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ABSTRACT

Proficiency testing, the measurement of what a person can do as a result of learning, is used increasingly in higher education to determine whether students have mastered basic skills or whether they deserve credits for specific courses (which they may not have actually taken). The motivation for proficiency testing stems from general dissatisfaction with the low caliber of skills attained by many graduates, and the cost effectiveness of using challenge examinations to avoid re-teaching already mastered skills. Proficiency testing at the secondary level may reduce the need for remedial instruction at the college level, provided that the cutting scores are meaningful. The implications of proficency testing at the college level are numerous. Extensive remedial programs may have to be instituted, or poorly prepared students may no longer enroll, leading to a decrease in revenue. However, this trend may be offset by other students who are encouraged by the availability of credit by examination programs. The nature of the entering class may change drastically. The faculty will face changes also, since some will have to provide remedial instruction or gear their teaching toward proficiency. A serious problem may be the disproportionate number of minority students who may be unable to pass these tests, regardless of the reasons for the failure. (EVH)

PROFICIENCY TESTING:

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Foreword

In recent years, colleges and universities have increased their use of proficiency testing to determine student competence in their chosen fields and general knowledge. Some institutions are now requiring students to demonstrate specific proficiencies prior to admission to the junior class, others are requiring a minimum level of proficiency before graduation.

The increase in competency measurement has been motivated by concern in the past of both educational leaders and the public about the outcomes of the education process. There is widespread agreement that the mere passing of courses does not guarantee the attainment of minimum competence in basic skills. At the same time, others contend that provisions should be made for students to gain college credit for knowledge or skills obtained outside of the traditional college course structure. Proficiency testing, then, is being used more and more to address these and similar concerns.

This study examines some of the critical issues in proficiency testing. It also analyzes several programs underway in the Southern region, giving particular attention to the extent to which these programs have developed as well as their impact upon higher education. Hopefully, the findings of this investigation will be useful to those institutions and state agencies for higher education considering implementing or enhancing proficiency testing programs.

Winfred L. Godwin
President

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Special appreciation is extended to Southern Regional Education Board's Advisory Committee on Proficiency Education and to its staff member, S. E. Cary, who assisted the author with the design and conceptualization of the project.

Hopefully, this consolidation of effort will have meaningful results for higher education in the South.

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"The requirement of developed proficiency in basic skills is going to change the instruction for entering students . . ."

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". . . each college which attempts remediation with integrity must commit itself to a program of research to try to determine how it can be done successfully."

". . . with some large-scale developments of proficiency testing, especially the one of challenge examination in connection with courses, the role of the faculty member may begin to change."

Something new and different is happening in education. It is the use of proficiency testing for large groups of students to determine whether they have mastered basic skills or whether they deserve diplomas, certificates or credits for specific courses (which they may not have actually taken).

By proficiency testing we refer to measurement of what a person can do as a result of learning. Proficiency testing, *per se*, is not new. Proficiency testing have been used since ancient times. The Chinese had something like our civil service examinations thousands of years before Christ was born. Knights in the lists during the Middle Ages were undergoing a form of proficiency testing, as were Robin Hood and his merry men in their archery contests. The landmark examination system introduced at the University of Chicago by Robert Hutchins was a system of proficiency tests. But the requirement in this country that *all* advanced sophomores in *all* the publicly supported colleges in an entire large state take the same examination and meet the same standard or else not be allowed to graduate is something new in the decade of the 1970's. Similar testing activities are occurring in various states at both the college and pre-college levels. This phenomenon and its implications for higher education in our country are the subject of this monograph.

Why Test Proficiency?

There seem to be several sources for the change. A striking one is represented by the developments surrounding experimentation in Pinellas County, Florida, where tests were used to select elementary school teachers.[1] In May of 1976, under the direction of Gus Sakkis, Superintendent of Schools, and Dr. Thomas. Tocco, Assistant Superintendent for Research, Evaluation and Planning, 15 prospective elementary school teachers, who had already been screened for quality of credentials and approved on that basis, were tested for their competence in reading and mathematics. They were expected to perform in elementary mathematics at least as well as the lowest 25 percent of the currently employed elementary school faculty members and in reading at least as well as the average tenth-grader. Of the 15 applicants, only seven passed both tests even though all were college graduates and had seemed satisfactory to those who screened them on the basis of their credentials.

Verification of Basic Skills

This very small scale pilot study received a lot of attention because the results were so shocking. The inference was drawn that even though prospective teachers pass a training program in a state university to prepare them for teaching, their reading and mathematics skills are not sufficient to encourage parents to have faith in their competence to teach children. As a result, the Pinellas County School Board decided to test all elementary teacher applicants on reading and mathematics, to broaden the testing program to include writing skills, and to develop similar tests for those who applied for positions as teachers in middle schools and high schools. Further, the Board of Regents of the State University System of Florida decided in December of 1976 to require each state university in Florida to develop competency examinations for teacher trainees and to require satisfactory scores on those examinations for graduation, starting with students who enter teacher training in September of 1977.[2]

Certfication of Advanced Attainments

One motivation for the increase in competency measurement at the college level is, then, suspicion that mere passing of courses and graduation does not guarantee that minimum competencies in important basic skills have been adequately developed. Similar kinds of motivation have come from a different direction in the states of North Carolina and South Carolina in connection with use of the *National Teacher Examinations* (NTE) for teacher certification.[3]

In recent years the Department of Education in South Carolina has required that in order to be fully certified to teach, all applicants must achieve a

minimum composite score of 975 on the *National Teacher Examinations*. In North Carolina the minimum composite score was set at 950. In October of 1974 the United States Department of Justice and the National Education Association brought an action challenging the current and past uses of the NTE by North Carolina for certification and classification of teachers for salary purposes. On August 27, 1975, a three-judge court held that the state must establish a rational basis for its use of the NTE with a cutoff score.

Both North Carolina and South Carolina asked the Educational Testing Service to study the use of the *National Teacher Examinations*. In both states elaborate and careful study indicated that the *National Teacher Examinations* were in general closely related to the academic content of teacher education programs offered in the colleges of those states, but it was also found that when experts set appropriate minimum scores for the examinations, many of the seniors in teacher education programs in colleges of those states would fail to meet the minimum scores. In each state it was estimated that only about half of the seniors who took the NTE between November 1973, and July, 1975, would have been certified under the score standards set by the experts. The cutoff scores set by the experts, based on careful examination of test content and individual items, turned out to be appreciably higher than the cutoff scores in effect earlier. The development of college-level proficiency testing in these states may, then, be in part an attempt to avoid foisting on the public "less-than-competent primary teachers, (or other professionals)" as a result of admitting less-qualified students and providing them with less-than-optimal education and training, to borrow the phrasing from Dr. Scarvia Anderson, vice president of the Educational Testing Service.[4] This might be called a certifying function of proficiency testing.

The interest in requiring proficiency examinations to verify the meaning of diplomas for students who might otherwise have sat through courses without developing competence extends to the public school level. In Florida, for instance, the Educational Accountability Act of 1976 provides for the establishment of minimum performance standards related to the goals for education including but not limited to basic skills in reading, writing, and mathematics.[5] According to researchers from the Educational Testing Service who studied the question of having a high school diploma examination in Florida, much of the interest in competency examinations for high school students is that those students can now earn diplomas throughout the United States without having even a minimal level of competency in basic skills, a problem identical with that noted above at the college level.[6]

Challenge Examinations and Economy

There is however, another motivation for proficiency testing at the college level. In several colleges it has been found that allowing students to take proficiency tests in courses whose content has already been mastered outside of classroom activities could save very large amounts of money. Thousands of students are now obtaining credit on the basis of proficiency tests. One widely used testing program for this purpose is the *College Level Examination Program*

(CLEP) of the College Entrance Examination Board. About a decade and a half ago this program of proficiency tests at the college level was developed in order to provide a means of granting college credit for knowledge that individuals had obtained outside of the traditional college course structure. The CLEP tests are now offered across the entire country. The tests include general examinations in five basic liberal arts areas as well as subject examinations in 28 widely-taught undergraduate courses.

The most large-scale use of this program to come to our attention so far is in the state of Florida in which a law passed in 1973 directed the Board of Regents to require each university in the State University System to offer CLEP to all students at least once a year.[7] It further mandated that students satisfactorily completing such examinations should receive full credit for courses, the same as if they had been taken, completed, and passed. A report from the staff of the Board of Regents of the State of Florida indicates that in the year from September 1, 1974 to August 31, 1975, more than 8,000 students sought credit by examination in Florida's nine public universities. They were granted 127,457 quarter hours of credit.[8] At an average cost of $343.75 per credit hours to the state and the students,[9] the saving that single year through credit by examination is estimated at over $43 million. (That saving would be enough, for example, to give an across-the-board pay raise of nearly $8,000 per year to every faculty member in those nine public universities.)

Colleges in other states use the CLEP program, of course, and a few institutions in Illinois and Arkansas have also reported large savings.[10 11] This development of proficiency testing to obtain credit (challenge examinations rather than certification exams or examinations to verify basic-skills attainment) is expanding exceedingly rapidly. Although the CLEP program is relatively new, it is estimated that it now tests about 100,000 students a year. The College Entrance Examination Board estimated that in 1975-76 sixty percent of its examinees planned to apply for advanced placement or course credit upon entering college.[12]

In California, the Chancellor of the State College System announced in January of 1971 a new approach to higher education for the California state colleges.[13] He proposed rearranging the entire college education program in these colleges from a credit-hour-classes-attended approach to an approach based on measured academic achievement, i.e., challenge exams. He estimated that this would reduce the time required to obtain a degree by one-half a year to a whole year for many, if not a majority of students. He wanted the faculty to identify the skills, knowledges, appreciations and understandings sought in their curriculum, and then to find existing measures of those competencies or to develop new measures to test for collegiate levels of achievement. In the California State College System, it was estimated that 12,500 more students could be served with only modest increases for record keeping, testing and related activities if the colleges moved to a progression based on measured competency instead of number of credit hours. This challenge use of proficiency testing is basically an effort to promote economy and efficiency.

We have identified, then, three of the principal motivations behind the current emphasis on proficiency testing in higher education: the guaranteeing of competence in basic skills, the certification that advanced and significant learning has occurred, and the tremendous economy that can be achieved by letting students demonstrate competence through challenge examinations rather than through taking courses in material they already have mastered.

What is Proficiency ?

In all of our discussion thus far we have assumed that there is general consensus on what is meant by proficiency or competency measurement, but it may be wise to take a moment to clarify. We are using the terms proficiency and competency as equivalents. In either case we are referring to the measurement of skills, knowledge, understanding and the like that students have developed primarily as the result of formal instruction in school or school like settings. We say primarily in school or school-like settings because for some purposes, such as exemption from taking certain courses in college, competencies developed on the job or during experience in the armed forces will be measured. Competencies developed during self-study, as in preparation for a hobby such as amateur radio, may be relevant for part of a college curriculum in a scientific or technical area, and may be given credit based on an examination. Extensive reading or travel may develop competencies in the humanities that are similar to those developed in college courses. These competencies may be evaluated by means of a proficiency test rather than by requiring the student to sit through a course on material that is already mastered.

Perhaps what we mean by proficiency testing can be further explicated by contrast with a kind of testing that is not included here. Often what is measured in attempting to predict success in future educational endeavors is called aptitude. It is well recognized that innate aptitudes cannot be measured effectively. What is measured in considering aptitude is really a form of developed proficiency or competency. The difference between the kind of competencies measured in aptitude testing and in proficiency testing is that in aptitude testing we measure proficiencies that develop slowly and not usually on the basis of specific school instruction designed to develop those proficiencies. For example, we might measure aptitude for reasoning. Reasoning is not taught to most people as a course, and we expect only long-term improvements in reasoning as a person matures and gains experience. We think, then, of testing reasoning aptitude rather than reasoning proficiency. Reading, on the other hand, is taught as a course or sequence of courses. We do expect marked short-term improvement in reading as a function of reading instruction. Here we think of testing proficiency, skill or competence in reading, rather than reading aptitude.

Current Developments in Proficiency Testing

We have examined the reasons why proficiency testing is coming into vogue and considered what is meant by proficiency testing in this context. Now we will look particularly at what is happening with regard to proficiency testing at the college level that makes an evaluation of its potential impact on higher education of importance. One of the most exciting developments for individual students must be Julian Stanley's program for identifying and nurturing the intellectually gifted in mathematics at Johns Hopkins University.[14] In that program a search is conducted for students who show promise in mathematics, especially by scoring at outstanding levels on mathematics proficiency tests. Test scores have proved to be much more effective at discovering such talent than are school grades or teachers' recommendations. Stanley comments that it is frightening that, as happened in his program, scores on the mathematics section of the College Entrance Examination Board's *Scholastic Aptitude Test* were able to identify precocious talents in mathematics that were still unrecognized by teachers three years later. Apparently teachers are not very good at recognizing extreme talent.

Once Stanley's program locates precocious students, and it has found over 2,000 in the Baltimore area so far, it uses a variety of methods to encourage the development of the talent, including special tutoring, offering college-level classes on Saturday mornings for the students and similar arrangements. Then the students are admitted to Johns Hopkins, often at remarkably early ages. Stanley reports helping one boy at age 11½ to become a full-time college student, quite successfully, after completing the sixth grade. He simply skipped grades 7 through 12. Another 14-year old enrolled as a college sophomore after the eighth grade and received his diploma from college a few days after his seventeenth birthday. Still another completed 4½ years of pre-calculus mathematics in 60 Saturday morning sessions instead of taking Algebra I, II, III, plane geometry, trigonometry and analytic geometry in the usual sequence. He eventually entered Johns Hopkins at age 14 with sophomore status.

The procedures used at Johns Hopkins in this project are not expensive. They do involve proficiency testing to identify unusual talent and they involve removing the usual lockstep from student progress, often by means of challenge tests to ascertain what levels of performance have been mastered. Students are encouraged to skip grades, to enroll in courses in nearby colleges, to take correspondence courses, special fast-mathematics courses and *Advanced Placement* examinations, i.e., proficiency examinations provided by the College Entrance Examination Board as end-of-course examinations for students who have taken the equivalent of a college course while still in high school.

While the Johns Hopkins program for the intellectually gifted is exciting and fascinating, it reaches relatively few students. Other developments at the college level in proficiency testing involve far greater numbers. Remember the 17,000 students who were mentioned earlier as having sought credit by examination at Florida's nine public universities in one recent year. About 500 of them had

participated in the *Advanced Placement* program, but 7,500 of them had sought credit on the basis of the newer CLEP tests.

There are proficiency testing programs other than the *Advanced Placement* and CLEP programs of the College Entrance Examination Board. The College Board also has a program of achievement tests as part of its *Admissions Testing Program.* These have long been used to allow students to exempt beginning freshman courses. The United States Armed Forces Institute has had a program, which started about the time of World War II, of correspondence courses and proficiency tests that are usually recognized by colleges as justifying exemption and sometimes credit. The American College Testing Program's admission test scores are often used to exempt students from beginning freshman level courses, and just recently ACT has announced that it will offer a new *Proficiency Examination Program* (PEP) which initially will have proficiency tests for 47 courses emphasizing nursing, business and education.[15] Thus, a wide and growing variety of opportunities are available for students to seek credit for college courses on the basis of proficiency tests rather than by means of attending classes in the traditional manner. The number of students taking advantage of these opportunities and the number of credits granted on the basis of examinations are rapidly becoming a significant part of higher education in this country.

A Statewide Example

Some institutions combine several different kinds of proficiency testing into a large-scale, coordinated program with different tests for different purposes at different levels. A rather fully developed example is that of the publicly-supported colleges which are organized into the University System of Georgia. In that group of 31 colleges and junior colleges, there are now four coordinated proficiency testing programs.

The initial program is really a proficiency use of an aptitude test, the College Board's *Scholastic Aptitude Test* (SAT). Each person who wishes to be admitted as a freshman to a college in the Georgia System must present scores on this test which measures aptitude in verbal (V) activities and in mathematical (M) activities. Any applicant whose two scores, V and M, total to less than 650 on a scale which extends from a minimum of 400 to a maximum of 1600 is required to take a second set of tests, the *Comparative Guidance and Placement* (CGP) test. Such applicants are expected to need remedial instruction before they can deal with college freshman course work, the CGP serves as a lower-level version of the SAT permitting more accurate assessment of the student's particular problem. Sometimes the combination of high school grade average and SAT score results in a prediction that the student will be successful despite a low SAT score. In those cases, the CGP must be taken anyway, but the student is not automatically assigned to a remedial or "special studies" program. The CGP testing is paid for by the state, rather than by the student who pays for the initial SAT testing. (It is planned to replace the CGP test battery with a locally-developed battery which will have available a larger number of secure

forms and permit more frequent and extensive retesting to evaluate whether remediation has been successfully accomplished.)

The third level of proficiency testing is called the *Regents' Testing Program*, and students are expected to take these tests of basic competency in reading and writing as they are about to move into the junior class. They must pass both tests, but the tests may be repeated by those who fail. Any student who does not eventually pass the *Regents' Testing Program* cannot graduate from a senior college in the Georgia System. Students who fail the test are provided a program of remediation by their institution, the institution may require failing students to participate in this remedial work.

Individual institutions are directed by the Board of Regents to develop procedures that will require students to take the test prior to proceeding into the junior year. For example, one institution, Georgia State University, stipulates that a student who does not *take* the test by the quarter after he has completed his 75th quarter hour of credit will find his registration held up until he takes it. A student who does not *pass* the test by his 135th quarter hour of credit will not be allowed to take further courses.

The reading section of the Regents' Test has a vocabulary portion and a reading comprehension portion made up of several short passages followed by questions about each passage. More unique in a large-scale testing program is the writing test which requires the student to write a brief essay on his choice of two topics which are offered. After test administration, these essay tests are collected from all the colleges in the system and are centrally scored by faculty members who read the essays and rate them on a carefully devised scale. The participating faculty are trained in rating essays and are given sample essays as guides for their evaluations. Each essay is graded by three different readers on a scale from 1 to 5. Faculty are paid for grading the essays, an activity that takes place on weekends. The function of the *Regents' Testing Program* is to make sure that the basic skills of reading and writing are developed to at least a satisfactory minimum level in every student who gets a four-year diploma from a college in the University System of Georgia.

The fourth level of testing in the Georgia system is at graduation from a four-year college. Seniors are required to take a senior comprehensive examination in their major area. For example, in education the seniors would be expected to take the *National Teachers Examination*, in many areas the *Graduate Record Examination* would provide a comprehensive evaluation. The University System pays for this testing. At present no actions are taken concerning individual students on the basis of the scores. The data are used merely to evaluate the quality of college programs and the quality of the output of the state's educational system. Unfortunately, since many students do not need scores on the GRE or a counterpart to apply for graduate-level education, many who take the senior comprehensive tests may not be very highly motivated. On the other hand, the System is not yet ready to set graduation minimum standards on comprehensive tests such as these. This is one of the dilemmas that must be faced in developing a proficiency testing program at the college level. If the test scores are not going to be used in connection with

decisions about the students, the students may not be sufficiently motivated to make the test scores useful for any serious purpose. On the other hand, if the scores are to be used to treat students differentially, then elaborate studies such as those in North Carolina and South Carolina concerning the *National Teacher Examinations* may be necessary to set defensible cutoff scores for the different treatments.

The University System of Georgia's testing programs have another characteristic that is of more than passing interest. Clearly this is a very extensive and elaborate coordinated program of testing. No other state has anything quite like it, including the coordination of the administration, reporting and evaluation of SAT scores, the coordination, and now development, of a new remedial testing program, the coordination, development and scoring of sophomore basic skills tests, and the analysis and interpretation of a very complex set of senior comprehensive examinations.

Management of a set of programs like this requires measurement expertise of a substantial level at least that which one might associate with a full professor in the field of educational measurement in a major university. That level of competence is not always available in the central office of a coordinating board, and, if there, it may not have access to other necessities, such as computer services, graduate students as research assistants, and freedom from the other coordination details that surround a central administrative office. The solution in Georgia has been to have the director of these testing activities located on a university campus, with the status of a department head, but with little or no responsibility to the university. He teaches on occasion and directs dissertations related to the testing programs. Otherwise his activities are solely related to operating, developing, researching and reporting the results from the various testing programs. Part of the secret of the success of the Georgia program may be this rather unusual organization.

The costs of such testing efforts should be borne in mind. The full costs of the Georgia college testing programs are not known, since many of the costs (and the benefits) are hidden, just to score the essays in the *Regents' Testing Program* costs about $30,000 each year. The total costs for this program might be estimated at about $2.15 per student. In addition to that, there is the data analysis and reporting connected with the SAT admissions tests, the total costs of the CGP testing for those who score below 650 (Verbal + Mathematical) on the SAT, and the total costs for the senior comprehensive program. Furthermore, there is the cost for the research and development to replace the CGP testing program, and other kinds of research are conducted continuously. This is what one should expect from a high-quality large-scale testing program. But its cost must not be overlooked during planning.

An Interstate Example

We have dwelt on the testing program in the public colleges of the University System of Georgia at length because the program is so extensive and because it will raise and illustrate many of the problems that must be considered in

college-level proficiency testing. However, there is still another college-level development that we should note, again because it is unique and it may eventually involve many colleges.

The American College Testing Program has organized a College Outcome Measures Project (COMP) supported by the Fund for the Improvement of Postsecondary Education. The program involves eight colleges and two statewide governing bodies for public education (Tennessee and Florida).[16] The purpose of the project is to develop a program for college seniors to measure their preparation to function in our adult society, a certifying use of proficiency testing.

The first step, already accomplished, was to develop a list of general education outcomes common to these institutions, with emphasis on communicating, solving problems, clarifying values, functioning within social insitutions, using science and technology, and using art.

The next step, now underway, is to develop novel measuring instruments with varied stimuli, such as films, filmstrips, pictures and the like, and requiring actual performances, such as giving speeches. Any particular performance will be evaluated for several of the dimensions, such as using art, clarifying values and communicating. The tests will be scored by college faculty who have been trained in the use of performance scales. The competencies to be measured will be oriented toward those skills needed to be successful in adult life rather than toward those skills necessary to be successful in further education. The initial field testing of the measurement instruments is intended for Spring, 1977, with further follow-up and evaluation through 1982.

A testing program like this, then, might meet some of the needs that are being struggled with in a venture like the Georgia System's requirement of a test in each student's major at the time of graduation.

It is significant to note that the long period of development of a program like this one, as well as the need for the technical assistance of one of the major testing companies in the world, the involvement of several states and a number of colleges, and the expense are so great as to require subvention by foundation. Also, notice that, as in Georgia, for proficiency testing at this level the agencies involved are seeking more than that which the traditional multiple-choice test format is expected to provide. The *Regents Testing Program* in Georgia requires students to write essays and uses faculty to score them. The COMP program will apparently move much more extensively into use of performance beyond that of choosing the correct alternative and it seems to be committed to using trained college faculty as test scorers. This is always a very expensive process that can be justified only if the results can be obtained in no more economical way and if the results provide appreciably more, and more useful, information than is provided by the more traditional testing procedures.

Implications of Proficiency Testing

With these varied but similar ventures into proficiency testing at the college level as background, let us examine some of the ramifications and implications of the uses of proficiency testing programs.

Effect on Enrollment and Fees

It seems clear that challenge examination programs like *Advanced Placement*, CLEP and PEP can markedly influence the nature and size of an institution's entering freshman class. It is not hard to imagine an institution with a freshman class much smaller than its sophomore class due to the number of entering students who are qualified to simply skip most of the freshman year. There have been rumors, at least, that at some prestigious private colleges the freshman is a vanishing breed. This will have several obvious ramifications. One is that the institution will have income from enrollment, tuition and the like reduced to the extent that its student body is reduced by lack of freshmen. At a minimum the institution would have to readjust its internal organization, reduce the number of teaching assistants or lecturers provided to teach entering freshmen and increase the resources available for seminars, advanced laboratories, and so on at the upper division level for a student body of a given size. Since upper division instruction is more expensive, and many colleges have subsidized upper division instruction from revenues received from lower division students, the fee structure will have to be revised to accommodate large numbers of students who enter with advanced standing due to having obtained credit through challenge examinations. Another alternative might be to charge students for being given credit by examination, a charge approximating the tuition they would have paid to receive that instruction. That may not be acceptable to students who ask why they should pay since the college did not aid them in developing the competency.

The other side of this coin of losing revenue from students who enter with advanced standing revenue which in the past has subsidized more advanced students who must be taught in smaller classes with more expensive facilities and faculty is the savings that occur when students who have already developed competency are not required to go through the motions of developing it again. The savings already in the public colleges in the state of Florida, remember, can be estimated at $40 million per year. So, in one sense credit by examination saves money for society, but in another sense it loses money for the institutions of that society. Some readjustments in thinking and operation are going to have to be made to accommodate this change.

Emphasis on Remediation

Credit by examination may remove the most proficient students from the entering class, thus leaving it without the influence of able students to spur and often to help the others. However, the requirement of developed proficiency in basic skills is going to change the instruction for entering students in another way. It will be found that many students in the lower division do not have minimally acceptable proficiency in basic skills of reading, writing and computation.

Until the public schools have developed proficiency testing in these basic skills to a level at which students no longer graduate without minimal

competencies, or until colleges are no longer required or think it their function to enroll inadequately prepared students, colleges which demand that their students have these proficiencies are going to have to develop them in their own students. In other words, if colleges enroll students who are not proficient at basic skills and intend to graduate students who have mastered those skills, then the colleges are going to have to get heavily into *effective* remedial instruction. To turn out the kind of product they want, colleges who attempt to deal with students who have not mastered basic skills are going to have to employ sophisticated remedial procedures, probably over a relatively long period of time, and probably with extensive follow-up and perhaps refresher remediation. (The alternative is simply to use the revolving door admit the incompetent students, pretend to help them, and then flunk them out. That is so callous a procedure that it is unimaginable that any college would advertise this as its approach to students who were lacking in basic skills.)

It may not sound overwhelming to say that colleges which attempt to work with students lacking basic-skill proficiency must embark on large-scale and long-term programs of remedial instruction, but it gets interesting when you realize that even if a college were willing to do this, the procedure for doing it is not yet widely known.[7] The emphasis is on *effective* remedial instruction because this writer has not discovered clear evidence that remedial instruction in basic skills at the college level is generally effective at the present time. That is, experts in instruction are not sure that it can be done, how it can be done, or for whom it can be done in spite of the millions of dollars that are spent on it. Most efforts known to the writer have been unsuccessful after "remediation" the students in general don't perform at the level of non-remedial students.

Thus, each college which attempts remediation with integrity must commit itself to a program of research to try to determine how it can be done successfully. Since colleges are supposed to be oriented toward research, this seems appropriate but in the past this kind of research has not received the same support as more theoretical or more glamorous research.

Support must be financial, but more than that. The researchers must be highly competent. They must work with equally competent people who are knowledgeable about teaching and instruction, and they must have freedom to manipulate students.

Obviously, the kind of remediation effort that is needed if remediation of basic skill incompetence among college students is to work is not just a matter of having one or two more graduate students teach bonehead English with a different textbook. No one knows how much it will cost, but hundreds of thousands of dollars for an institution of any size is not unlikely. That drain will continue until the institution learns how to correct these deficiencies, until it gives up on the objective of educating students with these deficiencies, or until the supply of such students disappears, hopefully through proficiency testing and remediation at earlier levels (which, again, we do not yet know how to accomplish with regularity). Such an unusual drain on budgets will surely cause dislocations elsewhere in the institution's financial planning.

Problems of Discrimination

To add to the remediation problem described above, there is a highly important complication. There is no doubt in the mind of any person experienced in this area that, regardless of the reason, there will be a disproportionate number of members of minority groups among those students who require remediation. Apparently on any reasonable test of educational proficiency or competence that is geared to the predominant culture in the United States at this time, there will be a disproportionate number of low scorers among these groups. When that occurs there is immediately the possibility that testing has been used to segregate or to resegregate based on race or ethnicity. When this kind of disproportionality occurs, the institution must defend its practices with evidence that they are sound, effective and valid, not arbitrary, calculated or malicious attempts to discriminate against the minority group or groups.

What kind of evidence would a well-advised court accept as an indication that a proficiency testing program and its cutoff scores were designed for a legitimate educational purpose rather than to separate minority group students from other students as far as possible? First, there should be at least two different kinds of training programs to reach the objective of competence in the proficiencies demanded. One kind of training would be appropriate for the usual high school graduate who has in the past had no problem developing those skills to an adequate level. The other kind, or kinds, of program would be especially designed to develop those same skills to that same level among the kinds of students who have in the past had difficulty reaching the appropriate levels of proficiency in the usual kind of training. Then there would be a placement test for deciding which kind of student would get which kind of training, and there would be a cutoff score above which students went into one kind of training and below which they went into the other. Finally, there would be evidence that, indeed, the level of proficiency in these skills that was reached in a specified amount of time (such as a year) was higher using these kinds of training and this test with this cutoff score than with any other procedure (such as having everyone take the usual kind of training together instead of being separated at all into groups like "regular" and "remedial").[18]

The institution seems, then, to be in an intolerable bind if it tries to help problematic students by admitting them. In good conscience it must try to help them overcome their problems. If to do that the institution assigns those students to special instructional procedures, the institution will have to defend itself against charges of discrimination. The available defense seems to be to employ effective procedures to overcome the problems, but such procedures are not now widely known or well established. So the institution itself must try to develop them. The development and the use of those procedures will be very expensive, and the institution may already have limited and perhaps dwindling resources. The alternative of denying admission to problematic students may become attractive given these considerations, but many institutions may feel that to take such a course would be to reject their mission to help educate all

who request further education after graduation from high school and who can find some means of support while learning.

One hope is that colleges will mount genuine, well supported attempts to develop sound remedial and placement programs, using the most expert talent that can be found, with a commitment to years and perhaps decades of developmental effort. These must then be accepted by minority group members (and perhaps courts) as temporary evidence, at least, that placement and remediation are not disguised efforts to segregate minority group members but are legitimate educational efforts done with honor and integrity.

There is the possibility that for several decades at least, no effective solution will be found for upgrading the basic skills of many of the students who reach college age without them. What difference will it make to colleges if there seems to be no feasible set of procedures for generally developing proficiency in basic skills of students who have not developed them by age eighteen? It may be that one outcome will be the channeling of these students into technical schools and terminal junior college programs into programs more oriented toward job training than liberal education. While this may be an improvement of condition for many members of minority groups, it may tend to be a kind of dead-end education, an education in which they are not taught and encouraged to continue to educate themselves, to change themselves, and to change the conditions of their lives. Many would regard a development of that kind as unfortunate, a factor which makes it more important that thorough, careful and competent research into effective remediation be supported.

Faculty Attitudes

A ramification to which we have not yet alluded is faculty attitude. Faculty members may have mixed feelings about proficiency testing. If challenge exams are used to give credit but the standards for passing are set low, faculty may feel that students will take the proficiency-test route and then have difficulty with, and impede the progress of, subsequent courses. Some faculty may be threatened with the idea that anyone could possibly learn the subject they teach without the help of a mentor. Others may feel that a student might pass a test based on knowledge he has picked up by himself, but he will not have experienced the "full benefit" of college-level instruction. On the other hand, if the passing score on the challenge exam is set at a high level, students who could get passing grades in the relevant courses might have trouble passing the proficiency examinations. That criticizes the faculty member's instruction and the standards he maintains in his classroom. Faculty may also be threatened if they view challenge exams as decreasing the need for people with their talents and training, since students who pass proficiency tests do not take introductory courses that require faculty as teachers. There is an element of featherbedding involved. On the other hand, some faculty may realize that challenge exams may introduce into colleges a new pool of students who may help replace the loss due to declining birth rates.

One implication of these considerations would seem to be that proficiency testing and its associated activities of research and remediation should be

introduced in colleges only with as much faculty participation, understanding and cooperation as can possibly be obtained. To impose them precipitously by law, as was done with CLEP in Florida, seems to invite opposition by one of the groups whose cooperation is essential if all the benefits are to have the possibility of attainment. It must be recognized, however, that to wait for full faculty approval and participation in any activity would be to wait for doomsday. It may be that progress is best made by a variety of procedures, some accomplished by fiat, others by persuasion, and many by a combination of both.

Faculty Roles

Another aspect of faculty involvement is the fact that with some large-scale developments of proficiency testing, especially the use of challenge examinations in connection with courses, the role of the faculty member may begin to change. Traditionally, the faculty member has been thought of, and often thought of himself, as primarily a transmitter of information as far as teaching activities are concerned. The transmission of information has traditionally taken place in the form of lectures during class meetings. The development of a challenge examination procedure suggests that there are other means of information transmission that are as effective, or more effective, than lectures from faculty members to classes, especially when the students are quite varied in levels of interest, background and talents. Books, one such information transmission device, lend themselves to being studied when interest is high, at different rates by persons of different degrees of talent, and with more or less support from other references for students with varied backgrounds. Once it is realized that there are other ways to teach than through lectures and that the lecture is a relatively inefficient use of faculty time, and once students discover that they can learn from a book at their own convenience, avoid class meetings, and still get credit by means of challenge examinations, many of them may choose to progress in that way.

What will the role of the faculty member be in this new setting? He/she will become a manager and designer of instruction who will provide guidance as to what books are to be read, what additional references will be helpful, and what goals must be met. The faculty member will also be helpful to individual students in tutoring those who are having particular difficulties or hang-ups. He/she will be able to discover common problems and to develop new instructional materials that will be generally useful for students who experience these common problems.

The faculty member will also be responsible for developing and perfecting sound evaluation devices tests to determine whether students have, indeed, mastered the subject matter to an adequate level. The quality of the challenge examinations should improve markedly as faculty have time to devote to their improvement. In many subjects the new role of faculty when released from lecturing for ten to twelve hours a week (and the preparation involved in doing that well) will be to work more extensively in instructional activities that have been neglected by the traditional system. Faculty can participate in science

laboratories instead of turning them over to teaching assistants. Faculty can carefully read and critique written work in English composition, for example, instead of avoiding written assignments because the reading of student papers is so time-consuming.

Obviously, some faculty will have difficulty adjusting to this new role. The ones who lecture simply by reading the text to the class, participating in bull sessions, or telling about themselves (and there are faculty members like that) will not want to be asked to take on the more challenging tasks. Some may be brilliant lecturers but incompetent at individual tutoring or at developing teaching devices to assist students in perfecting difficult skills. Many will have to learn the basics of educational measurement in order to be of any use at all in improving competency examinations.

On the other hand, the institutions will have some adjustments to make to the new functions of faculty. Traditionally, a faculty member was judged to be "working" according to the number of hours he spent lecturing. In Florida, for instance, there is a recent law that a faculty member must spend at least 12 hours in the classroom each week. This is the legislature's idea of how to be sure that faculty are not freeloading off of society. (Accountability sometimes goes berserk.) If faculty are to develop new functions rather than trying to do in lectures what the printed word does as well or better, administrators are going to have to learn to recognize and reward these new functions. There is no doubt that faculty members can function more efficiently in many college subjects if freed from the routine and traditional method of transmitting information, the lecture. However, if the institution maintains that they are not being productive as teachers unless they are lecturing, prudent faculty members will just keep on lecturing, and the potential of the challenge examination approach will be minimized.

Coaching

Proficiency testing may produce another change which can be a mixed blessing. It is already clear at the public school level that when proficiency testing is introduced as a device to certify that mastery has been achieved, teaching will be oriented toward performing well on the test rather than toward developing the underlying competencies that result in good performance on the test. For example, Duval County in Florida has adopted a requirement that a student must perform satisfactorily on a specified achievement test in order to obtain a high school diploma. It is reported that teachers are being asked to fill out forms telling how closely the curriculum they are teaching matches the objectives of the standardized test that is being used, that copies of old forms of the test have been made available to teachers, and that teachers have been ordered to teach to the objectives of the test whether they are part of the course or not.[19, 20]

If the objectives of a proficiency test are the same as the objectives that are set for a curriculum, and if the teaching is oriented toward those objectives, it makes good sense to teach toward those objectives because that will be identical with teaching toward good test performance. (That is not to say that one should

attempt to teach the answers to the specific questions on the test or merely to teach students how to figure out the answers to questions of that specific type.) In this situation, proficiency testing can be very helpful in supporting the curriculum. However, to the extent that the objectives of teaching and testing disagree and teaching is reoriented toward the tests, the introduction of proficiency testing is harmful. Also, any time spent on teaching specific items or how to answer specific styles of items that might appear on tests is detrimental in two ways. It may result in unsound scores which do not reflect what the test was designed to measure, and it interferes with and takes precious time away from sound instruction aimed at the objectives of the curriculum.

One might even anticipate that in many schools specific time will be given to "coaching" activities, instruction designed solely to prepare students for the proficiency tests. In many places around the country private organizations now offer coaching services for profit. Even some universities offer coaching services. Most of the research on such coaching indicates that it is relatively ineffective—predominantly a boondoggle—profitable primarily to those who provide the coaching.[21] However, due to the anxiety associated with proficiency testing, the naive will become involved with it in order to reduce their butterflies, if nothing else, much as sick people will often resort to quack medicines.

At best the time and money spent on coaching will simply be wasted, but at worst that time and money will be spent on useless coaching instead of on sound and useful instruction. Even if there is some slight success for the coaching activities, the result is inappropriate scores, scores which do not accurately reflect the proficiency of the student. So the best result from the point of view of the person coached is the worst result from the point of view of the institution which requires or utilizes the proficiency test. It is about as appropriate to coach students on proficiency tests in school subjects as to give undernourished students copious amounts of water before being weighed by the doctor so that they will appear to have more nearly normal weights. A school which practiced such deception in its health program would deserve severe reprimand. The same should be true of schools or colleges which practice or condone coaching for proficiency tests. But one must anticipate that such coaching activities will occur and become widespread as proficiency testing becomes more common.

Student Choice of College

One more possible impact of proficiency testing may be glimpsed vaguely in the crystal ball. If proficiency tests for graduation from high school or from college become widespread, and if the scores from different institutions can be compared—as they could if widely-used tests such as the *Graduate Record Examinations* were brought into play—students might begin to make their choices of institutions partly in terms of how well those institutions prepare their students for the examinations. Some might choose to attend institutions whose students score well on the proficiency tests on the grounds that those

institutions provide good education. Others might orient themselves toward institutions which graduate students with relatively low performances on the proficiency tests on the ground that competition in those institutions would be less keen, and the atmosphere might be more relaxed. Still others might carefully avoid institutions which use proficiency testing at all! To some extent these kinds of evaluations of colleges already take place, largely based on what is known or guessed about admissions practices. With the advent of widespread proficiency testing for graduation, colleges might be evaluated by students (and employers) on the basis of graduation considerations and levels of attained achievement instead of on the basis of admissions considerations and levels of anticipated achievement.

Critical Issues in Proficiency Testing

Now that we have considered why proficiency testing is coming into widespread use, noted some of the characteristics of several proficiency testing programs, and considered some of the implications of proficiency testing, we should examine some of the critical issues that should be addressed by any institution considering the possibility of becoming engaged in this kind of testing.

The first question that must be answered is: Why is the testing to be done? or What is supposed to be accomplished by it? The three major possibilities seem to be: (1) to insure that basic skills have been mastered; (2) to certify that advanced competencies have been developed sufficiently well to justify receipt of course credit, a diploma, or a degree, or to ascertain that an instructional program is meeting adequate standards of quality; and (3) to use challenge exams to save time and money for the educational system, including the student. Usually different purposes will result in different answers to many of the following questions:

1. Who will take the test, when, at what cost, who will pay for the testing, and what will the outcomes be for the examinee?
2. How will the cutoff scores, if any, for "passing" be set?
3. How and to whom will the scores or results from the test be reported, and why?
4. What will be the level of the test?
5. Can the test that is desired be purchased commercially or must it be created?
6. Must a continuing program of research, revision, analysis of results, reporting of results, and so on, be established and maintained?
7. Will the test include difficult to measure proficiencies, such as essay writing, laboratory skills, musical, artistic, dramatic, athletic and other similar performances, or will it be confined to readily measurable content?
8. Will remediation be provided? Must we discover the remedial procedures that are effective?

9. Will retesting be provided? Will retesting be on equivalent forms? Will the various forms be carefully equated to each other so that scores are interchangeable?

Each of these questions could be elaborated on. For example, if a test is to measure basic-skill mastery, it will probably be taken by all students. It will probably be taken at some time such as the end of the sophomore year when basic skills should have been mastered and advanced specialization in a major field is about to commence. The cost will vary with how many skills are to be measured and what they are. Either the institution or the student will pay for it (usually the institution, it seems). The outcome will be that the passing student goes on to advanced work with no impediment, but the failing student must make some further effort to pass, or else must discontinue higher education. If the institution feels responsible for seeing that its students master the basic skills, then the institution must provide additional instruction (remedial work or "special studies"), and someone must pay for that, too.

On the other hand, if the purpose of the proficiency testing program is to provide students the opportunity to demonstrate that they deserve credit for already having mastered the work in a specific course, then only students who want credit for that course but have not taken it would sign up for the test, which would be available whenever the student wished to take it, and the student would likely be the one to pay for the test. The cost would vary with what is to be measured, but for most courses a previously-used final examination might be an adequate challenge examination and cost very little. The outcome for the examinee would be nothing if he failed, but if he passed it might be credit for the course, exemption from being required to take the course, or even credit and a letter grade for the course. The grade could represent the level at which he scored compared to students who actually took the course in the usual way and got grades in it on the basis of similar tests.

The reader can elaborate on the remaining seven questions in a similar manner. Anyone contemplating undertaking a proficiency testing program should assemble the advice of several concerned people who have thought about these questions, including administrators and especially experts in the field of educational measurement, so that all aspects will be given adequate consideration.

Avoiding Harmful Consequences

In addition to those questions, there is another set of issues which center around what will be done to avoid harmful consequences of a proficiency testing program. Some of the harmful consequences are listed below for convenience:

1. Student resistance
2. Faculty resistance
3. Challenge from minority groups, and the possibility of stigmatizing or embarrasing minority groups
4. Shoddy craftsmanship in the testing program or any of its aspects
5. Floating standards

6. Overtesting
7. Coaching efforts
8. Security breaks

Most of these undesirable developments have been discussed earlier, but a few require comment here. Number 5, floating standards, refers to the fact that an effective proficiency testing program is likely to result in improved proficiency. For example, after a basic skills testing program has been in effect for five to ten years, it is highly likely that fewer and fewer students will approach the day of the test inadequately prepared. As that takes place, there may be a great temptation simply to raise the cutoff scores or the passing standards.[22] Unless care is exercised during the entire existence of the program, it may be impossible to tell for sure whether student preparation has improved or whether the tests have just gotten easier. Faculty are most likely to think that the latter has happened unless there is convincing evidence otherwise. The contention here is that the standards should not just be allowed to float. The institution should maintain control of them, keeping them fixed or raising or lowering them deliberately as a matter of policy, not caprice. That requires care and sophistication in test design that must be present from the very beginning and can be inserted later only with difficulty.

An example of what can happen occurred recently in a statewide testing program in the Midwest in which teachers and administrators believed that students were performing less well each year in line with widely noted decreases in college admissions test scores.[23] It was possible in this case experimentally to test a random sample of students in that state using test material of a decade ago in order to check on this claim of lowered performance. The outcome was a startlingly high level of performance on the items of a decade ago. Those items proved generally far too easy for current students, a fact which compels the opposite conclusion to that drawn by the teachers and administrators. Their standards had simply floated upward as they adapted to better prepared students during the course of the decade. This floating of standards is what should be prevented in a well-developed proficiency testing program.

Number 6, overtesting, is another possibility to be avoided. There might be a tendency on the part of a new convert to the idea to think that if some proficiency testing is good, more proficiency testing is better. That is not necessarily so, or we would do nothing but give tests. More subtle, perhaps, is the fact that once a satisfactory program has been installed to achieve the desired purposes, further development of quality is likely to be of greater service than further development of quantity. There is a real danger that in trying to develop too many aspects of proficiency testing at once, nothing of satisfactory quality will result, and the program will fail to accomplish any of its goals. It should be realized that few things in life are more abominable than poorly developed tests and that many of the commercially-available tests are of exceedingly poor quality. The evaluation of commercial tests provided in the *Mental Measurements Yearbooks* over the last 40 years repeatedly are highly critical of many of these products. Gradually some improvements are being seen, but the consumer must be exceedingly wary rather than think that because tests

exist with names that seem appropriate, those tests can be used safely with acceptable results. Overtesting, then, is potentially harmful both because it can be unduly time-consuming and expensive and also because the quality and variety of available tests are inadequate at present to permit the amount of testing that might be sound for an institution to provide.

Finally, number 8, security breaks, deserves comment. Clearly, if students are to take proficiency tests for the purposes we have discussed, it must be arranged so that some students do not have access to the answers or to the questions that will appear on their specific tests ahead of time while other students are denied such access. It becomes important that no test is reused again and again and that tests are not left carelessly in places where some students might study them. More than that, it has become clear that when scores on tests become important—when they can determine whether someone is allowed to graduate, get a diploma, get credit for a course, or avoid remedial instruction in a difficult area—some individuals will attempt to cheat by getting helpful information about the items on the test outside the appropriate channels of information. Other individuals will attempt to meet that need by stealing copies of tests and selling the answers, and by devious other means. Some students will even have someone else, a "ringer," take the test for them. All of this must be prevented in a sound proficiency testing program.

Testing programs, such as the admissions testing programs of the College Entrance Examination Board and the American College Testing Program, go to great lengths to prevent breaks in test security and to investigate any cases in which breaks are suspected. On occasion, thousands of test scores have been invalidated due to security breaks. A proficiency testing program must be prepared to deal with the security problem, and dealing with it soundly will add appreciably to the cost of the program. It will mean that equivalent forms of the test will be necessary for successive test administrations, that test forms will have to be stored in safes with controlled access by testing personnel, that tests will have to be delivered very carefully to testing centers, that careful accounting of every copy of every test must be kept, that tests must be printed by carefully chosen printing firms who understand the problem, and that investigators must be employed to evaluate any charges that someone had an unfair advantage or that his scores are not sound. All of those precautions to protect the integrity of the test are needed, and it is also necessary to be sure that the person who actually takes the test is the person who is supposed to take the test. Ringers must be detected, and the scores they obtain prevented from being credited to the persons for whom they substitute. These considerations are very important and cannot be overlooked at any level of the educational process—elementary, secondary and collegiate.

Related Developments at the Pre-College Level

Turning to the elementary and high school levels, it may be useful to note the extent to which proficiency testing is being introduced and to reiterate the

impact that development may have on colleges. Recent surveys have indicated that approximately 30 of the 50 states have taken or are considering some action to provide competency measurement in basic skills in elementary or secondary schools.[24] Most of these efforts are still in the planning stage, and most involve a plan to give students multiple opportunities to pass required tests of competence. In about 20 states the plans include proficiency tests for high school graduation, provision for early exit from high school, and giving the local school system the option of setting the standards it will require on the tests.[25] In addition to these statewide efforts, some individual school districts have adopted for local use proficiency standards based on tests. As mentioned earlier, Duval County in Florida is one instance. One writer has called this development of proficiency testing or competency-based education the "Great American Educational-Fad-of-the-1970's."

For many years or even decades, states such as Florida have given standardized tests to all students in certain grades—in Florida until recently they were grades 9 and 10. However, in most cases there was no requirement that each student should earn a specific or "passing" score on the test. In 1975, California created its *High School Proficiency Test* which permits students 16 years old or older to earn the equivalent of a high school diploma. Having achieved such a score on this challenge exam (equivalent to the average performance of second-semester high-school seniors), a sixteen-year-old who has his parents' permission can stop attending high school.

Another kind of proficiency testing was introduced in California by the legislature in 1976. This legislation, rather than permitting a student with a high level of accomplishment to stop attending school early, attempts to insure that students will not receive a diploma without attaining mastery of basic skills. It requires that the skills of reading, writing, and computing be assessed at least once during grades 7 through 9, and twice during grades 10 and 11. It requires local schools to provide remedial instruction to a student who does not reach locally-set standards until the pupil "has been given repeated opportunities to achieve prescribed standards of proficiency." After 1980, no student will receive a diploma without meeting the local standards of proficiency in those three skills.

In California there is also a testing program designed to measure the effectiveness of schools and districts in the state to assess school strengths and weaknesses rather than the proficiency of individual students. These tests are given in grades 2, 3, 6, and 12. The tests are constructed by the California Department of Education. Not all students in the designated grades take all items, but enough in each school and in each district do so that on a sampling basis the average performance in each school and district on each characteristic that is measured can be estimated.

As can be seen, California has a very large scale and an elaborate array of testing programs in the public schools in the form of challenge exams to get a diploma early, basic skills exams, and exams to evaluate the effectiveness of the schools rather than the individual students. Similar developments are taking place in Florida. A certification proficiency examination is now required of each student at the eleventh grade. Students must attain a passing score on it in order

to graduate with a diploma rather than a mere certificate of attendance. Although details have not yet been developed, presumably there will be possibilities for repeated retesting in the eleventh and twelfth grades so that students who fail at first can later qualify for a diploma. In addition, Florida law provides that any 16-year-old can take a high school equivalency challenge examination and upon passing it can receive a high school equivalency diploma and be exempt from compulsory attendance. The State Board of Education is required to provide the exams and the standards, and the local districts are required to offer and administer the exams, according to legislation passed in 1975. In addition to these testing efforts, the state operates testing programs at grades 3, 5, 8, and 11 for all students. (The grade 11 test is the one used to decide whether a student can qualify for a diploma.) These tests are to assist the schools to identify pupils who are not progressing properly. Recent legislation in Florida requires the Board of Education to implement a procedure which will permit students to take challenge exams in individual high school courses. Upon passing those tests, the students will be given credit for the courses and are not required to attend classes in them. This is a high school version of the *College Level Proficiency Examinations* (CLEP) which we noted earlier. Implementation of this program is now being initiated.

The state of Georgia is involved in somewhat similar activities, though less extensive. Since 1971 the Department of Education has administered commercially-developed standardized achievement tests to grades 4, 8, and 11 in reading, language and mathematics. In 1976 new forms of tests were developed by the Department of Education in reading, mathematics and career development for grades 4 and 8. It is expected that tests in science and social studies will be added soon. At present, the purpose of the tests is instructional planning, and no cutoff scores representing satisfactory individual performance have been set. Some use of the tests is anticipated to identify students who might upon promotion need remedial work.

Elsewhere in the Southeast, the state of Louisiana Board of Elementary and Secondary Education has established the policy that effective in 1980 an eighth grade student must demonstrate a functional literacy achievement level in reading to be advanced to the ninth grade. In Maryland, the Department of Education has ruled that by 1982 students have to display satisfactory skills in five areas prior to graduation. The areas are basic skills, world of work, world of leisure, world of citizenship and survival skills. Students deficient in these areas are to be identified by the ninth grade, and remedial programs are to be planned for them. In Virginia, a law effective July 1, 1976, requires the State Board of Education to prescribe standards of quality and by September of 1978 to establish a statewide testing program in reading, communications and mathematics to measure the yearly progress of individual students. A Board of Education ruling in May of 1976, to be effective July 1, 1978, requires that high school students must demonstrate the ability to read, write and compute before they receive a diploma. They must also have a basic knowledge of United States culture and history and be prepared to enter higher education or the world of work. The methods for determining proficiency will be established by local school officials.

From this brief review it seems clear that the recent decade has seen marked movement in the direction of demanding demonstrated proficiency of elementary and secondary school students periodically through their school careers with particular emphasis on graduation or receipt of a high school diploma. Some statewide proficiency testing programs have been mandated. Some states have not specified that a statewide uniform program be used, and some have specifically provided that the evaluations of proficiency will be at the local level, *not* uniform across the state. In some cases it is recognized that remediation of deficiencies is important and must be specifically provided for. In no case the writer has discovered is it recognized that effective procedures for remediation for the most part remain to be discovered and analyzed as to their characteristics, their side effects, for what kinds of students with what particular deficiencies they will be effective, how much is needed, and how long the remedy will last—just as one must evaluate the effects of a new drug once it is discovered. This need for research seems to be universally overlooked. It appears to be much easier to mandate that remediation will be provided than to provide that remediation will be possible, successful, and not harmful in its side effects.

Implications of Pre-College Proficiency Testing

What are some of the implications of the proficiency testing movement at the elementary and high school level? One, of course, is that if the lower level schools do their jobs well and no longer graduate students without mastery of basic skills, the colleges will no longer have to test for and try to remedy deficiencies in basic skills. This would be a welcomed relief, it seems, unless one stops to think that such remediation may not be possible in our present state of knowledge. In that case, the pre-college institutions may either lower their standards of mastery so that everyone passes, or else we will see a decrease in the number of high school graduates. This will mean a reduction in the number of prospective college students, unless colleges no longer require high school graduation. So the trade-off if remediation turns out not to be feasible for many students is a higher proportion of college students who have mastered basic skills but a smaller number of college students.

A second development may be the occurrence of nongraduates from high school attempting to be admitted to college in spite of college admissions requirements that include the diploma. Since the belief is still widespread in our society that education results in greater earnings,[26] it can be anticipated that nongraduates from high school will probe out every possible procedure that will get around the lack of a diploma. For example, they may discover some kinds of post high school institutions that do not require high school graduation for admission but whose students are welcomed for college admission. Some may enroll in such institutions just in order to transfer despite lack of the diploma. Colleges should be prepared to deal with this kind of device.

Another eventuality is that grades at both high school and college will change their character. Several changes might occur, and it is hard at this point to

anticipate which tendencies will be the strongest. One possibility is that college grade averages will continue to get higher—sometimes referred to as grade inflation. If faculty standards remain the same and students are better prepared, then grades in college should get higher. Students will have mastered more than the students of previous years when some of them were without satisfactory basic skills development. On the other hand, it is well known that faculties often adapt their grading standards to the kind of students they have before them.[27] They grade on the curve. If that is the primary trend with these new, well-prepared students, then we can expect eventually that grades of B and C will mean the same level of accomplishment that formerly was represented by grades of A. Similar developments can be expected in the high schools, and college admissions officials must watch to determine, if they can, any changes in the meaning of high school average grades that are used for admissions purposes.

If it turns out that many students are unable to obtain high school diplomas for lack of mastery of basic skills, it remains to be seen what such students will do in terms of further education. They may, for the most part, simply cease formal education and seek employment which may be difficult to get due to lack of a diploma. On the other hand, they may try to get further education outside of both the usual high school and the usual college programs. Possible alternatives are adult education and vocational and technical education programs. To the extent that large numbers of students fail to master basic skills in high school but seek to continue their education in these programs, adult, vocational and technical education will tend to compete more strongly for the funds that have traditionally gone to high schools and colleges. One outcome of proficiency testing for basic skills at the public school level may be that less of the education budget will be provided for those schools and more will be provided for the students who leave without graduating but seek to continue formal education along other avenues.

Finally, an outcome of proficiency testing at the public school level that can be foreseen is substantial numbers of students who seek to enter college at younger ages than has been traditional. Some states are providing high school proficiency tests that yield high-school equivalency diplomas. California has done this, but it has set its standards fairly high, and relatively few students have chosen to pass those tests and enter college early. Other states may not set such high standards. Florida is going to let students take proficiency tests in individual courses and complete their high school curriculum that way, and programs like the one at Johns Hopkins in mathematics deliberately seek students who should move out of high school and into college much earlier than at the age of 18. The experience with mathematically precocious youths at Johns Hopkins is that those who enter at very early ages, even at age 12 to 15, adjust well and need no extensive special provisions because of their youth. Apparently their academic and intellectual peers also turn out to be their social peers. However, colleges should be prepared to make any adjustments that may be found necessary to deal with larger numbers of younger people than they have worked with in the past if this trend toward proficiency-testing for early graduation develops on a large scale.

Summary

Proficiency testing is rapidly becoming widespread in schools and colleges. It is usually introduced either to evaluate the mastery of basic skills, such as reading, writing and arithmetic, or in order to certify that achievement levels have been attained sufficient to justify credit for a course or the granting of a diploma or certificate. The motivation for testing proficiency in addition to and separate from the ordinary examinations that are routinely given in many courses in schools and colleges comes from a widespread disappointment in the degree of mastery of basic skills and disappointment in the meaning of diplomas and certificates. Additional motivation comes from a desire to save time and money by using challenge exams to avoid re-teaching already mastered skills. In isolated settings, proficiency testing is also used to discover precocious students and to advance their educational progress. Millions of dollars now spent on teaching students who have already mastered subjects could be saved or spent more usefully, and thousands of precocious youth are there to be discovered and aided.

Some states have proficiency examinations at the high school level to be certain that no student gets a diploma without having mastered basic skills. In one state all students in the public colleges of the state must demonstrate the mastery of basic skills in order to be able to take advanced courses and eventually receive diplomas.

Some states have proficiency examinations which when passed result in the student's obtaining a certificate that is equivalent to a high school diploma and permits him, with his parents' consent, to stop attending high school. One state is developing a program of proficiency tests in individual high school subjects so that students can demonstrate mastery without having to take the courses. Many states at the college level have similar programs, and major testing agencies are providing standardized nationwide tests for that purpose. One state requires by law that such tests be provided by the state college and that full course credit be given for passing the tests.

One state requires proficiency testing at the time of graduation for all public college students as a means of evaluating the quality of its educational programs. In several cases, groups of colleges and educational organizations are banding together to develop programs of college graduation-level proficiency tests for use in the future.

At least one college has a rather fully developed program for using proficiency tests to discover mathematically-talented youth and to provide them with a variety of services to expedite their development.

Clearly much is occurring in this area. One writer has called proficiency testing the Great American Educational Fad of the 1970's.

As this activity proceeds, it will change some characteristics of American higher education. It can be anticipated that the proficiency testing at the public school level will result in better prepared, and perhaps significantly fewer, high

school graduates. Unless standards are set so low as to be meaningless, many whose skills are so poorly developed that they are now put into remedial programs in colleges will no longer receive high school diplomas. They will lack this traditional requirement for admission to college. They may, instead, enlarge adult education, and technical-vocational education activity and expenditures, and thus redirect the expenditure of some educational funds.

Until the time that high school proficiency testing relieves colleges of the problem of students with inadequate basic skills, most colleges which adopt proficiency testing correspondingly will have to adopt, enlarge and improve remedial training activities. In fact, they will have to try to discover effective remedial procedures since none is widely demonstrated to be effective at present.

As it becomes common knowledge that poorly prepared students no longer can graduate from colleges which evaluate proficiency in basic skills, a decrease in enrollment in those colleges may occur. That may be offset, however, by new pools of potential college students who are encouraged by challenge examinations such as the College Level Testing Program (CLEP) and the Proficiency Examination Program (PEP), which open the possibility of giving credit for their experience to adults who might not otherwise contemplate attempting to obtain college degrees. These students will tend to be older, and their entry along with the departure of students who lack basic skills may noticeably change the age and skill mix among college students. One observable phenomenon may be a marked decrease in the number of students in the freshman class and in the first two years of college. This changing of the number of students in remedial work, in the first two years, and in the last two years of college may necessitate new faculty staffing patterns. More experts will be needed in remediation and fewer graduate assistants will be needed as teaching assistants for freshmen. This will alter the budgeting procedure and the fee structure since, in the past, lower division instruction has often tended to subsidize upper division and graduate instruction.

Faculty will face other changes, too. If effective remediation techniques are to be discovered and put into practice, faculty are going to have to be more cooperative with research to discover and develop those techniques. Some faculty are going to have to learn to participate in remediation since the need for their other skills will be diminished. As challenge examinations become more widespread, more of education may be individualized and based on proficiency rather than on time spent. Faculty will have to become managers of educational activity instead of primarily information transmitters. For this to take place, the attitudes of administrators toward what faculty members do and for what they should be rewarded must change.

One serious problem that must be faced by our society as proficiency testing becomes widespread is the fact that at least initially it can be expected that disproportionately large groups of students who do not meet whatever standards of proficiency are set will be members of minority groups. Regardless of the reason for this, the occurrence of this finding automatically suggests that the tests are being used at least partly because they result in segregation. Institutions

can expect their use of proficiency tests to be challenged in the courts. They must use proficiency tests only for concrete educational pruposes, fully supported by sound and careful efforts at correcting the deficiencies of the affected students and preventing the continued occurrence of such deficiencies in the future, or the proficiency testing program will not be accepted by minorities and may be disallowed by the courts.

All of these activities related to proficiency testing are expensive. Some of them, such as challenge examinations, can be introduced for their economy, but others, such as basic skills testing and effective remediation, are going to be expensive beyond most people's conception. This is going to necessitate allocation of a greater proportion of resources to education, a trend opposite to the present one, or a reallocation of the available education resources. Something else will have to suffer while development of basic skills is attended to, while achievement of satisfactory graduation attainments is verified, and while better evaluation of instructional programs is instituted.

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