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ABSTRACT

The use of standardized tests for program evaluation, student placement, and student progression in order to improve the quality of higher education is discussed. It is noted that student achievement is being used as a criterion for judging programs as part of state assessments. Although standardized test scores have long been used by institutions for counseling and course placement, new initiatives coming from the state level would refine and strengthen this effort through new instruments and mandated participation by public colleges. In addition, standardized exams to establish minimum standards for student progression in higher education are a limited but growing response to concerns about quality. Some systems are using these exams to screen students seeking admission to teacher education programs. Georgia and Florida require all students to pass a minimum competency exam for advancement to upper-division programs. Legislative initiatives, legal issues, and national developments are discussed, with attention to topics such as: diagnostic testing for placement purposes, valued-added testing, national longitudinal studies, evaluation of undergraduates, and assessment of adult literacy. (SW)

# MEASURING THE EDUCATIONAL ACHIEVEMENT OF UNDERGRADUATES:

# STATE AND NATIONAL DEVELOPMENTS

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# MEASURING THE EDUCATIONAL ACHIEVEMENT OF UNDERGRADUATES: STATE AND NATIONAL DEVELOPMENTS

The single greatest concern about the quality of American elementary and secondary education in the past few years has been the declining cognitive achievement of school children. It is not surprising then, that much of the educational reform movement aimed at the schools calls for better measurement of student achievement through standardized exams; for establishing minimum competency standards for high school graduation; and for comparing student performance across school districts, regions and states.

Now we are beginning to see similar concerns about student performance at the college level. To date, the effects of school reform on colleges and universities have been felt primarily in the admissions office. States have encouraged, and in some cases mandated, more stringent standards for admission and an emphasis on college preparatory curricula in the schools.

The concern for quality in higher education has earlier origins, however. Throughout the 1970s and early 1980s there was a growing awareness of the increased amount of remediation taking place. This perception of declining achievement in colleges and universities was reinforced by disturbing reports of the performance of graduates on licensing exams, especially in such fields as teaching and nursing. Grade inflation, rampant in the 1970s, also contributed to the loss in public confidence in traditional measures of student achievement.

By the 1980s, "outcomes measurement," long discussed in higher education circles, took on a new urgency and a different emphasis. While many institutions had developed measures of "client satisfaction" -- for example, student ratings of faculty, alumni surveys of the "value" of college -- few had developed assessment instruments that measured academic achievement that could be compared either over time or to national norms. At the same time, there were moves to include outcomes measurement as a legitimate requirement for accreditation. In 1983, the Southern Association of Colleges and Schools (SACS) proposed to its members that institutions be required to evaluate student learning systematically and measure appropriate outcomes of the education process. This represented a significant change from the "process-oriented" criteria that dominate institutional accrediting procedures. While the proposal was not adopted, the accrediting community is continuing to debate the appropriate use of outcomes measurement in the accreditation process.

In 1983, Ernest Boyer, after completing his study of American high schools for the Carnegie Foundation, suggested that if colleges had the equivalent of the SAT exam for their seniors, the results would reflect the same declines as seen in the schools. Then in the fall of 1984, the National Institute of Education (NIE) Study Group on the Conditions of Excellence in Higher Education called upon faculty and academic deans "to implement a systematic program to assess the knowledge, capacities, and skills" of college students.[1]

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[1]National Institute of Education Involvement in Learning: Realizing the Potential of American Higher Education (Washington, D.C.: U.S. Department of Education, 1984).

Some institutions are already tackling the problem. They have begun to monitor grade inflation and tighten retention standards. Others are making curriculum changes -- for example, greater emphasis on writing. ("Writing Across the Curriculum" programs have gained in popularity.) Other institutions are monitoring their students' progress through "value-added" approaches that provide pre- and post-tests assessments. There is also renewed interest in comprehensive senior exams as a requirement for the baccalaureate.

The use of standardized exams for assessment purposes remains limited, however. The following are examples of relatively new uses of tests for three distinct purposes: 1) program evaluation; 2) student placement; and 3) student progression. In most cases these initiatives have originated at the state and/or system level.

Program Evaluation

Student achievement as a criterion for judging programs is finding its way into statewide program evaluation. In Tennessee it is an explicit part of the statewide instructional evaluation program, initiated by the Tennessee Higher Education Commission, which offers institutions financial incentives for program evaluation. For example, Tennessee Tech earned an additional $767,000 in state support in 1' 34, in part because it used the ACT-COMP exam to evaluate general education skills of seniors (and then compared that achievement to predicted scores to measure value added). The institution also used an undergraduate test in business, developed by the Educational Testing Service (ETS), the National Teachers Exam, and alumni surveys to assess the relationship between academic preparation and later employment. Other state systems (e.g. Georgia) are using the pass rates on professional licensing exams as indicators of quality, most

commonly in the teaching and nursing fields, where high failure rates are used to justify program discontinuance.

Student Placement

Standardized test scores have long been used by institutions for counseling and course placement. Now, initiatives coming from the state level would refine and strengthen this effort through new instruments and mandated participation from public institutions. The New Jersey Basic Skills Test is a good example. In 1977, following a year-long study by a blue ribbon task force, the New Jersey Department of Higher Education established the "Basic Skills Assessment Program" (BSAP) which mandated a basic skills test to evaluate all public college students -- both full-time and part-time. The exam, developed in cooperation with the College Board and under contract with ETS, was first administered in 1978. In its sixth form now, the exam consists of an essay and four multiple-choice sections: reading comprehension, sentence sense, computation, and elementary algebra. All entering freshman and transfers with less than 12 credits must take the test, which is used for course placement and counseling, not admissions. The test is administered in all public colleges and universities, and eleven of the state's private institutions voluntarily participate in the program. The Basic Skills Council, a group of 12 faculty members and administrators representing the various sectors of the state higher education system, provides policy direction for the testing program. Council members are appointed for two-year terms by the department of higher education. The costs of the program include the contract with ETS for generating the test items, printing and scoring (approximately $500,000 annually for 50,000 to 60,000 test-takers) and administrative support from the department of higher education (a staff of four responsible for report-writing and policy-

setting). ETS and the College Board have developed similar placement testing programs for Florida public institutions and the California Community College System.

Ohio has taken a different approach to placement testing. With financial support from the legislature, the Ohio Board of Regents is administering a statewide testing program to high school juniors in 600 of the state's 900 high schools. It is a voluntary program linked closely to the state's public colleges and universities. High school juniors are examined on writing, science "readiness" and mathematics skills. In the case of mathematics, students receive feedback from the Ohio college of their choice as to their likely placement in math sequences and their eligibility to pursue particular majors. This allows students to take corrective action in their senior year. At the same time, college faculty members have agreed to serve as resources to the school in improving curriculum. The effect on student readiness for college-level work has been significant. Ohio State University, for example, has seen the percentage of freshman requiring math remediation drop from 50% to about 35% since the implementation of the program. State support for the high school testing program is approximately $500,000 annually.

Student Progression

Standardized exams to establish minimum standards for student progression in higher education are a limited but growing response to concerns about quality. Some systems are using these exams to screen students seeking admission to teacher education programs, and as a requirement for all undergraduate students seeking admission to upper divisions.

Mississippi exemplifies states now requiring a test of general education skills (the ACT-COMP EXAM) for students petitioning for admission into teacher education programs. Usually students must take and pass the test at the end of the sophomore year to qualify for professional courses. The state's board of trustees adopted the exam in large part to assure the public that only competent students will be allowed to study to be teachers. Costs of the program, except for on-site administration, are borne by the student ($25 per student in 1983). Students may re-take the exam as often as they wish. Failure rates are 45% to 50% per administration.[2]

Two states have gone as far as requiring all students to pass a minimum competency exam for advancement to upper-division programs. These are the so-called "rising junior" exams. The Georgia Board of Regents requires all students in the system to pass its "Regents Exam" (which includes a written essay) before graduation. Students, who first take the exam at the sophomore level, may re-take it until they pass it. In Florida, a sophomore exam entitled the "College Level Academic Skills Test" (CLAST) was developed by the department of education as a requirement for advancement to upper-division programs. Pass rates range from 75% to 80% on the first try. The Florida Postsecondary Education Planning Commission reports that the basic bank of CLAST items and essay topics cost the state about $500,000 to develop, not including faculty time for item review. Florida estimates annual administrative costs for production, distribution, and scoring are $500,000, not including costs of managing the program

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[2]Many states are now requiring testing as part of the certification requirements for prospective readers. See "Testing for Teacher Competency" Issuegram No. 7 (Denver, Colorado: Education Commission of the States, 1983).

through the department of education, or costs to the institutions for administering the exam. A few other states, such as New Jersey and Arkansas, have considered such exams. Even without a state mandate, some public universities have initiated their own institution-wide or system-wide assessment exams, for example, the University of Minnesota and the California State College System.[3]

Legal Issues

While there is yet no case law relating to minimum competency exams at the postsecondary level, states should consider, at least, the dictates established for similar exams at the secondary level.[4] First, case decisions at the secondary level establish that students have a constitutional right to adequate notice of a testing program. In Debra P. v. Turlington (Florida), less than two-years' notice was viewed as violating due process. Second, graduation exams must reflect the material taught: "Like employment tests, competency tests must be validated for their purposes to be fair."[5] Third, and an important corollary to content validity, is the requirement that tests not be racially or culturally biased.

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[3] For further reading on this subject see John Bennett et al. "Academic Progression Tests for Undergraduates: Recent Developments," Educational Record, (Winter 1984): 44-46; Measuring Educational Progress in the South: Student Achievement (Atlanta: Southern Regional Education Board, 1984).

[4] See Christiane H. Citron, "Legal Rules for Student Competency Testing," ECS Issuegram No. 36 (Denver, Colorado: Education Commission of the States, March 1, 1983).

[5] Ibid., p. 3.

Legislative Initiatives

Few state legislatures have been more aggressive in setting academic and curriculum standards than Florida. Among the more controversial initiatives has been the "Gordon Rule," named after a Florida legislator, which directs institutions to require students to complete 12 semester hours of English coursework that includes written work of at least 6,000 words. It also requires six semester hours of mathematics coursework at the college level. Subsequent changes in the rule allow institutions to develop alternative plans for assuring that their students have appropriate communication and computation skills. Institutions have objected to these and other intrusions into curriculum, but they have at the same time appreciated the increased financial support for "quality" initiatives provided by the legislature.

In a 1984 supplement to its master plan, the Florida Postsecondary Education Planning Commission pinpointed what many believe is the heart of the quality problem in higher education -- namely, that states need to establish a "clearer sense of educational sequence and progression:"

> To have meaning, this progression must be outlined by definitive standards of entry and exit at each major transition point in the continuum: high school graduation, college entry, qualification for upper-level study, admission into graduate and professional education. To accompany this process, there is a need for higher expectations with regard to minimum student performance. The high school diploma in many cases now means no more than the presence of eighth-grade skills for some students; college-level academic work has come to imply any course taken by students in college, not courses which develop and demand learning and thinking

> skills above the eleventh or twelfth grade level. Since students often receive Associate of Arts (A.A.) degree credit for work that is below college level, the degree is diluted and does not indicate the attainment of post high school skills which are becoming so critical to the economic and social success of all people.[6]

The commission went on to recommend that clearly recognizable "bridge" programs be developed for students who "are not ready to begin a higher level of education even though they have met the minimum requirements of the preceding level."

In 1984 the Florida legislature acted on these recommendations by requiring, as a condition of entry, that students be tested for basic computation and communication skills, and that those students requiring remediation be enrolled in "college prep" programs in community colleges. (With one exception, four-year institutions must contract with community colleges for this college-preparatory instruction. College credit is not awarded for this instruction.)

The Tennessee legislature's approach has been to put pressure on institutions to quantify their program objectives. In 1984 the legislature enacted a bill that established higher education improvement goals and required the Tennessee Higher Education Commission to report (within five years) the quantifiable progress on each item. Among the goals

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[6]The Master Plan for Florida Postsecondary Education: Supplement Number 2 (Tallahassee, Florida: Postsecondary Education Planning Commission, Department of Education, March 17, 1984).

listed are

1) an increase in the percentage of students who enter four-year university-degree programs and who subsequently earn degrees;
2) an improvement in the average NTE scores of students in teacher-education programs;
3) an improvement in standardized examination scores of graduating seniors at public universities;
4) an increase in the number of students from public universities who pass all parts of professional licensing exams in such fields as engineering, medicine, law, and nursing; and
5) an improvement in the job placement rate in vocational fields.

There are fifteen specific goals in all, and options to show improvement on other unspecified goals.

National Developments

When the NIE Study Group released its report in October 1984, it noted several "warning signals" that should alert higher education to present and potential problems. One of these was that student performance on 11 of 15 major subject-area tests of the Graduate Record Exam (GRE) declined between 1964 and 1982. "The sharpest declines," they noted, "occurred in subjects requiring high verbal skills."[7] While this finding was

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[7] Involvement in Learning, p. 9.

criticized by those who objected to using GREs as exit measures, Cliff Adelman, author of a follow-up study to the NIE report, disagrees. His study, which reviewed the performance of students on 23 different standardized exams (such as the Graduate Medical Admissions Test and the Law School Admissions Test) from 1964 to 1982, found declines in 15 of the exams, increases in four and four unchanged. He concluded that these changes were not attributable to differences in age, gender or race of the test-takers, but to the enrollment mix of majors. He infers that increasing specialization of curriculum and major selection have dragged down the test scores.[8]

The increased emphasis on testing has been a boon to the testing industry. Numerous instruments are available to colleges and universities and refinements are being developed and marketed aggressively.[9] State boards may be especially interested in the following activities aimed at undergraduates, being undertaken at the Educational Testing Service (ETS), The American College Test( ACT), and the National Center for Education Statistics (NCES).

1. The Undergraduate Assessment Program developed by ETS several years ago is now receiving renewed attention as an instrument in comprehensive senior exam programs. The exams correspond to Graduate Record Exams, but are intended for juniors and

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[8]Clifford Adelman, "The Standardized Test Scores of College Graduates 1964-1982." See NIE Study Group on the Condition of Excellence in American Higher Education (Washington, D. C.: National Institute of Education, December 1984).

[9]For a complete list of exams developed for college age students see James V. Mitchell, ed., Tests in Print III (Lincoln, Nebraska: Lincoln Nebraska Press, 1983).

seniors. They are major-specific (eg. art history, biology, business, chemistry); they do not measure general education, however, nor can they be made core-specific (eg. there is a history exam but no "European history" exam).

2. Diagnostic Testing for Placement Purposes. ETS is currently field-testing a computerized adaptive test that allows accurate measurement with far fewer questions than conventional battery tests. Essentially tests are tailored to the test-taker, yet allow for comparison. Test items are similar to those developed for the New Jersey Basic Skills Test.

3. Value-Added Testing. As noted earlier, some institutions are now using the ACT-COMP exam and the ACT high school exam to measure gains in general education knowledge and skills among undergraduates. (The subparts of ACT-COMP are entitled Functioning in Social Institutions, Using Science, Using the Arts, Clarifying Values, and Solving Problems.) The exam requires oral presentations.

4. National Longitudinal Studies. Since 1972, the National Center for Education Statistics (NCES) has been following the progress and examining the outcomes of a high school cohort in its ongoing study, High School and Beyond. Plans are now under way for a new study of the class of 1988, which for the first time will include a postsecondary component (first-time freshmen). Such a longitudinal study will permit, for example, an analysis of the nature, extent and reasons for college persistence and withdrawal. It will provide a description of the characteristics of students in different fields that includes an analysis of their coursework and grades. In two follow-ups, the study also will

examine labor-force participation and financial success and thus allow analysis of the relationship of these outcomes to student characteristics and performance in college. While NCES plans to support a national sampling of institutions, it is offering states the opportunity to augment the NCES sample and to facilitate accurate state-by-state analysis. Costs to the state would depend on the number of institutions needed to lower the standard error.[10]

5. NAEP Developments. The National Assessment of Educational Progress, administered by ETS with support from NIE, will begin in the spring of 1985 to test a national sample of 21-25 year olds, to assess the degree of "adult literacy." The objective is to move away from simplistic characterizations of individuals as "literate" or "nonliterate" and assess more broadly the ability of adults to read, listen and communicate. NAEP staff members also expect to be able to determine the effects of college attendance on literacy.

## Conclusion

National concerns about the quality of undergraduate education and the increased activism of state legislatures on education issues clearly are affecting postsecondary education. As with the elementary/secondary schools, much of the focus at the college level is on the cognitive outcomes of student learning. In the words of a recent report by

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[10]NCES is charging $7,000 per institution for the base survey and two follow-ups. Thus, if a state needed to add fifteen institutions to the sample the cost would be $135,000 payable over six years. For more information, contact David Sweet at NCES.

the Southern Regional Education Board: "Today, there is interest in a new form of accountability for higher education -- accountability on the basis of the demonstrated achievement of students, not just on financial criteria; and quality judgments on the basis of student academic success, not just on the basis of selectivity."[11]

Increasingly, we can expect states and institutions to use student performance as a legitimate criterion for program evaluation and for legislatures to put pressure on state coordinating and governing boards to discontinue programs where students are failing licensing exams and performing poorly on other standardized measures.

Standardized exams are most applicable and least controversial when used for placement and counseling. In fact, their use is viewed by many as a necessary ingredient in open admissions systems. Ohio's efforts to deal with students' deficiencies while they are still in high school may be especially productive. It is also encouraging to see examinations move beyond the simple and inadequate multiple-choice variety to get at more difficult testing problems such as writing skills.

To date, using state or system-wide exams as mechanisms for determining the individual student's eligibility for advancement has not been a widespread practice. Nor have many state legislatures tried to prescribe curriculum. (The move by systems or institutions to establish a "core" curriculum is gaining momentum, however.) This is, in large part, because of faculty and institutional opposition to external intervention into academic and

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[11] Measuring Educational Progress, p.42.

curriculum standards.

State-level intervention into areas traditionally reserved for faculty and institutions is the result of several factors: the inability of institutions to maintain standards and provide expanded access simultaneously; the loss of confidence in the grading practices of faculty; the failure of high schools to teach basic computation and communication skills; and the desire to extend successful "school-type" reforms to colleges and universities.

For the most part the changes discussed in this paper have been constructive. "Rising Junior" exams can be regarded as a new method of establishing admissions standards -- now at the end of the fourteenth year rather than the twelfth. Such a policy fits well with the goal of extending access to at least two years of college to all high school graduates, independent of ability.

Exams, whether for the purposes of program evaluation, student placement, or student progression have also drawn public attention to an important postsecondary issue -- the need for substantially improved remedial programs. If states are to maintain access, and at the same time avoid further degrading the meaning of college degrees, remediation problems must be faced directly. In some states this attention to the remediation problem has led to increased financial support from the legislature. The competition inherent in exams also can motivate institutions, departments, and students to perform better.

"Minimum competency" exams may have deleterious effects, however. Courses may be altered to "teach to the test" and result in curriculum less stimulating to more-capable students. In 1980, during the debate over "truth in testing," Rexford Brown noted that many experts believe that the "formal qualities of multiple-choice tests convey messages that undercut reading skills, writing ability, and accurate perception of the world."[12] Tests can also, if used only as screening devices, significantly reduce access and opportunity for large segments of the population. Failure rates on a variety of standardized exams have been consistently higher for minority groups.

Finally, a standardized examination implies a standardized curriculum -- a goal that is neither feasible nor desirable in many cases. This is why the testing of minimum competency is far less problematic than standardized graduation exams.

States would be wise to consider a variety of options for encouraging quality improvements that institutional leaders and faculty members support. After all, governors, legislators, and other state officials must depend on those in the classroom for implementation. There are many at the institutional level seeking reform who will be encouraged by external support. Reform should begin with tightened retention standards and grading practices, followed by examination for placement purposes and standards for progression. Finally, states may want to explore ways to encourage institutionally developed assessment programs that are program-specific and that include a variety of instruments.

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[12]Rexford Brown, "Searching For the Truth About 'Truth in Testing Legislation'" Report No. 132 (Denver, Colorado: Education Commission of the States, January, 1980).