

IMPROVING COLLEGE TEACHING

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It has been almost four years since A Nation at Risk united growing dissatisfaction with education in America into an educational reform movement. The thirty or more major reform reports that have appeared since are in solid agreement that education in the public schools and in colleges and universities falls short of "excellence."

Suggestions for reform in higher education have much in common with those for elementary/secondary education, but there are also some interesting differences. Reform in the public schools seems to center around the quality of teaching (how to attract and train better teachers), and the quality of the workplace (how to make the environment more conducive to good teaching). Conversations about the improvement of schooling are likely to include issues of merit pay, master teachers, and the Holmes Group and Carnegie Forum proposals for teacher training.

In colleges and universities, the emphasis is more on curriculum than instruction. Some people, most notably the Secretary of Education, think that students are not learning what they should be learning in college. Secretary Bennett, for example, advocates a return to the "task of transmitting a culture to its rightful heirs," and the Association of American

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Colleges entitled their call for reform "Integrity in the College Curriculum." While a few higher education reports have called for more attention to teaching, generally speaking, reformers in higher education have been more willing to tackle the reform of what is taught than how it is taught.

What schools and colleges have in common in the 1980's reform is that in both cases, the reports look beyond the classroom teacher for action. The advocates of reform in the secondary schools think that the responsibility for improvement lies with those who train, select, and supervise teachers. In higher education as well, there is some reluctance to place the responsibility for educational reform in the hands of individual faculty members. Instead, curriculum committees and the collective faculty are urged to take action to increase requirements and raise standards. So far, there has been little discussion in either secondary or postsecondary education about what individual teachers should be doing to improve learning in their own classrooms.

We in higher education have been especially reluctant to enter the classroom for a number of reasons. In the first place, we equate academic freedom with the sanctity of the classroom, and there is a tradition of restraint in probing too deeply what goes on there. Secondly, college teachers are authorities in their disciplines. No one else at the institution knows quite as much as they do about their particular specialties, so there is an understandable reluctance to tell faculty what or how to teach. And finally, there are some age-old questions that have not been answered to the satisfaction of many. What constitutes

effective teaching? Who should evaluate teachers, and how? Can good teaching be recognized and rewarded?

Actually, we have developed some pretty good answers to those questions over the past decade or so, but our attention to educational quality in this decade seems to be focussed more on student assessment than on teacher evaluation. One would think that the quality of undergraduate instruction should be related to the quality of undergraduate learning. But there is some reluctance in higher education to commit ourselves to establishing that connection. While we talk easily of teaching and learning, we are generally uncomfortable talking about teaching for learning. Why can't we bring ourselves to ask what teachers can do to cause learning? Although learning can and does take place in the absence of teaching, it would be hard to think of a situation in which teaching should take place in the absence of learning.

The research question that I am interested in addressing is, how do teachers know what students are learning as a result of their teaching efforts? This question lies at the intersection of research on teacher effectiveness and the current interest in assessment of student learning.

In higher education, we are putting a lot of faith in assessment of student performance as the route to attaining quality in undergraduate education. According to a recent Campus Trends report issued by the American Council on Education (El-Khawas, 1986) three-fourths of all college administrators think that assessment is a good idea whose time has come. But even more interesting is the finding that 91 percent

of the college administrators surveyed think that assessment should be linked to instructional improvement. Most authorities on assessment agree. Turnbull (1985, p.25) observes that "the overriding purpose of gathering data is to provide a basis for improving instruction, rather than keeping score or allocating blame." And the report issued by the Education Commission of the States (1986, p.32) asserts that "Assessment should not be an end in itself. Rather it should be an integral part of an institution's strategy to improve teaching and learning...."

But in most colleges and in most states, we have yet to forge the necessary links between assessment and instruction. So far, classrooms continue to be regarded as the mystery boxes of education. What we really want to know is, What are students learning in classrooms and laboratories and anyplace else we are deliberately trying to teach them? Yet what we are proposing to do is to bypass the classroom and go directly to assessment--usually large scale assessments taking place at the institutional or statewide level.

Most people assume that assessment will improve instruction by documenting the strengths and weaknesses of student performance. Educators will then use the results of assessments to take appropriate action. In higher education, however, "taking appropriate action" usually means making collective decisions about what is taught, i.e., about the curriculum. It rarely means going anything about how it is taught. But how students are taught lies at the heart of quality education. It makes the difference between a lifelong learner and a grade grubber, between enthusiasm for learning and

indifference to it, between an educated society and a credentialed one.

Ideally, a college is a community working in harmony toward common ends. Practically, it is a collection of individuals with maximum freedom to do their own thing, hopefully as well as they know how. The problem is that many college teachers really don't know how to teach very well. Typically, they have no training for teaching, and they have no one to talk with about it.

Unfortunately, assessment as currently conceived, isn't going to tell teachers much about what students are learning in their classrooms, and therefore, it is not going to be very helpful to teachers. Since our classroom-based system of education is organized and funded on the assumption that something important happens when teachers meet students in the classroom, teachers are going to have to get better information from assessment if we expect to improve the quality of undergraduate education.

A few colleges are beginning to tie assessment directly to the improvement of instruction. Let me describe briefly how two very different colleges are approaching the task of improving college teaching.

One of these colleges is well along in its quest for teacher involvement in assessment; the other is just starting. One is a small four-year Catholic women's college--Alverno College in Milwaukee, Wisconsin. The other is a huge urban multi-ethnic comprehensive community college--Miami-Dade Community College in Miami, Florida.

Those of you with special interest in higher education may know something about the Alverno college-wide assessment program. Alverno does more than involve faculty in the assessment procedures. Faculty are the assessors, and they have become keen observers of student learning as it is taking place in the classroom. The mission and instructional goals of Alverno College are spelled out in considerable detail, and every teacher knows what outcomes Alverno hopes to achieve. Alverno's assessment is strongly formative; the assessment itself is an educational process. Teachers find that their feedback to students on college-wide goals frequently "offers the teachable moment" and "takes the elements of assessment...and turns them into learning" (Loacker, et al., 1986, p.52).

While the heart of the Alverno assessment lies in the unique educational interaction between teacher and student, the outcomes of liberal education transcend what is learned in individual courses, and collaboration and integration among faculty in departments and across the college are also built into the plan.

The unique and important contribution of the Alverno plan is that connections are specified from the beginning--between instruction and assessment, between teachers and learners, between courses and the total college experience, between feedback on performance and student development, between external assessment and self-assessment. Teachers use assessment to educate. At Alverno, assessment is more than the bottom line, more than "a report with implications," more than "proof" to parents and students that their money is well spent, more than a

one shot or even annual shot at self-evaluation. It is an on-going process that is never finished for students, teachers, and the college.

While many people admire Alverno's comprehensive and integrative assessment process, there is considerable skepticism that it can be transported to campuses which are larger, more diverse, less a community and more a collection of individuals, curricula, and courses.

Miami-Dade Community College is at the opposite end of the spectrum of higher education from Alverno. Its 45,000 students interact with faculty in literally thousands of courses on four campuses. Its student body consists of a majority of minorities in one of the most rapidly changing urban communities in the United States. But Miami-Dade too is moving to tie assessment to instructional improvement, and since Miami-Dade has an enviable record of accomplishing what they set out to do, people are watching with interest their proposals for institution-wide attention to the quality of instruction.

The Miami-Dade goal is perhaps the first clue. The goal is not to conduct an assessment; it is to improve instruction. True, Miami-Dade is ahead of most of the rest of higher education in that they already have a pretty good assessment program in place. They use measures of student learning to place students, to offer guidance, and to assess progress through the curriculum. Unlike Alverno's highly personal, teacher-based assessment program, Miami-Dade's approach to assessment is technologically sophisticated, making heavy use of computers and expertise external to the classroom. Collectively, the faculty at

Miami-Dade now know quite a bit about the performance of their incredibly diverse student body. Their task now is to maximize learning through improving the quality of instruction.

Miami-Dade has an advantage, which incidentally it shares with Alverno, and that is that it is a teaching institution. Their mission is to teach students as well as they know how. No one argues that faculty have research responsibilities or that the goals of improving teaching are wrong-headed, nor I think can anyone argue any longer that the improvement of instruction is an unrealistic or unattainable goal.

Miami-Dade has on the drawing board an ambitious program outlined by President Bob McCabe (see McCabe, 1986) to help classroom instructors move students toward those learning accomplishments that are valued by the institution. The first task is to obtain institution-wide agreement on what students should know and be able to do--in short, to define in measurable terms the desired outcomes of student learning.

At the same time, efforts will be made to promote recognition of classroom teachers as a primary and valued resource that the college uses to accomplish its goals. "Teaching chairs" will be established, and selection, promotion, and tenure will require teachers to demonstrate their teaching competence. One way of doing this will be through classroom research conducted by teachers in their own classrooms on student learning. As part of tenure review, faculty will be asked to provide data and information about what their teaching contributes to the learning goals valued by Miami-Dade Community

College. Teachers will have an opportunity to take graduate level courses, offered on the Miami-Dade campuses, on classroom research and teaching effectiveness. The course on classroom research will emphasize techniques for collecting systematic feedback from students on what they are learning in that class. The feedback devices may be oral or written, group or individual, soft data or hard, reactions or accomplishments, immediate or long term. The point is that the teacher's attention will be directed to what students are learning, and the goal will be to maximize that learning through whatever methods and techniques can be shown to work.

It is not an easy challenge. It is still too early to tell whether the learning goals of Miami-Dade will be so comprehensive that individual teachers may pick and choose the learning goals to which their teaching contributes or whether the emphasis will be on certain core goals to which all teachers contribute.

The point of these examples is that both Alverno and Miami-Dade have made or are making major efforts to bring assessment into the classroom. If the majority of educators in America's colleges and high schools are convinced that assessment should be tied to instructional improvement, here are two creative, but vastly different, models to challenge them.

Now let me return to my proposal that, for want of a better title, I have dubbed Classroom Research. The purpose of Classroom Research is to help teachers evaluate the effectiveness of their own teaching. I would first like to help teachers clarify what they are trying to do, and then help them develop

measures that will provide feedback on student learning and student reactions to instruction.

Within higher education, we seem to have developed some shared goals that we think are important. There is an extensive literature on goals, most of it from scholars, commissions, and task forces, rather than from teachers. From this literature, Howard Bowen (1977) has developed a comprehensive catalogue of widely-accepted goals for the education of individual college students. He includes all of those attributes that we know so well, starting with Cognitive Learning, which includes the development of competencies such as verbal and quantitative skills, substantive knowledge, rationality, creativeness, and intellectual tolerance and integrity. He then reminds us of our goals for Emotional and Moral Development, including self-discovery, psychological well-being, human understanding, values and morals, etc. And finally, he lists under Practical Competence such goals as leadership, citizenship, economic productivity, sound family life, fruitful leisure, and consumer efficiency.

If those are the goals, it seems fair to ask what we do to assure that they are being addressed. Are college teachers concerned about the worthy use of leisure time? What do they do to aid in self-discovery or psychological well-being? What about intellectual integrity? Do we teach that? Do we know how? If we don't teach it, do we still think it is an important goal? I suspect that large numbers of teachers subscribe to the goals that appear in the literature as important outcomes of a college education. But how are they accomplished?

Research on what happens to students in college is quite positive, suggesting that, in fact, we can legitimately claim that some of our noblest goals do in fact seem to get picked up and carried away by students as they leave our colleges. Tolerance, for example, seems to be an outcome of college, and it is probably caught rather than taught. In fact, much of the student development that occurs in college seems to be more the result of the environment than of anything we consciously teach or attempt to control. We are fond, for example, of quoting Woodrow Wilson, who said when he was president of Princeton, that "The real intellectual life of a body of undergraduates, if there be any, manifests itself not in the classroom, but in what they do and talk of and set before themselves as their favorite objects between classes and lectures" (Wilson, 1909).

While that may well have been true in the small residential colleges that existed eighty years ago, and is probably still true on perhaps ten percent of college campuses, it comes dangerously close to admitting that we as educators can't do much to improve undergraduate education anywhere, and certainly not on the commuter campuses where many students rush from parking lot or subway station to class without ever speaking to another student, let alone pondering the state of the universe or their place in it.

While I suspect that there is universal agreement that a college education must be more than the sum of its parts, the reality is that as the commuting, part-time student population increases, campuses get more comprehensive and more impersonal, on-campus extracurricular activities are replaced by part-time

jobs, family responsibilities and day-to-day struggles to survive, what students learn in college will be more and more dependent on what they learn in classrooms. Unless we can improve what goes on there, we have little chance of improving undergraduate education.

Leaving aside for a moment the rhetoric about the goals of higher education, let us ask the smaller but more useful question. What are teachers trying to do? Ironically, that is one of the most underresearched questions in higher education. We rarely ask teachers what they hope that students will learn from them. There is a list of 16 various and assorted teaching goals that has been used from time to time, albeit more to study faculty attitudes than to study teaching. In a massive national study conducted in 1973 in which the sturdy 16 items were embedded in a hundred others concerning faculty characteristics, Alan Bayer found that 97 percent of the teachers in community colleges, four-year colleges, and universities thought that developing students' abilities to think clearly was "essential" or "very important" in their teaching of undergraduates. Almost as many thought that mastery of knowledge in a discipline and increasing the desire and ability to undertake self-directed learning were important (92 percent and 89 percent, respectively). It would be interesting to know just what teachers did in their classrooms to prepare students for self-directed learning, or how the 47 percent subscribing to the development of moral character or the 57 percent endorsing the achievement of deeper levels of students' self understanding went about implementing those goals.

I think it is time to take teachers and their goals for teaching undergraduates seriously. To that end, I am developing a Teaching Goals Inventory (TGI).^{*} It asks teachers to select one class and state the importance of various teaching goals in their teaching of that class. To date, I am in the process of pilot testing an inventory consisting of 46 items distilled from the literature on cognitive and affective goals and outcomes of higher education. The collection of data on teaching goals raises some interesting research questions--for example, do teachers in community colleges espouse different goals from those in liberal arts colleges or universities? Do teachers in physics have different goals from those in history? Do the teaching goals of experienced teachers differ from those of inexperienced teachers? Men from women? Part-time from full time? How do the accumulated goals of classroom teachers relate to institutional goals? Collectively, faculty serving on curriculum and missions committees are quite likely to endorse--and sometimes promise--the development of self-understanding or moral character. Preliminary evidence from the TGI indicates that no teacher at one community college said moral development was an important goal of their teaching. How then does it become a goal of the college?

These are interesting questions, and I will pursue some of them, but my major interest in developing the TGI is to provide teachers with a profile of their instructional

^{*}Appreciation is expressed to Elizabeth Fidler and _____, graduate students at the Harvard Graduate School of Education have served as research assistants in the project.

priorities. Once we determine the major clusters or factors of teaching goals, we can devise a set of assessment measures that will help teachers evaluate whether students are learning what teachers say they are trying to teach. That will take the form of a booklet of feedback devices indexed to teaching goals.** Feedback devices can be simple or complex, well-researched or experimental, traditional or nontraditional. If, for example, a teacher states that mastery of subject matter is an essential goal of his or her teaching, then the traditional classroom test is a fairly good feedback device. Almost every teacher is interested in content learning to some extent, and we know a fair amount about how to construct tests that are reliable and valid. When I say "we" I mean the profession of education. Most college teachers know almost nothing about the construction of classroom tests. They use very primitive measures because they have never been exposed to existing knowledge about how to construct a test that will provide maximum information about what students are learning. Tests are frequently used simply to sort and grade students.

The other problem with classroom tests is that they are frequently final exams, and feedback comes too late to improve teaching for that class. Some teachers, however, have devised simple and effective ways to find out what they need to know about student learning during the semester. A physics professor

Appreciation is expressed to NCRIPTAL of the University of Michigan and to the Harvard Assessment Seminar for funding and to Tom Angelo, graduate student at HGSE who served as research assistant.

at the University of California uses the extremely simple device of "minute papers" to obtain student feedback on classroom learning. He stops class one minute early four or five times during the term and asks students to write the answers to two questions: 1) What is the most significant thing you learned today? and 2) What question is uppermost in your mind at the end of this class session? He reports that this simple device gives him excellent feedback on whether students are understanding and whether there are important questions to which he should respond (Wilson, 1986, p.199).

When I described "minute papers" at the Harvard Assessment Seminar recently, Fred Mosteller, a distinguished statistician and holder of an endowed chair at Harvard, became intrigued and involved his undergraduate class in Stat-100 in providing feedback on his lectures. After some experimentation, he came up with a modification of minute papers. He now asks students to answer one question at the end of his lectures: "What was the muddiest point in the lecture?" Sometimes he prepares handouts for the next class period to clarify a point or he may try a different teaching approach next time.

The point is that here is the simplest of all possible feedback devices sparking interest, experimentation, faculty conversation, and student involvement in the improvement of instruction.

Another feedback device that has become very common on campuses over the past decade is student evaluation of teachers and courses. In two-thirds of the four-year liberal arts colleges, academic deans claim that systematic student ratings of

instruction are "always used" in the evaluation of faculty (Seldin, 1984). Yet teachers claim that they do not find student ratings, collected for purposes of evaluation, especially helpful in improving teaching. That's too bad, but understandable. I suspect that we need a different approach to teaching evaluations designed for self-improvement from those used for administrative or decisions. Ultimately, of course, all of our information about student learning comes from students, in the form of outcome measures, or value added, or self reports on reactions to teaching.

Classroom research on teaching and learning may be done individually, but sometimes teachers working together in academic departments provide a rich resource for gathering indicators of some learning outcomes. Most departments are interested in stimulating student interest in their field of endeavor. It is fairly easy to collect information about how many students elect advanced courses in the department and how many of those possess the cognitive entry skills required for more advanced work. It also makes sense to ask college students whether and how courses stimulate further interest and when and on what basis students make their decisions to pursue a major in the field. This is more than enlightened self interest. As McKeachie and his fellow reviewers of research on college teaching noted, "A course that dulls the students' curiosity and interest must be a failure no matter how solid the content" (1986, p.1).

Other measures of student learning are more difficult. Some people have spent entire careers trying to measure creativity or critical thinking or ethical behavior. It is a

truism that we know the least about measuring the things that are most important to us as educators. I don't think that means that in professional education, we wait until the "experts" have devised the appropriate measures. Many college teachers are bright, creative people, with high motivation for devising measures of student learning outcomes. Moreover, there is increasing evidence that some academic skills are best studied in the context of subject matter content.

At the same time, teachers do not need to reinvent the wheel. We have developed some measures of complex learning outcomes that appear useful. Teachers should know of the existence of these measures, and be encouraged to experiment with them. It may be that their experience with them will contribute to the improvement of the measures.

In summary, my current research interests are moving toward applied research useful in improving the quality of undergraduate learning. I am convinced that the most constructive approach to that national goal is through the classroom. Teaching institutions--community colleges, liberal arts colleges, most state colleges--serve the overwhelming majority of college students today. I find it difficult to imagine making substantial improvement in the quality of education without actively involving classroom teachers in the intellectual challenge of understanding their impact on student learning in the classroom.

For me the greatest excitement of this project has been the opportunity to work on it in cooperation with four very different interdisciplinary groups of educators.

First, I was approached by NCRIPTAL of the University of Michigan to work with their new Center on the improvement of teaching and learning in postsecondary education. The chance to trade ideas and experience with this group of university researchers with special interests in college faculty, college teaching, and the organizational context in which teaching takes place has greatly enriched my development of this project. NCRIPTAL supported a review of the literature on teaching effectiveness and teacher evaluation last summer, and I will continue my interaction with the University of Michigan researchers this year, making a first cut at a booklet on feedback devices this summer.

Second, President Bok, as some of you may know, is interested in studying the quality of education at Harvard. To that end, he has established the Harvard Assessment Seminar which consists of an interdisciplinary group of Harvard professors from the College and the various professional schools, joined by administrators and researchers from Brown, Amherst, Wellesley and other colleges in the Boston area. We meet once a month for dinner and to interact with guest speakers on assessment. But we have also established working subgroups to carry out assessment projects. There was so much interest in my proposal for improving college teaching that I was asked to chair a group to work on feedback devices of the sort I have described here today.

A third group of so-called collaborators consists of a dozen educators invited by Pew Charitable Trust to meet three times a year for three years as the "Roundtable in Higher

Education." The notion behind this new venture is that if Pew brought together what they described as "twelve of the most exciting minds in higher education today" that we would enrich one another's understanding of educational issues, while deriving financial support to pursue individual research interests which could be explored, in their various stages of development, with the group.

Finally, classroom research has been selected as the topic for discussion at the Annual AAHE Research Forum meeting next month in Chicago. Roughly thirty researchers in higher education will gather to discuss the research possibilities and implications of classroom research. The convenors of the Research Forum hope to work toward a research agenda for classroom researchers. I am hoping that their ideas and suggestions will further enrich and develop the concept.

I don't wish to leave the impression that I think Classroom Research is the answer to improving college teaching, but I do think that the direct involvement of those faculty members who chose to participate in classroom research because they see it as an intellectual challenge is one promising pathway to the improvement of instruction at the college level.

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