DOCUMENT RESUME

ED 455 865 JC 010 540

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TITLE From Black Box to Pandora's Box: Evaluating Remedial/Developmental Education. CCRC Brief Number 11.
INSTITUTION Columbia Univ., New York, NY. Community Coll. Research Center.
SPONS AGENCY Alfred P. Sloan Foundation, New York, NY.
ISSN ISSN-1526-2049
PUB DATE 2001-02-00
NOTE 6p.
PUB TYPE Reports - Descriptive (141)
EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS College Role; *Community Colleges; *Course Evaluation; *Curriculum Evaluation; *Developmental Studies Programs; *Evaluation Methods; Evaluation Needs; Remedial Instruction; Two Year Colleges; Validated Programs

ABSTRACT

The roster of developmental programs available to students in community colleges is expanding, though remedial education itself does remain a marginal aspect of higher education. The programs are usually under-funded, segregated from "regular" offerings, and taught by part-timers. This report suggests that the colleges are sending signals that developmental education is not "real" education. The author details the vast array of different approaches to developmental/remedial education available in institutions of higher education. These approaches range from Shaughnessy's student-centered approach to the more conventional "skills-and-drills" approach and the remedial education offered in the welfare-to-work programs. The author finds that most educators who have made the transition form didactic to constructivist teaching have done so on their own, and thus the teaching methods seem random and idiosyncratic. The author recommends an eclectic approach to the evaluation of remedial education, which includes six parts: (1) investigation of the drop-out rates in remedial education; (2) outcome measures that include more than test scores of basic skills; (3) use of comparison or control groups in order to better evaluate the impact of completion; (4) understanding of the program being evaluated; (5) comparisons of different approaches to teaching; and (6) better understanding of the "assignment" problem. The author concludes that a program of evaluation and improvement is central to improving the performances of developmental and remedial students. (NB)

Community College Research Center
Brief, Number 11, February 2001

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ISSN 1526-2049

COMMUNITY COLLEGE RESEARCH CENTER

CCRC BRIEF

NUMBER 11 FEBRUARY 2001

From Black Box To Pandora's Box: Evaluating Remedial/ Developmental Education

W. Norton Grubb

Remedial/developmental education has burgeoned over the past decades, in a variety of postsecondary institutions. Unfortunately, while debates for and against have been vociferous, the effectiveness of these programs has not been as visible an issue. Relatively few evaluations of remedial programs have been conducted, and many existing evaluations are useless because, failing to recognize what the program does, they provide little information about what should be changed to make it more effective. In place of this kind of "black box" evaluation, I recommend a variety of evaluation approaches that can improve information about many different aspects of remediation, including not only its effects but also the instructional methods used, the progress of students, and the ways students are assigned to remedial programs. I call this a "Pandora's Box" approach because it is designed to open up the black box, to reveal the problems with existing programs including the potential reasons for their effectiveness or ineffectiveness—and then to improve them.

Remedial/Developmental Education

There is almost no discussion about what remedial education looks like—what goes on in classrooms, whether it is educative in any sense of the word, whether it stands any chance of bringing students up to "college level." Without understanding the variety of activities that march under the banner of remedial education, it is easy to assume that developmental education is well defined and can be readily evaluated like any other program. Developmental education takes place in such a variety of settings—adult basic ed, job training, welfare-to-work, community colleges as well as four-year colleges—that it is difficult to characterize what happens.

This Brief focuses on remedial/developmental education in community colleges. Estimates of the proportion of students needing remediation varies from 25 percent to 50 percent to 78 percent in Tennessee (Grubb and Kalman, 1994). Of all the postsecondary institutions that offer remedial education, community colleges have the greatest chance of doing it well. Unlike adult education and job training, with their reliance on untrained instructors hired in casual ways for part-time work, instructors in community colleges generally have master's degrees and are part of colleges that consider themselves "teaching institutions." Although these colleges rely too much on part-time instructors, there is still a commitment to teaching as a career.

In examining numerous colleges, several distinct approaches to developmental education are apparent (Grubb and Associates 1999, Ch. 5):

Skills and drills. By far the most common approach to developmental education within community colleges is the approach I have labeled "skills and drills." This tends to focus on arithmetic procedures, on grammar, punctuation and vocabulary, on math "problems" of the most contrived sort, and passages from texts that have been simplified for low reading levels. Because of the common pattern of taking courses almost randomly, students rarely know one another and therefore do not serve as resources for one another; mastering "literacy" is therefore an individual responsibility, with the teacher as the sole authority, rather than a collective and social activity (Worthen, 1997).

This approach takes place not only in classes identified as remedial; it also emerges as "hidden remediation" in college-level classes that become remedial if the majority of students are not ready for what the instructor considers "college-level work" (Grubb and Associates, 1999, Ch. 5). As a result, the amount of remediation in most community colleges almost surely exceeds the count of official remedial courses.

Computer programs in remedial classes invariably involve drills. Following a rigid progression through topics, students move to the next level only when they have passed a short "test" on one subject. Often, students work on these programs in large labs overseen by a "manager" who typically has neither the time nor the training for instruction: students who get stuck have to go back in the computer program to try to work out the problem. There is no teaching in the conventional sense of the term.

Conventional "skills and drills" approaches violate all the maxims for good teaching in adult education

(Grubb and Kalman, 1994). Although there are some success stories, it is foolish to think that students who have never learned to read for meaning, or who have no real understanding of numerals, can suddenly learn quickly from another round of drills.

Student-centered teaching. Substantial numbers of community college instructors have developed student-centered approaches to teaching (Grubb and Associates, 1999, Ch. 5). These instructors probe the interests of their students and their purposes for attending college, and mold reading and writing to these interests. These instructors also foster work in groups rather than individual drills. But because a student-centered class proceeds in different ways depending on the backgrounds and interests of students, the topics these classes cover are idiosyncratic. This creates problems for evaluation, because the outcomes are not necessarily well defined; in fact, they are partly *student*-defined.

Departments with coherent philosophies. In a few institutions, developmental studies departments have developed a coherent teaching philosophy, drawing on constructivist and whole language practices. They have then codified their approaches in manuals and examples, and then in staff development for new instructors (including the many part-time instructors). The distinct advantage of department-wide approaches over individual and idiosyncratic efforts is that they assure that all developmental courses within a college are reformed, rather than just a few.

Learning communities. A fourth major approach to developmental education in community colleges is the use of learning communities (LCs). Typically, a "lead" course—an occupational or central academic course—is matched with English and/or a math course. One institution matched a biology course with supportive math and English courses, which in turn modified their content to provide the kinds of academic competencies necessary in biology. At LaGuardia Community College in New York, all programs for welfare recipients are taught in learning communities.

LCs have many benefits. Most obviously, students progress in subjects that they care about rather than being in classes with no apparent relation to their goals. Combining classes allows instructors to contextualize their teaching and enables students to get to know one another much better than most community college students do. Moreover, in LCs, instructors can create communities of like-minded teachers.

Clearly, remedial education can vary enormously; even within one institution—the community college—remediation is not just one thing.

Multiple Approaches to Evaluation

But does remedial/developmental education work? Do any of the approaches enable students to make further progress in their education or move out into the world of employment? The evidence is sparse, and partly it is for lack of trying: most states and most colleges have not yet evaluated their remediation programs.

One common form of evaluation examines completion rates in developmental courses. But this information provides no evidence about whether remedial programs have helped individuals get along with their lives. Another common way of evaluating remedial efforts has been the comparison of pre-tests and post-tests, usually on some test of basic skills. The Learning Assessment and Retention Consortium (LARC) of the California community colleges used to publish such figures (e.g., LARC, 1989a and b). Such results are almost useless, for a number of reasons. Most obviously, pre-test/post-test comparisons are available only for students who stay with a course until the end; if weaker students drop out, then the test increases will badly overstate the results for the average or random student. In addition, without knowing about the backgrounds of students in different colleges, comparisons are impossible to interpret.

Moreover, an increase in test scores may still not lead to the completion of meaningful degrees or other positive outcomes. Finally, these statistical results say nothing about why test scores are what they are, why large numbers of students fail to complete courses, or whether some approaches are better than others. Such figures do not provide any guide about what to do next.

One approach to evaluation fixes some of these problems but not others. Miami-Dade Community College has calculated completion rates for students who are judged "below standard" in one, two, or three subjects, and who have successfully completed all appropriate remedial courses compared to those who have not. Students with three deficiencies had a much harder time than students with one deficiency, and even students who took the full complement of needed remedial courses graduated at much lower rates than those who entered needing no remediation. Clearly, remedial courses help, but they do not eliminate the gap between students with and without some need for remedial education.

Despite weaknesses—failure to control for variation in academic achievement and other characteristics (like family background) among groups, for example—these results clarify that the amount of remedial education completed matters a great deal, and the outcome measure is one of intrinsic value. However, they provide no clue about why so many students fail to complete remedial courses or what about them attracts or repels students. Further, they do not investigate what these courses are like and whether some of them are more effective than others.

A final issue important to remediation is what I call the "assignment problem." Students are assigned to remediation based on an assessment of some sort—usually a basic skills test, sometimes with a

writing sample, sometimes with some counseling. Some students assigned to remediation may not need it, for example, those needing only brush up. But what happens to those students who scored just above the cut-off point and did not enroll in remedial programs? It is quite possible that these students would benefit from remediation. Any procedure runs the risk of errors—assigning students to remediation who do not need it (Type I errors)—or allowing students who need some kind of remedial work to progress to college-level work (Type II errors). Both errors may reduce completion rates, and Type II errors have the added cost of putting unprepared students in regular classes.

These assignment issues are at the heart of debates about community colleges: do they advance students who otherwise would have no access to postsecondary education, or do they "cool out" students who otherwise would go further in four-year colleges? A particular incident illustrates this issue. California instituted a process, known as "matriculation," to help place entering students correctly in regular and remedial/developmental classes. However, some colleges used tests that had not been appropriately validated, preventing many individuals from enrolling, and used test results by themselves when they were to be advisory only. The Mexican-American Legal Defense and Education Fund (MALDEF) successfully sued a college on equal protection grounds, claiming that many Mexican-American students were incorrectly assigned to remedial education. In response, the state imposed regulations requiring that any prerequisites for any courses be justified through a validation study, a burdensome procedure that has all but eliminated prerequisites in California community colleges—and enrollment in remedial courses became voluntary. Thus, there may be fewer Type I errors but more Type II errors, i.e., students who need more remedial education than they get.

With evaluation of remedial education still in its infancy, no one knows much about what works and what does not. The little evidence indicates that completion rates in remedial courses are low, that the amount of remediation matters to important outcomes like persistence in and completion of college programs, and that learning communities are probably more effective than stand-alone classes. Observational evidence indicates how much remedial courses vary, though my interpretation—that many of them provide virtually no possibility for significant learning—might not be widely accepted and might not even be correct. There is no particular reason to think that the remedial courses at Miami-Dade are particularly innovative, yet they have substantial effects on graduation and retention. But, aside from the possible recommendation to teach all remediation in LC formats, there is not much evidence to suggest how to improve the state of remedial/developmental education.

An Eclectic Approach to Evaluation

In this vacuum, it is not helpful to recommend one particular approach to evaluation over others. The orthodoxy in the evaluation literature—random-assignment studies to rule out as many selection and self-selection effects as possible—is no more useful than the most basic pre-test/post-test designs. Too many dimensions of remedial education are poorly understood; investigating them requires several different methods.

Evaluation is useful on at least two levels. One is the program level, where information about a particular course and a specific instructor—completion rates, assessments of academic progress, subsequent progress through the college, and peer observation—could diagnose what is going well and badly. To be useful to instructors, such evaluations cannot use comparison groups, follow students over long periods of time, or introduce assessments unrelated to normal teaching. A second level includes formal evaluations carried out at the institutional level or the state or national level. These can be more complex, with control or comparison groups, and can follow students over longer periods of time; their purpose is not to improve the practice of specific instructors, but to assess institutional and state policy, the overall effects of remediation, and the effectiveness of different approaches.

I recommend a number of different approaches, each of which has the potential to illuminate a different aspect of this difficult problem:

1. Dropout rates from remedial courses need more investigation. While it is plausible that dreary teaching is the reason, the difficult lives of many community college students—including financial, transportation, childcare and other family problems, and the pervasive indecision of experimenting and uncommitted students—play important roles. Complex combinations of reasons are responsible, and even students themselves cannot articulate why they stay with or leave a particular program. As one student commented on his leaving the community college,

> *It was not even a decision. I just didn't go. Sometimes you decide on certain things. It was not a decision at all. Just like you go home, tired from work, you don't decide about "Oh, I'm just going to go to sleep now." You just doze off and go to sleep. It wasn't a plan. That's the way [dropping] the class was: it wasn't a plan.*

A combination of qualitative, interview-based studies and quantitative studies might begin to provide evidence for improving remedial courses.

2. More systematic collection of outcome measures could build to a better understanding of what remedial courses can achieve. But outcome measures need to include more than test scores of basic skills. Persistence in college and completion of degrees are obvious measures, because completion is

particularly important to the economic benefits of community colleges. Some teachers use writing portfolios as measures of success. Other measures emerge from a college's intentions for remedial programs—completion of occupational programs may be the most valuable outcomes in some cases. Some students have political or familial goals, and qualitative studies can clarify these goals and the contribution of courses toward achieving them.

3. It is important in institution- or state- or national-level studies, to have comparison or control groups. But while it might be possible to design a random-assignment study under certain conditions—for example, comparing the effects of learning communities to conventional formats—it would not be ethical or feasible to compare the effects of remediation to its absence through random assignment. The only feasible place to construct comparison groups is where some students are thought to need remediation but do not take such classes.

4. No evaluation should fail to understand the program it is evaluating; classroom practices in remedial courses must be observed and described. Conventional "black box" evaluations, in which the nature of the program being evaluated is never described, should be replaced with a "Pandora's box" approach that clarifies both the triumphs and the troubles of classroom practices. Otherwise it is difficult to know what might have generated a particular set of outcomes, and therefore what might be changed.

5. If evaluation is to have any influence on classroom practice, it needs to compare different approaches to teaching. While I am skeptical about "skills and drills," we have observed drill-oriented remedial classes where students seemed to be attentive and engaged, possibly because the class was followed by an occupational class where the academic material would be applied. Some teachers following behaviorist approaches develop special exercises, or a rapport with students, that overcome the limits of drill, and some students—particularly ESL students and older students with clear and passionate goals—are able to learn from even the most dreary teaching. Some of these successes may be replicable and others may not, but understanding them better is a necessary first step to improving the quality of instruction.

6. The "assignment" problem needs to be better understood. Understanding this issue depends first on ascertaining whether remedial programs themselves are effective: if they are ineffective, then every student in them is misassigned. However, the question is whether some students who might benefit do not attend remedial programs—either because the assignment test fails to identify those in need of remediation, or because enrolling in such courses is voluntary. Examining this problem requires looking at the subsequent experiences of: (a) students judged in need of remediation who did not enroll in such courses, and (b) those who barely passed the assignment test, compared both to those who enrolled in remediation and those who clearly do not need remediation. Finally, some consideration of alternative assignment procedures is appropriate—either different basic skills tests, or procedures that incorporate other information and counseling as well as testing.

The expansion of postsecondary education since the 1960s, especially the growth of open-access community colleges, has provided opportunities for some students where none existed before, and the dedication of many colleges and most instructors to their non-traditional students is unmistakable. But dedication and student-centeredness, while necessary, may not be sufficient, so a program of evaluation and improvement is central to improving the performance of students.❖

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This Brief was developed at the Community College Research Center (CCRC), Teachers College, Columbia University. It was drawn from a longer report of the same title, which may be ordered from CCRC. The research was conducted with support from the Alfred P. Sloan Foundation.

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