biggest concern is low student attendance in class. Many see daily class attendance running around 50 percent by mid-semester in their lower division courses. But they report other problems as well. Students do not complete reading assignments. The energy level in class discussions is low. Students focus on grades rather than on learning. Textbooks keep getting larger and larger, which means teachers have to work harder and harder to cover the material. Many say they have lost their joy in teaching. And when they try to change, they often feel unsupported by students, colleagues, and the whole institution.

Student Concerns. Students, for their part, have similar concerns. They often complain about courses not being very interesting, that they just sit and take notes and then cram for exam after exam. They have difficulty seeing the value or significance of what they are learning. They too see the textbooks getting larger and

larger; for them this means greater cost as well as more material that they have to learn, master, or memorize for the test.

In one extensive study of student reaction to the instruction they were receiving (summarized in Courts and McInerney, 1993, pp. 33–38), students' most common criticism was focused on the quality of education they were receiving, the way teachers teach, and the level of performance expected of the students. By far the most common concern was directed specifically at the tendency of teachers to rely primarily on lectures and workbook exercises to transmit information, on the absence of interaction, and on the lack of what student after student referred to as "hands-on learning." Additional conclusions included the following:

- Students were not self-directed learners. They were not confident in their ability to approach a problem and figure it out on their own.
- The students evidenced a powerful sense that they were not learning as much as they should be.
- Many of the students voiced a belief that their college teachers do not really care much about them or about promoting their learning or interacting with them.
- The result? Students do not engage fully or energetically in learning something they do not want to learn or see no reason for learning.

My conversations with students on my own campus and elsewhere indicate that they also are feeling very fragmented and isolated. The fragmented feeling comes from their observation that their courses do not connect to each other; there is "this course" and "that course" but no coherent education. Their feelings of isolation come from not having much interaction with other students, either in class or out of class, about course-related matters. The net result? Low intellectual effort by students. While most college teachers say they expect two hours of out-of-class study time for each hour of class, students are spending much less than this. Teachers' expectations would mean that a full-time student who is enrolled in five three-credit-hour courses would need to study thirty hours per week. However, studies of actual student study time repeatedly indicate that most students spend six hours or less per week—for all their courses combined. They spend much more time socializing, working, or watching TV (several studies, cited in Gardiner, 1994, p. 52).

Public Concerns. The public is also beginning to be concerned about what they perceive to be the poor quality of higher education in this country. This is a significant part of the impetus behind the move in many state legislatures to set up accountability programs and even performance-based appropriations. The *Chronicle*

of Higher Education reported a few years ago (Carnevale, Johnson, and Edwards, 1998) that, as of that date, "11 states tie some appropriations to measures of public institutions' performance, and 15 more are likely to follow suit within the next five years." Two years later the *Chronicle* contained an article about a proposal by the Board of Regents for the whole University of Texas system to set up competency tests (Schmidt, 2000). The article noted that a "growing number of states [were looking] to the large-scale administering of competency tests as a means of setting standards for public colleges, or students, or both." The National Center for Higher Education Management Systems (NCHEMS) was quoted as reporting that, in the past two years, there has been a "significant increase in the number of states seriously considering—or actively piloting—standardized testing as a deliberate element of higher education policy."

Clearly many people believe we need to improve the quality of higher education. But what is the change that needs to be made?

Base Need: Significant Learning Experiences for Students

Beneath each of these several levels of concern is a fundamental need, and that is for students to have a significant learning experience. If this could happen more frequently and more consistently in higher education, everyone—faculty, students, parents, institutions, and society at large—would be more satisfied with the quality of higher education than they are at the present time.

Significant Learning Experiences

One way of focusing this issue is to search for ways of providing students with significant learning experiences. If we can find ways to identify and create learning experiences that students and others can agree are truly significant, we will have made important progress in our effort to improve the quality of higher education. What might such learning experiences be like?

The central idea of this phrase is that teaching should result in something others can look at and say: "That learning experience resulted in something that is truly significant in terms of the students' lives." How can we properly define and characterize that kind of learning experience?

It would seem that a proper definition requires us to recognize that a significant learning experience has both a *process* and an *outcome* dimension. And each of these dimensions has two features, as shown in Exhibit 1.1.

In a powerful learning experience, students will be engaged in their own learning, there will be a high energy level associated with it, and the whole process

EXHIBIT 1.1. CHARACTERISTICS OF SIGNIFICANT LEARNING EXPERIENCES.

Process:

- *Engaged:* Students are engaged in their learning.
- *High energy:* Class has a high energy level.

Results, Impact, Outcomes:

- *Significant and lasting change:* Course results in significant changes in the students, changes that continue after the course is over and even after the students have graduated.
- *Value in life:* What the students learn has a high potential for being of value in their lives after the course is over, by enhancing their individual lives, preparing them to participate in multiple communities, or preparing them for the world of work.

will have important outcomes or results. Not only will students be learning throughout the course, by the end of the course they will clearly have changed in some important way—they will have learned something important. And that learning will have the potential for changing their lives in an important way. It has been my observation that all significant learning offers one or more of the following values:

- *Enhancing our individual life:* developing an ability to enjoy good art and music, developing a thoughtful philosophy of life, and so on.
- *Enabling us to contribute to the many communities of which we will be a part:* family, local community, nation state, religion, special interest groups, the world.
- *Preparing us for the world of work:* developing the knowledge, skills, and attitudes necessary for being effective in one or more professional fields.

An Analogy

As a person who enjoys good restaurants, I see an analogy between what restaurants have to do to provide a high-quality dining experience and what colleges have to do to provide a high-quality educational experience. Without meaning to slight other important factors, three key aspects of a good dining experience are an inviting menu, well-prepared food, and prompt and thoughtful service. If any one of these ingredients is missing, the quality of the dining experience is significantly

lowered. But the quality of the food is especially important: this is the fundamental reason for going to a restaurant in the first place. If the food is not well prepared, the restaurant is going to have problems, no matter how exciting the menu or how friendly the waiters.

Similarly, in higher education, colleges need to assemble good curricula, good instruction, and good faculty who can interact well with students. If any one of these is not done well, the quality of the educational experience suffers significantly. Again, though, the quality of the instruction is critically important. This is the fundamental reason people go to college. If the instruction is not done well, it does not matter how exciting the course titles in the curriculum or how kind the faculty; the overall learning experience will be deficient.

If we propose to change and improve higher education so that students will have more significant learning experiences, both the faculty and the institutions will have to make some big changes. Is this possible and likely?

Faculty: Ready for Change?

The question that all faculty face is this: Should I spend the time and effort to learn about and implement new ways of teaching? Essentially all faculty members feel more than fully loaded already with all their present teaching, research, and service obligations. So suggesting that faculty members take on a substantial new task aimed at their own professional development is no small issue. Their response to this question, then, would appear to rest on the issue of whether there is a good basis for saying, "Yes, I should invest in learning how to teach better." Is there a potential benefit that has sufficient value and sufficient likelihood of happening, that would justify the time and effort required?

The answer to this question lies inside faculty. It is my experience and belief that nearly all faculty have deep inner dreams of what they would like their teaching to be like—and those dreams are significantly different from their ordinary, everyday experiences in the classroom. If some way could be found to encourage faculty to dream their dreams and to have a realistic hope of making these dreams a reality, they would have the basis they need for saying, "Yes, it is worthwhile for me to invest in learning how to be a better teacher."

Do they have such dreams? They not only do have dreams, they have wonderful dreams. I have been giving numerous workshops on the subject of designing courses since 2001 from California to Connecticut, in large state universities, regional colleges, small private colleges, special-purpose institutions, and community colleges. The task of designing something is inherently creative, so I ask faculty to exercise their creativity by "dreaming and imagining" for a moment.

Imagine yourself teaching in a perfect situation, where the students will do anything and everything you ask of them. They will read everything and write everything you ask them to. They will do it on time and do it well. In this special situation, you can do anything you want as a teacher and have any kind of impact on students that you desire. The only limitation is your own imagination.

Question: In your deepest, fondest dreams, what kind of impact would you most like to have on your students? That is, when the course is over and it is now one or two years later, what would you like to be true about students who have had your courses that is not true of others? What is the distinctive educational impact you would like for your teaching and your courses to have on your students?

The creative energy that teachers pour into answering this question is immense, and the answers themselves are absolutely marvelous to behold. Typical responses include statements such as the following:

My dream is that students, one to two years after the course is over, will be able to. . .

- Apply and use what they learn in real-life situations.
- Find ways to make the world better, be able to make a difference.
- Develop a deep curiosity.
- Engage in lifelong learning.
- Experience the "Joy of Learning."
- Take pride in what they have done and can accomplish, in whatever discipline or line of work they choose.
- See the importance of community building, both at work and in their personal lives.
- See the connections between themselves and their own beliefs, values, and actions and those of others.
- Think about problems and issues in integrated ways, rather than in separated and compartmentalized ways. Students will see connections between multiple perspectives.
- See the need for change in the world and be a change agent.
- Be creative problem solvers.
- Develop key skills in life, such as communication skills.
- Understand and be able to use the basic principles of my course.
- Stay positive, despite the setbacks and challenges of life and work.
- Mentor others.
- Continue to grow as critical thinkers.
- Value continuous improvement.

Following this dreaming exercise, I also ask faculty to individually make an artistic representation of their dream. This can be in whatever form they choose; it can be a picture, a poem, a song, a mime, a simple dramatization, or whatever. Making a picture is the most common response, but almost every workshop has elicited all the other forms as well. Then participants are asked to share their dreams and the artistic representations in small groups. Following this, each group selects something to share with the whole set of participants.

The process of illustrating and sharing dreams has the effect of enlarging and enhancing them in valuable ways. An example of this is the dream of Gina Masequesmay, a professor of Asian American studies at California State University at Northridge. She described her individual dream in the following way:

> My dream is for my students to be able *to think critically,* to incorporate this thinking in their daily lives, and to *share that knowledge and compassion with others* in order to work towards a just world for all.
>
> To be able to think critically is to first realize that knowledge/truth is conditioned by power. What that means is that one's understanding of the world is biased by one's social location in society, and therefore, all perspectives are partial. In order to have a fuller view of what is really happening in the world, one needs to step outside of one's biased/cultural lens that limits one's view and to be reflective of this process of attempting to be "critical" as opposed to accepting authority without questions.

The rest of her group then added their dreams to hers. They integrated critical thinking, compassion, and sharing with the dreams of reflexive thinking, continuity over time, and the goal of developing this learning in a step-by-step process.

These are exciting dreams. If we can find ways to do whatever needs to be done to make such dreams a reality, higher education will be a more exciting experience and students will graduate with a very different kind of education than seems to be the norm at the present time.

Dreams such as these, though, raise the question of whether institutions of higher education, the places where faculty work and where these events all take place, are ready to change in ways that will support faculty change more effectively.

Institutional Change: Coming, Ready or Not!

Faculty members are not likely to make the decision to change without support from their institutions. They need to feel that their institutions truly value better learning and better teaching and are willing to provide faculty with what they need

in order to learn new ways of teaching: time, encouragement, institutional centers that can provide the ideas that faculty need, reward, and so on. Are institutions ready to change? The view in many circles is that such change is not an option or a choice for institutions; it is inevitable. Change is going to happen, whether institutions are ready for it or not. What is the nature of this change and what is driving it?

The Forces Driving Institutional Change

During the last decade or so, a number of voices have been predicting that higher education is about to undergo major change and have spoken as advocates of that change. What they see coming is a structural change, prompted in part but not solely by new technology. Included in this change is the need for a new vision of what constitutes "good learning" and the kind of pedagogy that will generate that kind of learning.

One of the voices is that of Dolence and Norris, whose short but visionary report, *Transforming Higher Education* (1995), presents the general view that society is undergoing a fundamental transformation from the Industrial Age to the Information Age. One consequence of that change is that most social institutions will also be transformed, including higher education. Society and individual learners now have different needs, in terms of both what people need to learn and how they can and should learn. Dolence and Norris's formulation of the different characteristics associated with learning in the Industrial Age and the Information Age are shown in Exhibit 1.2.

Based in part on the special capabilities of information technology, the primary force that will drive change in higher education is the fact that traditional institutions are about to lose their "exclusive franchise," that is, their monopoly on providing postsecondary learning. New providers have already appeared and are competing effectively for students: corporate universities, the University of Phoenix (offering a combination of classes at distributed sites and online courses; see http://www.uophx.edu), and Virtual University (a completely online university; see http://vu.org). Universities that stick to the Industrial Age or factory model will probably continue to exist but will increasingly be at a competitive disadvantage. Traditional universities are insufficiently flexible, they focus on processes and outputs (graduates) rather than on outcomes (significant learning), and they operate in a way that generates high cost (Dolence and Norris, 1995, p. 11). If the new vendors succeed in unbundling the degree package and offering students a high-quality learning experience focused on what learners need and want, offering certification of that learning, and doing so at greater convenience or lower cost, or both—they will attract a significant amount of enrollment away from traditional

EXHIBIT 1.2. HIGHER EDUCATION IN THE INDUSTRIAL AGE AND THE INFORMATION AGE.

Industrial Age:	*Information Age:*
Teaching franchise	Learning franchise
Provider-driven, a set time for learning	Individualized learning
Information infrastructure as support tool	Information infrastructure as the fundamental instrument of transformation
Individual technologies	Technology synergies
Time out for education	Just-in-time learning
Continuing education	Perpetual learning
Separate learning systems	Fused learning systems
Traditional courses, degrees, and academic calendars	Unbundled learning experiences based on learner needs
Teaching and certification of mastery are combined	Learning and certification of mastery are related, yet separable, issues
Front-end, lump-sum payment based on length of academic process	Point-of-access payment for exchange of intellectual property based on value added
Collections of fragmented, narrow, and proprietary systems	Seamless, integrated comprehensive and open systems
Bureaucratic systems	Self-informing, self-correcting systems
Rigid, predesigned processes	Families of transactions customizable to the needs of learners, faculty, and staff
Technology push	Learning vision pull

Source: Dolence and Norris, 1995, p. 4. Used by permission.

institutions, and deservedly so. Unless, of course, traditional institutions make some significant changes and offer programs that meet these same requirements. Either way, the key requirement will be the ability to offer a high-quality learning experience. The advantage will go to those institutions that learn how to do that better, sooner, and at least cost (calculated in terms of time and effort as well as money).

Does anyone else think these changes are likely to happen? Frank Newman, former president of the Education Commission of the States, believes higher education is entering a period of major change and has recently summarized and identified four major forces that are driving this change. (The comments that follow are adapted from the Futures Project Web site: http://www.futuresproject.org, accessed in the summer of 2000.) In Newman's view, the first of the four forces driving many of the other changes is *information technology.* This technology is now

sufficiently widespread and sufficiently sophisticated such that whole courses and curricula offered completely online are rapidly becoming commonplace. The unique capabilities of information technology are stimulating a second force for change, the rapid emergence of *new providers* of educational services. Corporate organizations and for-profit educational companies are growing rapidly in their offerings of discrete learning packages as well as traditional degree programs. This combination of new providers and new modes of delivering educational services is leading to the third force for change: the *globalization of higher education*. Educational institutions both in the United States and elsewhere are marketing and offering their courses and degree programs worldwide. One highly visible example of this is Cardean University, a consortium of four American universities (Chicago, Stanford, Columbia, and Carnegie Mellon) and the London School of Economics, that is offering business degrees globally.

Finally the foregoing changes also interact with *new kinds of students*. In the United States, increasing numbers of older students, minority students, and first-generation students continue to seek higher education. In addition, traditional kinds of students are coming into higher education with a greater familiarity with computers and often with part-time jobs. Some of these students will be looking for traditional kinds of educational experiences; others will stay at home and seek their education in a new form of delivery from a provider who can be located anywhere in the world.

Newman predicts that, as a result of these four forces for change, a much higher level of competition than in the past will characterize higher education in the future and the whole enterprise will become much more learning-centered. To the degree that he is correct in this prediction, institutions of higher education will face significant new pressures to become more open to change. And if this happens, leaders in colleges and universities may be more ready than in times past to make significant changes in the way they operate.

Leading Toward the Right Kind of Change

As administrative and faculty leaders face this era of major change, the question clearly is not whether they should change but *what kind* of change they should attempt to make. Historically, higher education in the United States has responded to calls for change when these voices became strong enough. This happened, for example, in the mid-1800s when land-grant universities were established for the purpose of providing a more application-oriented education, in the late 1800s when universities introduced discipline-based research and departments, and in the mid-1900s when society called for greater access to higher education by non-traditional kinds of students.

Since the 1980s a similar chorus of voices has been calling for another change, a change in how students learn and especially in what they learn. In a sense, these voices are describing the dreams that others in society have for higher education, and these dreams are coming from both national organizations and from well-informed individuals.

National Organizations. One of the earliest voices to catch national attention on this subject came from a study group in the National Institute of Education. Their report, *Involvement in Learning* (1984), acknowledged the positive changes that have occurred in American higher education but also expressed their concern about some problems: problems in student achievement, a shift in undergraduate programs toward narrow specialization, a decline in the attractiveness of faculty careers, and others. They also noted that traditional ways of measuring excellence were inadequate because they focused on resources and inputs, not on "what students actually learn and how much they grow as a result of higher education" (p. 15). The group then urged institutions of higher education to produce demonstrable improvements, not only of "student knowledge" but also in students' "capabilities, skills, and attitudes between entrance and graduation" (p. 15). This was one of the earliest and strongest calls for college courses to go beyond "content learning."

One year later the Association of American Colleges (AAC) sponsored a Project on Redefining the Meaning and Purpose of Baccalaureate Degrees. The language and tone of this report was stronger and even more critical than the NIE report. The opening statement sounded a wake-up call to American higher education:

> The educational failures of the United States are emerging as a major concern of the 1980s. . . . Our report addresses the crisis in American education as it is revealed in the decay of the college course of study and in the role of college faculties in creating and nurturing that decay. . . .
>
> As for what passes for a college curriculum, almost anything goes. We have reached a point where we are more confident about the length of a college education than about its content or purpose [AAC, 1985, pp. 1–2].

The members of the project group went on to describe a minimum required curriculum that was strikingly different from the by-now-familiar "major and general distribution requirements." They proposed a new kind of curriculum, the central theme of which was that students should learn "how to learn" (p. 24).

In a similar vein, a report by the National Association of State Universities and Land-Grant Colleges called on these universities to be proactive in helping all students develop essential life skills and important values in higher education.

> We want to stress that values deserve special attention in this effort. The highest educational challenge we face revolves around developing character, conscience, citizenship, tolerance, civility, and individual and social responsibility in our students. We dare not ignore this obligation in a society that sometimes gives the impression that virtues such as these are discretionary. These should be part of the standard equipment of our graduates, not options [NASULGC, 1997, pp. 12–13].

At about the same time, Campus Compact, an organization devoted to the promotion of service learning in higher education, cosponsored a meeting at the Wingspread Conference Center in Wisconsin on "The Civic Responsibilities of Research Universities." In a statement called the "Wingspread Declaration" (Campus Compact, 1998), the conferees proclaimed their belief that "research universities must prepare students to be responsible citizens and enable faculty to develop and put their knowledge to work for the betterment of their communities." If one wants to prepare students for "responsible and engaged citizenship," what should students learn? They should be "learning the skills, developing the habits and identities and acquiring the knowledge to contribute to the general welfare (on campus, in communities, and in the world)."

Pre-Professional Education. A number of studies have been conducted in various fields of pre-professional education to determine what graduates in those particular fields should know and how changing times have changed what students need to learn. In a major study of business education, Porter and McKibbin (1988) surveyed both business college deans and corporate CEOs to see what changes people in these roles thought were needed in both undergraduate and graduate business education. Their recommendations, among other things, called for more attention to people skills—both managing people and leadership—along with integrating corporate and community activities and preparing for lifelong or continuous learning.

More recently the engineering profession's accreditation body (Accreditation Board for Engineering and Technology, commonly known as ABET) has taken the need for new kinds of learning a step further and incorporated specific kinds of learning into their accreditation standards (http://www.abet.org/criteria.html; accessed May 2002). The new standards (known as "ABET 2000" because they are required for accreditation after the year 2000) identify specific kinds of learning that engineering students should have achieved by graduation. These include specific engineering skills or competencies (for example, being able to design a system that meets the client's needs), general professional skills (for example, being able to

communicate effectively), and broad professional perspectives (for example, understand the impact of engineering solutions in a global and societal context).

At about the same time an advisory committee in the National Science Foundation examined the state of undergraduate education in science, math, engineering, and technology (SMET). Titled *Shaping the Future,* the report observed that while America's basic research in science, math, and engineering is world class, its education is still not (1996, p. iii). Given the importance of science, math, engineering, and technology in the modern world generally and in this field of work in particular, problems in SMET education are quite serious. What should students learn? The authors called on SMET faculty to meet the new expectations of today's society by building certain attitudes and skills. Specifically, they urged faculty to promote new kinds of learning, for example, developing the skills of communication, teamwork, and lifelong learning (p. iv).

Individual Calls for New Kinds of Learning. In addition to these calls by national and professional organizations for changes in what students learn, a number of people who are careful observers of higher education have published major statements calling for the same thing. One of these is a book by Lion Gardiner (1994) called *Redesigning Higher Education*. After completing a major study on the topic, Gardiner noted that leaders in business, industry, and government have identified several important kinds of learning needed by citizens and workers in the years ahead. He labeled these as "critical competencies" and his list included the following personal characteristics, skills, and dispositions (p. 7):

- Conscientiousness, personal responsibility, and dependability
- The ability to act in a principled, ethical fashion
- Skill in oral and written communication
- Interpersonal and team skills
- Skill in critical thinking and in solving complex problems
- Respect for people different from oneself
- The ability to adapt to change
- The ability and desire for lifelong learning

Richard Paul has focused on one of these critical competencies, critical thinking, in his work as director of the Center for Critical Thinking at Sonoma State University in California. In *Critical Thinking* (1993), he argues that we live in a world with two important characteristics: it is changing rapidly and it is becoming more complex. Based on this view, he concludes that "the work of the future

is the work of the mind, intellectual work, work that involves reasoning and intellectual self-discipline" (p. 13). As a result, Paul argues, we all need to parent differently, work differently, and educate differently.

Although the majority of professors in higher education would like to believe they promote critical thinking, a survey of 140 college teachers by Paul and his colleagues led them to believe that most teachers promote only a shallow form of critical thinking. Their study found that the vast majority, 75–80 percent, *say* they value and do things in their classrooms to promote critical thinking. However, only a small minority (19 percent) are able to give a clear explanation of what critical thinking is. Only 9 percent are clearly teaching for critical thinking on a typical day in class, and only a very small minority (8 percent) are able to identify important criteria and standards by which they evaluate the quality of their students' thinking (Paul, Elder, and Bartell, 1997).

This may be the reason why so many employers still claim that their college graduate hires do not think well, write well, or communicate well.

Are Significantly Better Kinds of Learning Really Possible?

It's clear that participants in higher education and leaders in society do see a need for colleges and universities to provide educational programs that result in different and more significant kinds of learning. But this raises the question of whether it is in fact possible to change the quality of teaching and learning significantly. Can we really do better than we are doing now?

As it turns out, the scholars, practitioners, and theorists of college teaching have been very active in the last few decades generating numerous ideas about new and better ways of teaching. These new ideas give us the tools we need to fashion new kinds of learning for our students.

New Paradigms for Teaching

A number of writers have been announcing a paradigm shift in terms of how higher education views pedagogy. In a widely read and cited article, Barr and Tagg (1995) describe what they believe to be a major change already taking place in American higher education. This change is a paradigm shift in which institutions are thinking less about providing instruction (the teaching paradigm) and more about producing learning (the learning paradigm). Their article goes on to note the implications of such a shift for the complete operation of undergraduate education:

Mission and purpose: from improving the quality of instruction to improving the quality of learning

Criteria for success: from "quality of entering students" to "quality of exiting students"

Teaching and learning structures: from "covering material" to "specific learning results"

Learning theory: from "learning is cumulative and linear" to "learning is a nesting and interaction of frameworks"

Productivity and funding: from defining productivity in terms of "cost per hour of instruction per student" to "cost per unit of learning per student"

Nature of roles: from "faculty being primarily lecturers" to "faculty being primarily designers of learning methods and environments"

The authors state their belief that this shift is both "needed and wanted." I would agree entirely. The only adjustment I would make is that the real need is not just for institutions to "produce learning" but to "produce *significant* learning."

In a similar vein William Campbell and Karl Smith (1997) have presented a comparison of what they call "old and new paradigms" for college teaching (see Exhibit 1.3). The views in the new paradigm reflect many of the themes emphasized for some time by innovative educators in instructional development programs in this country and elsewhere.

Frank Smith has also written about two kinds of learning in a provocative book about "learning and forgetting" (1998). He describes what he calls the "classic" view of learning that sees learning as continual, effortless, and never forgotten. This is the kind of learning that occurs naturally in everyone's life all the time. This stands in contrast to the "official" view that sees learning as occasional, hard work, and easily forgotten. This is the kind that occurs much too often in formal schooling. He argues, "We can only learn from activities that are interesting and comprehensible to us; in other words, activities that are satisfying. If this is not the case, only inefficient rote learning, or memorization, is available to us and forgetting is inevitable" (p. 87).

In a set of initiatives that began in the 1970s, researchers in Sweden, Great Britain, and Australia semi-independently developed the idea that teachers, educational assessors, and researchers should pay attention to the *experience* of student learning, not just to the activities (Marton, Hounsell, and Entwistle, 1984, 1997). Their observations reveal that some students exhibit a "deep approach to learning" while others use a "surface approach." In the former, students seek a personal, meaningful understanding of the material being studied while the latter are content to simply reproduce the information presented during the course (1997, p. x).

EXHIBIT 1.3. OLD AND NEW PARADIGMS FOR COLLEGE TEACHING.

	Old Paradigm	New Paradigm
Knowledge	Transferred from faculty to students	Jointly constructed by students and faculty
Student	Passive vessel to be filled by faculty's knowledge	Active constructor, discoverer, transformer of knowledge
Mode of learning	Memorizing	Relating
Faculty purpose	Classify and sort students	Develop students' competencies and talents
Student growth, goals	Students strive to complete requirements, achieve certification within a discipline	Students strive to focus on continual lifelong learning within a broader system
Relationships	Impersonal relationship among students and between faculty and students	Personal relationship among students and between faculty and students
Context	Competitive, individualistic	Cooperative learning in classroom and cooperative teams among faculty
Climate	Conformity, cultural uniformity	Diversity and personal esteem; cultural diversity and commonality
Power	Faculty holds and exercises power, authority, and control	Students are empowered; power is shared among students and between students and faculty
Assessment	Norm-referenced (that is, grading on the curve); typically use multiple-choice items; student rating of instruction at end of course	Criterion-referenced (that is, grading to predefined standards); typically use performances and portfolios; continual assessment of instruction
Ways of knowing	Logical-scientific	Narrative
Epistemology	Reductionist; facts and memorization	Constructivist; inquiry and invention
Technology use	Drill and practice; textbook substitute; chalk-and-talk substitute	Problem solving, communication, collaboration, information access, expression
Teaching assumption	Any expert can teach	Teaching is complex and requires considerable training

Source: Campbell and Smith, 1997, pp. 275–276. Used by permission.

An awareness of this distinction implies that teachers need to think about the impact of how they teach and assess, and not just on *how much* students learn but on the *quality* of that learning (p. x, my emphasis).

Now that we have all these new perspectives and paradigms, what can or should teachers do differently? What new ways of teaching and learning have been developed that can augment the traditional practices of lecture and class discussion?

New Forms of Teaching

During the last two decades teachers have been experimenting with and exploring a number of alternative approaches that fall under the general heading of active and experiential learning. Despite the fact that these efforts have proceeded in a more or less uncoordinated fashion, teachers—supported by an increasing number of campus-based teaching/learning centers—have found value in the following ways of teaching and learning.

A number of books summarize the new ideas on teaching and learning that have emerged in the last few decades. Among the ones I have found useful are *Teaching and Learning on the Edge of the Millennium,* edited by M. Svinicki (1999); *Changing College Classrooms*, edited by D. Halpern (1994); *Teaching Tips*, by W. McKeachie and others (1999); *Tools for Teaching*, by B. Davis (1993); *New Paradigms for College Teaching*, edited by W. Campbell and K. Smith (1997); and *Better Teaching, More Learning*, by J. Davis (1993).

Role-Playing, Simulation, Debate, and Case Studies. Although these are discrete teaching activities rather than more general teaching strategies, together they offer students an experience that has significant psychological and social as well as intellectual dimensions. In any case they provide a clear alternative to teaching as "dispensing information" (Bonwell and Eison, 1991).

Writing to Learn. Teachers have used writing for many years—but primarily to assess learning, as with term papers and essay questions on tests, rather than as an integral part of the learning process. The whole writing-across-the-curriculum effort made the argument that writing activities can also enhance the process and quality of student learning (Zinsser, 1988; Bean, 1996).

Small Group Learning. The last decade or so has seen a dramatic increase in the use of small groups, sometimes in the form of temporary groups (as with cooperative learning) and sometimes in the form of permanent groups that develop into high-performance teams (team-based learning). Given the right kind of struc-

ture and assignments, small groups can create powerful kinds of learning—about the subject, the problem-solving process, oneself, working with others, cross-cultural awareness, and so on (Johnson, Johnson, and Smith, 1991; Millis and Cottell, 1998; Michaelsen, Knight, and Fink, 2002).

Assessment as Learning. Teachers have of course been assessing students as long as formal education has existed. But more recently educators have been finding ways to incorporate assessment activities as part of the learning process itself. Alverno College uses learning portfolios and the resources of its extensive Assessment Center to give continuous developmental feedback to students about their learning, as part of what the staff call "student assessment as learning" (Mentkowski, 1999). At the level of individual courses, the now-popular Classroom Assessment Techniques serve the same purpose: feedback, usually ungraded, is provided frequently so students can enhance the quality of their learning and teachers can assess the effectiveness of different teaching and learning techniques and strategies (Angelo and Cross, 1993).

Problem-Based Learning. One of the more powerful teaching strategies to emerge in recent times is problem-based learning. In this strategy, the problem comes first. Used somewhat widely in medical schools and to a lesser extent in other professional schools, students learn in a way that simulates actual working conditions as closely as possible. Students, like professionals, encounter an open-ended, ill-defined problem. They must learn to make a preliminary analysis, gather information or data, assess the relevance of the new information, propose a solution, and assess the quality of their tentative solution. Evidence indicates that students learn how to analyze and solve problems much more effectively this way, compared, for example, to the traditional medical school curriculum of "learn all the facts" for two years and only then proceed to learn how to apply the by-now half-forgotten facts (Wilkerson and Gijselaers, 1996; Duch, Groh, and Allen, 2001).

Service Learning. Although it has a number of historical predecessors, service learning has emerged rapidly during the 1990s as a way of linking higher education with a felt need for more community involvement, both by students and by the institution itself. The basic idea is that students enroll in a course on a given topic, and then during the course engage in some kind of related activity in the community. By adding an experience component that involves both service to others and a chance to observe significant community problems or issues, students add a whole new dimension of quality to their learning (Jacoby, 1996; Rhoads and Howard, 1998; Zlotkowski, 1998).

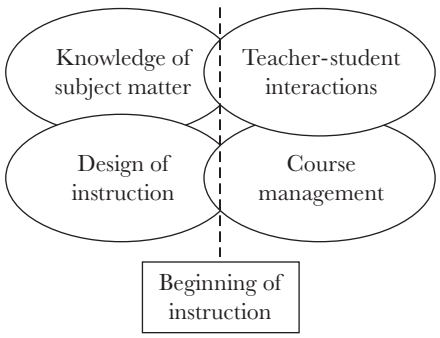
Online Learning. Clearly the new kid on the block in terms of alternative ways of learning, online learning nonetheless has already displayed the potential to change the whole structure of higher education. By putting learning material on a CD-ROM or Web site, or by creating opportunities for electronic communication among the teacher and students, institutions offering online learning can provide learning on demand, literally anywhere, anytime. Despite valid questions about the impact of the loss of the residential experience, online learning is here to stay and is growing rapidly. The key issue, which remains to be answered, is how to ensure that this mode of delivering educational programs will result in high-quality learning.

The number of new ideas has become so great that what is needed now is a conceptual framework that will organize these ideas and show more clearly how they relate to one another. In my view, this is the reason we need a thorough understanding of the course design process.

The Significance of Learning About Course Design

What is it that faculty need to learn about and can learn about that will enable them to provide a higher-quality learning experience for students? In my view, four general aspects of teaching—sketched in Figure 1.1—are involved in all teaching, regardless of whether that teaching is effective or ineffective, traditional or innovative. All teachers need to have some knowledge of the subject matter, make decisions about the design of their instruction, interact with students, and

FIGURE 1.1. THE FOUR COMPONENTS OF TEACHING.



manage course events. The first two in general take place before the course begins; the other two after it begins.

This view implies that teachers who want to improve their teaching can do so by improving their competence in one or more of these four aspects of teaching. Improving any one of these aspects of teaching will clearly be of value. However, based on my several years of experience working with faculty, I see differences in the degree to which each of these factors is likely to make a major difference in the quality of one's teaching.

For example, most college faculty members have a good command of their subject matter, thanks to that being the dominant focus in graduate school and in the faculty selection procedures at most institutions. Although it is true that some faculty could benefit from rethinking what beginning learners need to learn (as opposed to advanced learners like themselves), overall, knowledge of subject matter is not a major bottleneck to better teaching and learning in higher education.

"Teacher-student interactions" is an umbrella term that refers to all the different ways teachers interact with their students: lecturing, leading class discussions, meeting with individual students during office hours, communicating by e-mail, and so on. This aspect of teaching, by my observation, is a skill that runs the full spectrum from poor to excellent. Some faculty members have a personality and a set of social skills that make it easy for them to interact naturally with students in a way that enhances learning. Others need to learn how to be more dynamic, establish better credibility, and otherwise relate better with their students. For a significant percentage of college teachers, learning how to improve their interactions with students would be a major advance. For the others, this is not a primary problem.

"Course management" refers to being organized and ready for the different events in a course, for example, by having assignments ready when they are needed, grading and returning exams promptly, having grade information ready when a student requests it, and so on. Occasionally I see situations where this is a serious problem. But for most professors, course management is not a major problem.

"Design of instruction," on the other hand, is a skill for which few college-level teachers have extensive training. Some have been fortunate enough to learn about the design of learning experiences because they went through teacher training as an undergraduate, had a course on this subject as a graduate student, or have participated in an in-service faculty development program on instructional design. But most faculty members simply follow the traditional ways of teaching in their particular discipline. They lack the conceptual tools they need to significantly rethink and reconstruct the set of teaching and learning activities they use. In my experience, of these four basic aspects of teaching, faculty knowledge about

course design is the most significant bottleneck to better teaching and learning in higher education.

Potential Impact on Problems Faced by Teachers

Looking at this same issue another way, it also seems that course design has the greatest potential for solving the problems that faculty frequently face in their teaching. To test this proposition, it's useful to look at three common problems and ask which of three possible responses is likely to be of most value.

Getting Students to Prepare Before Class. Teachers frequently complain that they cannot get students to do their reading and other homework assignments before coming to class. Hence the class is unprepared for working on challenging problems and questions. What might a faculty member do to address this problem?

- Assign bigger penalties for not doing the readings beforehand.
- Give students a pep talk.
- Redesign the course to give students a reason to do the readings.

All three options are potentially helpful. But most people select the redesign option as most likely to solve the preparation problem and thereby position students to engage in a more significant learning experience.

Student Boredom. Another common problem is that students are bored, either with the teacher's lectures or with the whole course. If the teacher wants to do something about student boredom in a way that would have the biggest impact on the quality of student learning, which of the following options, based on the three of the four aspects of teaching, would most likely accomplish this goal?

- Enhance the teacher's lecturing skills.
- Insert more material from cutting-edge research.
- Redesign the course to replace lecturing with more active learning.

Each of these responses has the potential to reduce student boredom. But when I present this question in workshops for teachers, participants almost always select the third option, and I would wholeheartedly agree. Redesigning the course to incorporate more active learning has the greatest potential not only to solve the student boredom problem but also to increase the quality of student learning.

Poor Retention of Knowledge. To test this general proposition one more time, a third problem that teachers sometimes confront is that their students seem to learn

the material in a course, as evidenced by exam scores. But then they seem unable to retain this knowledge when they move on to other courses. What could a teacher do to solve this problem?

- Make the tests better (or tougher).
- Give students a refresher course during inter-session.
- Redesign the course to give students more experience with using what they have learned.

Most research would support the third option again, in the expectation that opportunities to apply knowledge will lead to deeper understanding and greater retention of the learning. And this means redesigning the course to provide more application opportunities.

Overall Significance of Learning About Course Design

If faculty members can learn effective procedures for designing courses, it will have value for a variety of reasons. It will give them the tools they need to move much closer to making their dreams a reality. It will allow them to address many of the classroom problems they face as teachers. It will provide an organizing framework for understanding the role and significance of many of the new ideas on teaching. And it will provide institution leaders with a needed direction for improving the quality of educational curricula and the quality of instruction in the courses within those curricula.

While I clearly understand and acknowledge the important role that content knowledge and interacting well with students have in teaching, I have become convinced over the years that learning how to design courses is the missing link that can integrate new ideas about teaching, solve major teaching problems, and allow institutions to offer better support for faculty and better educational programs for students (and society).

An Invitation to a New Way of Thinking About Teaching

I began this chapter by noting that college teachers everywhere continually face the question of whether to keep teaching the way they always have or to learn how to change and improve. I built a case for change by describing the need for better learning by students, the availability of new and seemingly better ideas about college teaching, and the fact that institutions are in a period of change and hence may be able to provide better support for faculty change. In my view, this

all adds up to an invitation to change and to develop new ways of thinking about teaching and learning. The situation has never been better for faculty to learn and to begin to find the intellectual and institutional support they need to create the kinds of learning experiences for students that faculty in fact wish for in their own special dreams.

This book is an attempt to organize and present some ideas about one fundamental part of the whole change process—that of designing instruction. If faculty can learn how to design their courses more effectively, students are much more likely to have significant learning experiences, the kind that are being called for in many parts of society today.

But this book is also about dreams. My dream is that faculty will be encouraged to embrace their own dreams about teaching and learning. But I hope they will not only dream of something special happening; they will also come to believe *it is possible to make it happen.*

To get this process started, Chapter Two introduces a language for articulating learning goals that will allow faculty and other educational leaders to more effectively describe the kinds of learning that they value and dream about.