ACT Scores Predict Success on the Pre-Professional Skills Test

William P. Soules, Rebecca L. Beatty, and Terri L. Hopper, New Mexico State University

A study of 521 students who took the Pre-Professional Skills Test (PPST) from 1988-1990 revealed that students with American College Test (ACT) composite scores of 21 or higher had a high probability of passing all three parts of the PPST on the first attempt at a cutoff score of 169. That is, they had demonstrated their mastery of the basic skills tested by the PPST. High correlations (.473 to .816) between the ACT and PPST support the notion that they are testing similar skills. As a result of the findings, the state board of education approved a change to the university's program that exempts students who have an ACT composite score of 21 or higher from taking the PPST.

There have been major changes in teacher education programs in recent years. Many of the changes have been a result of the public outcry for excellence and accountability in the training of teachers; other changes have resulted from a demand that teachers possess the skills and knowledge expected of the profession (Goodison, 1986; Goodlad, 1991; Smith, 1984). Although each state determines the requirements for teacher licensure, most states rely on standardized tests to assess the basic skills and content knowledge expected of teachers (Aksamit & Kluender, 1986; Heger & Salinger, 1985; Stoker & Tarrab, 1985).

Although standardized tests are not able to assess whether an individual will be a good teacher, these tests are useful in assessing large numbers of people for the specific content knowledge expected of teachers (Goodison, 1986). The guidelines published by the National Council for Accreditation of Teacher Education (NCATE) require that colleges of education use standardized test scores of basic skills as part of the admission procedure to teacher preparation programs at NCATE-accredited schools (National Council, 1987). Similarly, in 1989-1990, 39 of 50 states required standardized testing for program admission or certification (Coley & Goertz, 1990b; Goddard, 1989).

Two of the most common tests used to meet the accreditation requirements are the PPST and the NTE (Aksamit, Mitchell, & Pozehl, 1987). Although the NTE was developed as a test of teacher competencies, the communication skills and general knowledge portions are used by some colleges of education to assess basic skills and by some states as part of their teacher certification requirements (Coley & Goertz, 1990b). The PPST was designed by the Educational Testing Service in 1983 as a means of assessing basic skills necessary for education program admission (Aksamit et al., 1987). The PPST is divided into three subtests:

1. The Reading test measures skills in literal comprehension, the ability to clarify a written message and understand how the material is organized and conveys the message; and the ability to make reasoned, qualitative judgments about the nature and merits of a written message.
2. The Mathematics test measures competencies acquired in the course of studying mathematics at least through high school. The test covers such skills as comparing and ordering numbers, interpreting graphic material, using ratios and percents, reasoning qualitatively, using measurement concepts, and other fundamental mathematical skills.
3. The Writing test assesses the ability to use grammar and language appropriately and to communicate effectively in writing with a specific aim or purpose in mind. (Educational Testing Service, 1984, p. 1)

The minimum score on a standardized test is set by a college of education or state board of education after completing a validation study required by the Educational Testing Service (Educational Testing Service, 1989). A cutoff score near the 20th percentile is common when using a standardized test as an entrance requirement for a teacher education program.

A 1986 validation study resulted in a large Southwestern university's adopting the PPST as an admission requirement for its teacher education program the following year. The initial cutoff score was set at 172, approximately the 20th percentile in the validation study. An adjustment was made later (i.e., students within 3 points of the required score were admitted) to cover possible measurement error in the standardized test and had the effect of making the passing score 169 for each area. Approximately

250 students per year take the PPST at the university.

The PPST is a relatively expensive test for students. The full battery of three tests currently costs $65, with the cost for one test being $45 and two tests $55 (Educational Testing Service, 1992). This can provide a hardship for financially struggling students who must take a standardized test to continue toward their degree.

Because the PPST is expensive, it is important to try to predict student success on the PPST to facilitate remediation prior to taking the exam (Heger & Salinger, 1985). If reliable predictors can be identified, then exemption or remediation can be initiated.

The ACT is well-established and used extensively for admission to universities. Trend data are computed each year for the ACT and, along with performance on the Scholastic Aptitude Test, are used as a measure of public school effectiveness (Brasel, 1991). Schools, districts, and states with high scores are recognized for providing quality education, whereas those with low scores try to improve their systems. The ACT was revised in 1989 to enhance its relevance. The enhanced version is divided into four subtests — English, mathematics, science reasoning, and reading — with the composite score representing the arithmetic average of subtest scores.

Many universities require ACT scores for admission (Brasel, 1991). The ACT has high correlations with the PPST, .66 to .77, indicating that they test similar skills and abilities (Stoker & Tarrab, 1985). Because a high score on the ACT would predict a high score on the PPST, it might be possible to use the ACT in lieu of the PPST for entering students with high ACT scores (Duke & Duke, 1990). Students who made substantial progress in mastering basic skills during their first few years of college would still need to take the PPST to demonstrate that skill.

Method

Subjects

An initial pool of 1227 students in the teacher education program at a large Southwestern university was reduced to 521 students for whom full data were available. Students were most often eliminated because they were in a masters degree program or had transferred to the university; thus the university did not have their ACT scores or high school grade point averages (GPAs). Data were collected for the 521 students who took the ACT as part of their admission to the university and took the PPST between 1988 and 1990 as part of their admission to the teacher education program. The students majored in elementary, secondary, or special education. Most were in their sophomore year, but the number of semester hours completed ranged from 6 to 245, with a mean of 79.6. Sophomores were defined as students who had completed 29 to 61 semester hours. There were 86 (16.5%) males and 435 (83.5%) females. The ethnic make-up was 72% majority and 28% minority, with Hispanics as the largest minority group at 26% of the total.

Procedure

Scores for all students who took the PPST between 1988 and 1990 were examined for passing scores on all subtests (reading, mathematics, and writing). In addition, the subtest scores were averaged to give an average PPST for each student. Similarly, the composite ACT score was obtained, along with high school GPA, college GPA, and several other academic and demographic records. If full data were not available for a student, the student was eliminated from the study.

Data analysis consisted of a correlation matrix showing the intercorrelations among the variables and a frequency chart comparing ACT composite scores and passlfail on the PPST.

Results

The correlation matrix is presented in Table 1. Only correlations of importance in the present study are included; all are significant at the .001 level.

In general, the correlations between ACT scores, PPST scores, and whether a student passed or failed the PPST were moderately high, ranging from .473 between ACT and PPST pass/fail to .816 between the ACT composite score and the average of the PPST scores. These are similar to correlations reported in similar studies (Aksamit et al., 1987; Stoker & Tarrab, 1985). Other correlations, although positive and significant, were much lower, ranging from .140 to .267 for correlations with majoritylminority ethnicity and .245 to .482 for correlation with high school GPA. Thus, about 64% of the variance in PPST scores can be ac-

TABLE 1
Pearson Correlation Coefficients

	ACT Composite	PPST	PPST Pass/Fail	College GPA	High School GPA	Ethnicity
ACT* Composite	1.000					
PPST**	.816	1.000				
PPST Pass/Fail (Pass=1, Fail=0)	.473	.623	1.000			
College GPA	.482	.473	.245	1.000		
High School GPA	.477	.404	.232	.387	1.000	
Ethnicity (Majority=1, Minority=0)	.267	.253	.140	.199	.146	1.000

*American College Test
**Pre-Professional Skills Test

counted for by examining only the student's ACT composite score.

Of the 521 students in the study, 436 had passed (i.e., scored 169 or higher on) all parts of the PPST on their first attempt and 85 had not passed at least one part. An examination of pass rates revealed that only 2 students out of 244 who had ACT scores of 21 or higher had not passed all parts. All students, though, who had ACT scores of 23 or higher passed all portions of the test (see Figure 1). On the other end of the scale, only 1 student out of 11 who had ACT scores of 13 or lower passed all parts of the PPST on the first attempt. Because the focus of this study was on the first attempt, results from subsequent attempts were not analyzed.

Discussion

The results were conclusive. Students who have high scores on the ACT have a high probability of passing the PPST on their first attempt. If an ACT composite score of 21 or higher is set as a cutoff, the probability that a student would not pass the PPST on the first attempt is quite small. Requiring these students to take the PPST is unnecessary.

Once students have demonstrated requisite skills, they should not have to take additional tests to redemonstrate those skills. Students who have already mastered basic skills, using ACT scores as a measure of competency, can be exempted from additional testing in those areas. Only students who are still trying to meet minimum levels of competency should need to take the additional tests as evidence of their acquisition of those skills. To require all students to take the test is inefficient, costly, and redundant.

As a result of this study the university requested a modification from the state in the college of education's approved program. Approval was granted by the state department of education after review by its professional standards commission. As of June 1, 1991, education students at the university need not take the PPST if they have a composite ACT score of 21 or higher, exempting approximately 45%. Students with ACT composite scores lower than 21 must pass the PPST to demonstrate that during their first few semesters of college work they have acquired the reading, writing, and mathematics skills required for admission to the teacher education program.

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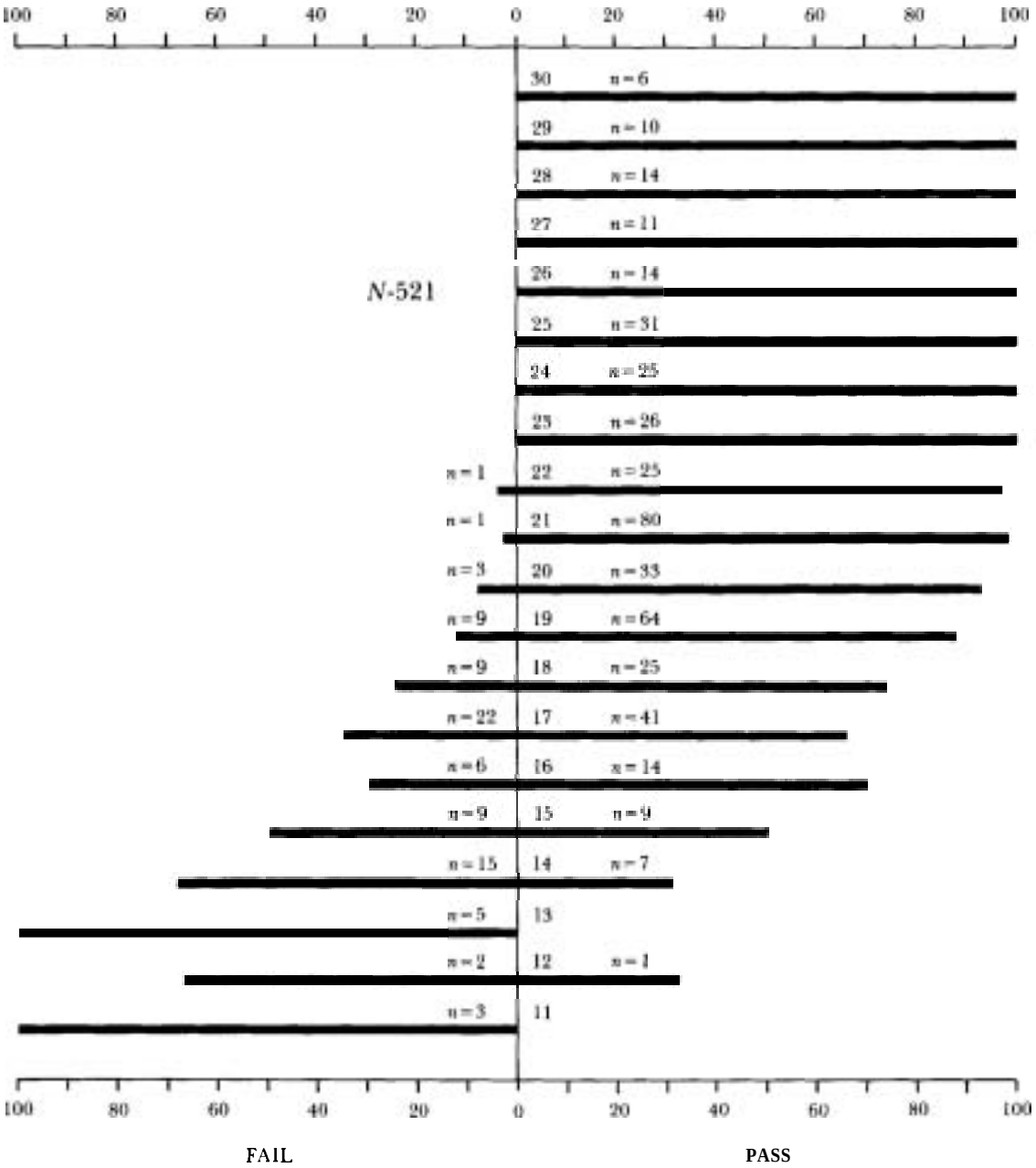

Figure 1 Percentage of Students Passing All Subtests of the Pre-Professional Skills Test for American College Test Composite Scores of 11-30.

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William P. Soules is Advising Center Coordinator in the College of Education. Rebecca L. Beatty is an elementary school teacher in Colorado Springs, Colorado. Terri L. Hopper is an elementary school teacher in Albuquerque, New Mexico. Address correspondence concerning this article to William P. Soules, College of Education, New Mexico State University, Box 30001, *Dept.* 3 *AC. Las Cruces, NM* 88003.

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