Productivity strategies such as delegating instruction to computers, minimizing redundant course taking, and the like may not work. To enhance the productivity of today’s students, this chapter recommends that institutions take five steps: delineate learning goals, assess student performance, understand how to achieve learning with the particular student population, consider options for increasing productivity, and ensure institutionwide support.

New Modes of Productivity for Student Learning

Barbara E. Walvoord

The challenges facing higher education have been explored in the previous chapters: today’s students come from increasingly diverse backgrounds, more are adult learners with specific and diverse goals, learners move among institutions and between face-to-face and distance education, and they often mix education with work, so that they cannot focus exclusively on their education. As students change in these ways, the nation desperately needs educated citizens who possess not just technical skills but also analytic and evaluative skills, integrity, values, creativity, the ability to work with others from diverse backgrounds, flexibility, and openness to change. Stakeholders are demanding that educational institutions demonstrate outcomes. Meanwhile, resources for higher education are increasingly limited. When scarce resources must be used for higher outcomes, the issue is productivity—that is, the ratio of input to output.

Old modes of increasing productivity may not work with the students described in this volume, because their characteristics and attendance patterns change the costs and outcomes. For example, it may not work well to enlarge class size, offer courses on-line, or hire more adjuncts in an attempt to reduce costs for a cohort of students to get their degrees. Such traditional methods of enhancing productivity assume that the diploma itself is sufficient proof of learning. These perspectives view the student as product, not as contributing member of the productivity quotient; they see students as similar, with learning goals in line with the institution’s and moving through the institution in cohorts. Finally, such perspectives embrace top-down approaches that do not sufficiently influence the daily actions of faculty and departments, which can significantly affect productivity and
learning. Although old ways of increasing productivity may not work, the characteristics and attendance patterns of these new students offer new possibilities for heightened productivity. For example, they may need fewer services, or different services, than traditional students; they may prioritize convenience of class time and location; and they may be able to learn effectively without traditional classrooms but with a different type of faculty or adviser guidance.

Much of the current work on productivity, even when it recognizes the student characteristics described in this volume, focuses on particular strategies such as delegating some instruction to computers or reducing redundant course taking among students (for example, Johnstone and Maloney, 1998; Massy and Wilger, 1998; Massy and Zemsky, 1995). Yet such strategies may be more or less useful in various situations with different student populations, and more or less achievable in various political environments.

Five Components to Enhance Productivity with Nontraditional Students

If they are to enhance productivity, institutions need to have in place five components; a strategy for enhancing productivity is only one of them. The four other components are goals for learning, measures of the goals, an effective pedagogy, and institutional support.

This program is particularly appropriate for the students described in this volume because it emphasizes multiple points of assessment suited to disparate student learning goals and patterns of attendance; it gives faculty members the best possible opportunity to know their nontraditional students and meet their disparate needs; it ties pedagogy firmly to productivity; it encourages knowledge of the options for pedagogy and productivity; and it emphasizes involvement of faculty and departments.

This chapter explains each of the five components in turn. In each section, an illustration is provided by a 200-level Shakespeare class I taught for sophomore non-majors at the University of Cincinnati, a state research university of thirty-six hundred students. The students in this class exhibited many of the characteristics described in the previous chapters: they tended to be urban commuters from a variety of cultural backgrounds, some in poverty, transfers or about to be transfers, employed more than fifteen hours a week, attending part-time or stopping out, taking courses at other institutions, and facing increasing choices for on-line learning. In that class I tried to increase productivity by handling 40 percent more students (from forty to fifty-six) with no loss of their learning, satisfaction, or retention and less of my own time. A previous publication provides details not possible in this short chapter (Walvoord and Pool, 1998). Here, I show only how the case illustrates the five components.
Goals for Learning. Productivity begins with clear statements of learning goals by both faculty and students. The kinds of students described in this volume may enter higher education with inappropriate or unrealistic goals, or insufficient thought about their goals. Thus, departments and individual faculty should know each student’s goals, help to shape those goals, and help students choose strategies to meet their goals.

For the Shakespeare class, I wrote learning goals: “By the end of this class, I would like students to be able to . . . ” (For more examples of goals from various disciplines expressed in this format, see Walvoord and Anderson, 1998.) My most important goals were for students to be able to discuss a Shakespeare play effectively either orally or in a written essay, using the strategies of literary analysis that I taught them in the course; be intellectually creative; take responsibility for their own learning; and reexamine their own ideas and values as a result of reading and discussing the literature. I printed the goals in the syllabus and discussed them thoroughly with students at several points throughout the course.

I also asked students on the first class day to write anonymously for five minutes about their own learning goals, and I read those to see the range of goals and determine whether their goals were consonant with mine. Throughout the course, students kept journals about their progress in achieving their educational goals.

In addition to the learning goals, I also wanted high student satisfaction and a retention rate that was at least as good as other sections of the same course taught by other teachers.

Measures of the Goals. Achieving goals for student learning, satisfaction, and retention in a productive way requires reliable and valid measures, so that individual faculty, students, departments, and institutions have evidence of how well their productivity measures are working, and so that productivity does not mean merely reducing costs to produce a diploma but also investigates quality of learning. Optimally, the measures of learning will be usable by individual faculty and students in classrooms as well as by departments and programs. They will be clear to both students and faculty at the beginning of a course or program, and they will function at various points throughout the educational process. Measures will be transferable among institutions, and they will matter to the faculty, the student, and the institution. Grades are not a sufficient measure of learning unless the criteria and standards for the grades are clear. However, the grading process can be used, because it already assesses student learning throughout the curriculum, it reflects faculty members’ criteria, and it provides the faculty member and the student with timely indicators of how well their strategies for productivity are working in terms of the learning that is occurring.

In the Shakespeare class, I used several measures for my goals. For the learning goals—especially the skills of written literary analysis—I created a
primary-trait scale (Walvoord and Anderson, 1998) that, when used to evaluate the students’ essays, allowed me to assess their analytic skills and creativity in a quantifiable, diagnostic way and to share my criteria, standards, and assessments with others. I shared the criteria and standards with the students early in the course. My detailed evaluation of their essays not only informed me about their learning but also contributed to their grades and gave them feedback as I responded to their drafts. Kristen Pool, a graduate student who served as outside observer to the class, also collected the students’ perceptions of their own learning through interviews with a selection of them and through journals kept by all of them. We also gathered indirect evidence of student learning through those questions on the national IDEA questionnaire (www.idea.ksu.edu) that deal with student perceptions of their learning. Pool observed and took notes in a number of my class sessions, focusing on such elements as student participation and quality of the discussion.

For a measure of satisfaction, I used the student interviews that Pool conducted as well as the IDEA questions that dealt with satisfaction. For retention, I compared the number of students who dropped my class with those from the eighteen other sections of the same course taught that semester by other teachers.

Pool’s time was a resource that enabled fuller gathering of evidence. However, I have worked with hundreds of faculty who have assessed student learning without the help of a graduate student, using their own grading processes, student evaluations, and as they had time, other data such as student questionnaires or journals. The point is that with the populations of students described in this volume, learning must be assessed often throughout the curriculum to inform faculty and departments about how their strategies for productivity are working. The least costly and often most reliable way to assess student learning is through classroom work that is thoughtfully assigned, systematically assessed by clear criteria and standards, intelligently used to inform classroom teaching, and then shared with colleagues for departmental or programmatic decision making.

Effective Pedagogy. It does not help to know that your students are not performing as well as you would hope unless you also have some idea of what strategies might help them learn better. This requires knowledge of educational research and also the faculty’s and the students’ own observation of and reflection on their learning.

Traditional educational research provides some indications about how higher learning goals can best be achieved (for example, Astin, 1993, 1996; Chickering and Gamson, 1987; Pascarella and Terenzini, 1991; Levin and Kosky, 1998). That literature emphasizes the importance of student involvement and classroom interaction with teachers and peers. Much of it assumes traditional student age and demographics. New research and theory are needed as student populations and attendance patterns change.

Understanding how to achieve learning also requires faculty and departments systematically to observe and reflect on their own students’
characteristics, institutional and student cultures, learning processes, and outcomes—data that the local faculty and departments have requested, know well, and can use to improve productivity and learning. (Useful guides for faculty and departments include Angelo and Cross, 1993; Banta, Lund, Black, and Oblander, 1996; Brookfield, 1995; Nichols, 1995a, 1995b, 1995c; Tierney, 1990; Walvoord and Anderson, 1998. See also Flashlight program at www.TLTGroup.org.)

The literature—as well as my own experience directing faculty development projects and coaching individual faculty about their teaching at many different kinds of institutions—suggests that the following teaching strategies are particularly important to the kinds of students described in this volume. These are presented here simply as a list; to explain further or to offer examples is beyond the scope of this chapter. However, the description of the Shakespeare class, following the next component description, illustrates how one teacher implemented these pedagogies.

- Gather and use rich information about each student’s background, learning goals, learning style, and culture. Do not assume that all students are the same.
- Set high standards for student achievement, and help students set high standards for themselves.
- Clarify time requirements; emphasize that being educated requires time, that time-on-task is one of the most powerful predictors of learning, and that college requires a different ratio of class time to study time than high school.
- Assess student learning, satisfaction, and retention. Use your own class assignments, tests, and exams, as well as student evaluations and questionnaires, to assess student classroom work.
- Give frequent feedback to students throughout the learning process.
- Help students manage their time constraints. Try to manage the learning process so as to waste as little of their time as possible, help them learn to study efficiently, and insofar as your time allows, or in collaboration with others, help students make good decisions about employment hours, travel, budgeting, and extracurricular involvement.
- Respect and use students’ own knowledge, skills, and learning styles.
- Introduce students to the culture of higher education by providing explicit cultural information.
- Attend to issues of self-image, identity, and attribution. Help students envision themselves as proactive learners, professionals in training, rather than as passive students doing just enough to get the grade. Help them attribute their successes and failures to their own efforts and decisions, rather than to luck, teacher-didn’t-like-me, or other attributions that rob them of power to change.
- Help students engage with each other in meaningful academic tasks.
- Provide students with as much access as possible to you and to each other, even when they are in different locations at different times.
Productivity in Achieving the Goals. Faculty, students, and administrators need to know the strategies that can increase productivity and how those strategies may affect the kinds of students described in this volume. As I have said earlier, much of the literature on productivity suggests specific strategies for increasing productivity. With the four following productivity strategies, I have tried to derive the principles that lie behind such lists and to focus on classroom techniques that can be used by faculty and departments in traditional institutions. The examples at the end of the chapter illustrate some ways to implement these four strategies.

Provide High-Cost Services Just at Point of Need. High-cost services such as individual response to student work and individual or small-group interaction with a faculty member are powerful learning tools extremely valuable to all students, but especially to those described in this volume. Such services must be provided richly and quickly at points of need to students who are ready to benefit. However, these services should not be used when less expensive methods could achieve the same results. They should not be given to students who do not need the help or are not ready to benefit.

Extend the Usefulness of Resources While Reducing Their Cost. Increase the number of students who can make use of a single faculty or expert utterance or resource. For example, use interactive video for distant students so more students can listen to a lecture or demonstration. Make sure your resources are in the most effective form and medium for learning. It does not matter how many students listen to a lecture if the lecture does not help their learning. Consider also the cost of the resource for both institution and student. A student who has to go to the library or her workplace to access the Web may be better served by a printed syllabus she can keep on her desk at home.

Delegate. Use high-paid faculty for what only faculty can do. When possible and productive, delegate other tasks to computers; to adjuncts, staff, or graduate students; or to students themselves, helping them take responsibility for their learning.

Help Students Be Productive. Help students make the best use of their own time and the best decisions. Help them with productive study habits; when possible, structure class meetings and locations to save them travel time; guide them in decision making about employment outside of school, attendance, choice of institution, choice of distance or face-to-face instruction, and the like. Opportunity cost and productivity are concepts every student should understand.

The Shakespeare class provides a good example of how one faculty member implemented both the pedagogical principles and the strategies for productivity described in the preceding paragraphs. As noted, the class was one of nineteen sections that quarter of a 200-level sophomore literature class required of many University of Cincinnati students as part of their general education. Traditionally, the English department had resisted the form of productivity that many other departments used for sophomore non-majors
courses: extending the “reach” of a lecture by running large lecture classes of several hundred students with graduate students as graders and perhaps discussion leaders or lab supervisors (although some large courses did not have discussion sections or labs). Instead, the department had placed great emphasis on capping these sophomore sections at forty-five students each in order to preserve what were believed to be important factors in learning: class discussion, teacher response to writing, and a sense of community in the classroom, where the teacher knows each student and students know each other. But the system had several unproductive elements. First, most classrooms were arranged in rows, and forty-five is a large number of students for effective discussion. If you walked the halls of the main classroom building in the middle of the day, you would see many of these classes being taught by lecture with little student engagement. Furthermore, at a research university it is difficult for faculty to find the time to grade batches of forty-five papers, especially from non-majors, so there was less response to student writing than our departmental ideals and theories would suggest.

However, even if I did my best to encourage discussion and spent lots of time responding to student papers, I still envisioned a teaching scene that had many unproductive elements. Most students in the class would be employed for fifteen, twenty, even thirty or forty hours a week. I knew that if I met them as a group in the bolted-seats, raked-row lecture classroom assigned to me, it would be hard to involve even half of them on any given day. Most students would not read the plays until after I had lectured; many would not read the plays at all but would rely on Cliff Notes and their class notes. Many would write the papers in a single night with questionable use of Web sources. I would be violating the productivity principles listed earlier by using my faculty time to present information that could have been delegated to reading and offering individual feedback to student work that did not represent enough of the student’s investment to merit my high-cost time. Meanwhile, I was maintaining a demanding publication schedule, and I wanted to reduce my teaching time if I could do so with no diminution of student learning, satisfaction, or retention.

Another productivity issue was that our departmental capping policy, combined with loss of faculty positions and other demands on faculty time, meant that there were not enough sections for the demand. Students were coming frantically to my office during registration week, saying, “I’ve tried three times to get into a lit class, which I need to graduate, and each time there was no room. Please let me in; I’ll sit on the floor.” I was disturbed by the hardships we were creating for students and wanted, if possible, to help the department address these issues.

The first thing I did was to rethink the use of the most costly item in the productivity equation: my own time. Attending as well to the learning side of the productivity equation, I also placed high priority on the pedagogical strategies I knew were effective with the type of students in my class: active learning where students themselves must talk and write about
the literature they have read, frequent feedback on their work, accountability for class preparation, a teacher who knows their names and their work, and engagement with peers in meaningful intellectual tasks.

I decided not to lecture at all, but rather to delegate the delivery of information and ideas to readings and to videotaped lectures on Shakespeare’s plays that my library owned or could purchase. I also wanted to help my students make better use of their own time, minimizing the driving, parking, babysitters, and other costs to them of class attendance—costs that were of questionable value if they merely sat silent for the whole hour. Students could watch the videotaped lectures and read the material on their own time in their own spaces. Obviously, for some classes and disciplines, and with students who had access to computers, interactive learning software could be used.

I wanted to use my time not to deliver information but to engage in discussion with students and respond to their writing, encouraging their development of sophisticated analytical skills and creativity. These were the most difficult aspects of teaching. They could not be delegated to computers, student peers, or teaching assistants. I was trying to use my time to do what only I could do. I decided that it was better for students to meet for discussion an hour a week with a group of about fifteen, where discussion could be very lively and everyone was expected to participate, rather than three times a week in a room of forty to forty-five students seated in fixed rows, where it would be difficult for me to engage them or hold them accountable for thoughtful reading. I wanted to place as great a value on their time as on my own, ensuring that if they arranged their work schedule or hired a babysitter, drove all the way across town, cruised for a parking space, and trekked a thirty-pound backpack to my classroom, it would be well worth their while.

So I rearranged time, space, and roles for greater productivity. Each week, students would do these things: (1) read the play assigned for that week, as well as any other assigned reading, (2) listen to two videotaped lectures about the play (these were on reserve in the library, and some were broadcast on the campus TV station), (3) write a one- to two-page analysis of an aspect of the play, (4) keep a journal about their learning progress, and (5) attend one class session of fifty minutes, where they would meet with me and a total of some fourteen other students for discussion. Following the pedagogical principles listed earlier, my standards were high and accountability was strict. To this class discussion session students were required to bring their notes on the play, a text of the play, notes on the taped lecture and other readings, and the short written assignment ready to hand in. During the class, they would be responsible for talking from their written assignment, demonstrating familiarity with the play and assigned readings, expanding their own insights, helping other students to think more deeply, and taking notes on the discussion. An extensive handout from me helped them learn effective discussion strategies—part of their training in academic
culture. Each student would be graded on her participation in class. They would all complete a self-assessment questionnaire at the end of the class session, aimed at helping them and me to assess how they were meeting their learning goals. Twice during the ten-week quarter they would write a five- to eight-page formal essay.

I spent my time each week in the following way: one hour to create a one- to two-page assignment about the play and six hours meeting with each of six small discussion groups in small rooms that the registrar had made available to me at various times of the day. I did not take home the short weekly papers because I responded to them in class. I did take home and respond to drafts and final copies of the first formal essay, as well as the final copy of the last essay, which served as the final exam. Prior to the semester, I previewed and purchased the videotaped lectures and set them up for student borrowing in the library. I figured that I spent three hours less per week than if I had taught the class by the lecture method (specific time allocations are presented in Walvoord and Pool, 1998).

In other words, I was able to handle more students in less time while implementing sound pedagogy for learning: ensuring that every student spoke in class at each weekly session, wrote every week and received a response, received a draft response to his analytic essays, and participated in a learning community where he was known by me and his classmates. The quality of their learning was high, as judged by Pool’s and my systematic analysis of their papers and by their course grades. Pool’s interviews with class members, as well as the IDEA questionnaire and students’ journals, indicated that they highly valued the pedagogical strategies and course structure. They reported that they learned well and especially appreciated the opportunity to come to class only once a week (specific results are reported in Walvoord and Pool, 1998). In effect, I had created for them a kind of “distance” course where they could do more work on their own and attend class less frequently. For example, one student said in an interview, “It wasn’t like, ‘Oh, we’re only meeting once a week, this is cake.’ We were doing the full load. I’d go watch the videos on Monday, write my logs and then write my assignment, and go to class on Wednesday. . . . It wasn’t like, ‘Oh no, this is too much.’ It was evened out. It was put together extremely well. You taught yourself” (Walvoord and Pool, 1998, p. 45). The drop rate was exactly the same as the average of the eighteen other sections of the same course being taught that semester.

The pedagogical strategies used in the Shakespeare class are especially useful for the students described in this volume. I eased their problems of transportation, parking, and travel time by reducing direct contact in class and making that contact very intensive for maximum learning. They could get basic information and an interpretive framework for the plays through the taped lectures, which they could view with greater flexibility. I held them strictly accountable each week for reading and writing, and I gave them weekly feedback. I made explicit the standards for student work and
the underlying cultural assumptions about how to conduct themselves in a college-level discussion class. I helped them form their learning goals and monitor their own progress. I helped them make meaningful contact with other students and engage with their peers, thus satisfying their need for community.

To increase productivity, I used the strategies mentioned earlier: I provided small group discussion and individual response to drafts of papers at points when students were attentive and ready to benefit. I spent my time in these intensive interactions and delegated to videotapes the presentation of basic information and analysis. I extended the reach of these taped lectures by making them available for loan in the library and by broadcasting them on campus TV. I delegated to students appropriate responsibility for their own learning. They were in class fewer hours but responsible for more hours of study on their own. I helped them make productive use of their time.

**Institutional Structures.** The Shakespeare class illustrates what a motivated teacher can do on her own with departmental support that she requests from sympathetic colleagues and administrators. For the Shakespeare class, the department chair and the director of undergraduate studies were highly supportive, encouraging me and assigning Kristen Pool to help me gather data during the trial semester. However, these were local, situation-specific adjustments made for a single faculty member at her request. To enhance productivity throughout an institution more robust institutional structures are required. Two basic approaches are possible: radical restructuring of the educational process in nontraditional institutions, and new strategies within traditional structures. These approaches are not mutually exclusive; traditional institutions usually adopt and modify experiments first initiated in nontraditional settings.

**Examples of Radical Institutional Restructuring.** Nontraditional programs radically disaggregate and restructure faculty and institutional roles, helping even traditional institutions to think creatively. An example is The Union Institute & University, which offers baccalaureate, master's, and doctoral programs to its three thousand adult students, about one-third of them minority. Based on the medieval Oxford model with its individual tutors, and on the theories of John Dewey, UI&U is learner-centered, learner-designed and paced, and multidisciplinary. Every degree is individualized, with emphasis on the learner's contribution to society. Rather than follow a traditional framework of courses and credits, learners work with faculty mentors to define their own paths of inquiry as well as the standards by which their work will be evaluated by their own mentors and by other members of the faculty (see www.tui.edu).

UI&U addresses productivity by focusing its resources on providing the most costly yet often the most powerful aspect of education—individual faculty mentoring and evaluation—while reducing other costs, such as traditional classroom and credit structures. Because mentoring is individual, faculty can concentrate the most time on learners who need the most
guidance, which helps limit this high-cost mentoring to those situations where it can really be effective. UI&U also employs peer interaction for learners.

The Western Governors University requires no credits or class attendance, and it does not itself offer any instruction (www.wgu.edu). Instead, it focuses its resources on assessment of student learning. Students must demonstrate their mastery of the required competencies: they take standardized exams, write papers, produce research projects, and in some fields, demonstrate workplace competence. Unlike UI&U, where assessment, like mentoring, is individualized, assessment at WGU is standardized: all students in a degree program take the same tests for the same competencies as well as general-education competencies common to many degree programs. Students are guided by adviser-mentors. The adviser-mentor helps the student assess what competencies she already has and what competencies she needs to acquire by individual study or by enrolling in courses offered at other institutions. WGU enrolls students from around the world, using technology to enhance adviser-student communication and facilitate assessment. Some students take courses on-line from various institutions. Whereas the emphasis at UI&U is on intensive engagement with faculty mentors and individualized inquiry, the emphasis at WGU is on demonstrating competencies that are the same for every learner in a program. Both institutions disaggregate and rebalance traditional faculty and institutional roles in ways that can help us think outside traditional boundaries.

The University of Phoenix, unlike UI&U and WGU, operates with credits and classes, but reduces the costs of those structures (www.phoenix.edu). To teach its courses, it hires adjuncts who are practicing professionals in their fields, and it provides those faculty with standardized course plans. It saves students time by holding classes at convenient times and locations, usually near major highways or malls. Students may also take courses on-line; lectures, questions, and other materials are delivered on-line, and faculty act as guides to learning. In the on-line version, faculty spend less time delivering lectures and more time responding to individual students.

These three nontraditional institutions balance each other in provocative ways, each using its resources differently to emphasize different aspects of the educational process, each defining in different ways the roles of faculty, advisers, and students.

*Examples from Traditional Institutions.* At traditional institutions facing the student characteristics and attendance patterns described in this volume, greater productivity must be achieved inside the feasible boundaries of course and credit structures, academic departments, and faculty roles. Two approaches to productivity predominate: focusing institutionwide efforts on specific measures to improve productivity, and providing incentives and support for faculty and departments to enhance productivity in their own spheres.
An example of the first approach—institutionwide efforts—is Mercy College, described by Passaro and her colleagues in Chapter Seven of this volume. Mercy College identified student retention and student learning as aspects that could improve its productivity. After curricular reform failed to show significant improvement in student retention, the college turned to a much broader, institutionwide effort. This includes not only curriculum but also marketing, recruitment of students, and financial aid—all aimed at recruiting more highly motivated students with a better chance of succeeding—and then providing those students with a thoughtful curriculum as well as support structures that facilitate success and yet are affordable. This school’s story illustrates institutionwide efforts focused on a specific strategy for productivity: increasing retention and improving learning.

A second approach for traditional institutions has been to provide incentives and support for faculty and departments to achieve greater productivity in their own spheres, using their own ingenuity. Because faculty and departments have high autonomy, their individual decisions about time allocation, teaching load, use of adjuncts and teaching assistants, course structure, teaching methods, and curriculum significantly affect an institution’s productivity (Levin and Kosky, 1998). Also, their autonomy makes it difficult to organize them into a tight, hierarchical structure around institutionwide programs. But autonomy encourages local ingenuity and problem solving. Thus, one approach is to build on that strength, encouraging faculty and departments to find their own ways to enhance productivity. A key question, however, is whether to let faculty and departments use any means they choose or to limit them in some way. The two following examples have relied on incentives for faculty or departmental initiatives but have chosen two different ways to limit that freedom.

Worcester Polytechnic Institute, in Worcester, Massachusetts, received funding from the Davis Foundation for eleven faculty in seven departments to experiment with instructional designs intended to increase productivity in introductory courses such as science, mathematics, engineering, and drama. The grant stipulated that the course should include cooperative learning facilitated by upper-class learning assistants. In this way, WPI dictated a pedagogical strategy that some research has shown to be effective for learning. Faculty members were not allowed to achieve productivity in any way that seemed good to them but instead had to incorporate the required pedagogy. Another limit on faculty and departments was a strict accountability and assessment requirement: faculty submitted data on their course costs and outcomes, and the institution supported development of accounting models to determine productivity (Catterall, 1998).

The Pew Grant Program in Course Redesign has supported cohorts of ten institutions a year, each to restructure a large introductory course. There is no requirement for a certain pedagogy, as at WPI. However, institutions that enter the program are supported by extensive guidance for faculty and departments in redesigning courses and in measuring productivity, including
measures of outcomes such as learning and retention (Center for Academic Transformation, 2001). Through this guidance, the program exerts some centralized influence over faculty and departmental entrepreneurship. The projects have demonstrated significant savings as well as enhanced learning outcomes.

Both of these approaches for traditional institutions—a centralized effort aimed at a particular productivity strategy such as retention, and incentives for faculty and departmental ingenuity—have strengths and drawbacks that will play differently in different situations. They are not mutually exclusive, but could be combined in different ways depending on institutional culture. Both approaches need the context of the five components described in this chapter. Mercy College has had all of them in place, as have the WPI and Pew programs.

**Implications for the Future**

Most of the literature on productivity concerns specific measures for achieving it—delegating instruction to computers, minimizing redundant course taking, and the like. But such strategies may not work well with the kinds of students described in this volume, and they may be more or less politically or economically feasible in different environments. To help institutions choose among these strategies and make them work, this chapter has recommended that they have in place five components: learning goals, measures of student performance, knowledge of how to achieve learning with the particular student population, knowledge of options for increasing productivity, and institutionwide support. The story of the Shakespeare class illustrates how productivity may be enhanced, even in humanities classes, by thoughtful application of the first four components. However, enhancing productivity throughout an institution requires broader institutional supports. Nontraditional institutions help us think in new ways about institutional productivity because they disaggregate faculty roles and rearrange educational components. Traditional institutions may focus a coordinated institutionwide effort on a particular productivity goal, such as retention, as Mercy College has, or they may provide incentives and support for faculty and departmental initiatives.

The new students described in this volume change the game for achieving productivity. To accommodate these students and to find ways of enhancing productivity in their own specific environment, institutions should not merely employ top-down strategies that they believe will enhance productivity. Instead, they must ensure that all five components are firmly in place. Doing so allows an institution to choose among various strategies for enhancing productivity, to tailor those strategies to its local situation and goals, to discover whether its productivity measures are effective, to focus on student learning as the sine qua non of educational productivity, and to generate creative solutions for the productivity dilemmas.
and possibilities that future students will present. Such steps are central to the future of a nation that desperately needs educated citizens from all backgrounds who possess not merely technical skills but real wisdom, and who are educated in ways that most efficiently employ our limited resources.

References


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