The Pre-Professional Skills Test: How It Affects Teacher Aspirants and Predicts Performance in Teacher Preparation Programs

Samuel Hicken

In Arizona, students must pass the Pre-Professional Skills Test (PPST) prior to admission to a teacher preparation program. This study first summarized all Arizona PPST data from 1985 to 1989; the second phase then analyzed the effectiveness of PPST scores in predicting students' subsequent performance in teacher preparation programs. The most notable result was that in those five years, 51% of Arizona minority students failed the PPST compared to 21% of whites. The study revealed inconclusive correlations between PPST scores and three criterion measures of educational performance. This may be important because the preliminary phase showed that the PPST has blocked minority students from entering teacher preparation programs.

Since the National Commission on Excellence in Education issued A Nation at Risk: The Imperative for Educational Reform in 1983, a plethora of teacher-assessment laws and regulations has been enacted by the states (Gifford, 1986). Much of the assessment has taken the form of minimum competency testing (MCT), a continuing source of controversy among educators and politicians. In some states, prospective teachers must pass a minimum competency test prior to certification while in other states prospective teachers must pass such a test prior to admission to a teacher preparation program.

A major concern about minimum competency testing has been that minorities have performed poorly on such tests. The issue is especially critical in teacher education because the tests may deter minority students from entering the teaching profession at a time when they are most needed. According to the president of the Educational Testing Service:

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ETS research reports conclude that by the year 2000, if there is no significant change in the current status of teacher preparation, the percentage of minorities in the teaching force could be cut almost in half, from its current level of approximately 12%. This decline will be taking place at the same time as the proportion of minority students enrolled in U.S. schools will be increasing dramatically. The growing mismatch between the racial and ethnic composition of the teaching force and the student population is a matter with serious social and educational implications for the nation and its schools (Anrig, 1986, p. 449).

In California, for example, it is estimated that by the year 2000 minority students will make up at least 52% of the total school age (K-12) population, as compared to 27% in 1970 and 42% in 1980 (Callan, 1985, cited in Nieto, 1986). The overwhelming majority of students in the nation’s 35 largest city school districts are minority students (Gifford, 1986). While K-12 minority enrollment increases, the number of minority teachers declines. According to The National Commission for Excellence in Teacher Education (1985, cited in Kortokrax-Clark, 1986), the nation is likely to see a further decline in the number of minority teachers in the schools, resulting in a lack of role models for minority students and a severe limitation on cross-cultural exposure for majority students. Minority teacher role models are essential in minority schools (de Martinez, 1988).

Previous studies indicate that minority teacher aspirants have had relative difficulty passing qualifying tests. A 1985 study at Northern Arizona University showed that between July 1983 and July 1984, failure rates on the pre-service screening exam then in use were: 80% for Native Americans, 60% for Hispanics, and 27% for whites (Morehead, 1986). A 1986 study of pass rates on the Pre-Professional Skills Test (PPST) in Texas showed that although minority pass rates on the PPST had improved somewhat since first administrations of the test, black and Hispanic students continued to score lower than whites (Salingler, 1986). In addition to blocking the prospective minority teachers who actually fail the test, such testing may eventually result in minority students being discouraged from considering seeking admission into teacher preparation programs (Bruno & Marcoulides, 1985).

In 1985, when the Arizona Board of Regents mandated statewide use of the PPST, several steps were taken to minimize the possibility that the PPST would become a barricade against minority teacher education. An ethnically representative panel of 56 local teachers and educators was selected to formulate cutoff scores for each section of the test. The panel also considered the potential bias of test items.

Arizona students must pass the Pre-Professional Skills Test before they can be admitted to an undergraduate teacher preparation program. The PPST, offered by the Educational Testing Service (ETS) and administered throughout the state, assesses fundamental skills in reading, mathematics, and writing. The PPST consists of 125 multiple-choice questions: 40 in reading, 40 in math, and
45 in writing. Students also write an essay, the score on which is combined with the multiple choice question score to calculate a final writing score.

Educational Testing Service reports scores for each of the three sections of the PPST using a scale that has a range from 150 to 190. Students must achieve a minimum score on each section of the test. In Arizona, minimum scores are 173 for the reading section, 172 for the math section, and 174 for the writing section.

The point of the PPST is to cull students who will and will not be able to succeed in education. The question of whether such tests separate those who will become effective teachers from those who will not is the essence of the debate about the effects of their use, particularly on minority students.

The current study investigated the PPST in Arizona, both its effect on aspiring teachers and its predictive value. The preliminary phase of the study summarized all Arizona PPST data from 1985 through 1989, with a special focus on minority statistics. The second phase of the study examined the relationship between PPST scores and academic performance: Do PPST scores predict how well a student will perform in a teacher preparation program?

In both phases of the study, students were classified as either white or minority. No statistics are reported for individual minority groups, though the groups did differ in minor ways on particular measures. For this research, these data were collapsed across minority groups to simplify and focus the study.

**METHOD**

*Part I: Arizona PPST Data*

*Participants*

All Arizona students who have taken the PPST from the time of its inception in 1985 through 1989 were included in the descriptive phase of the study.

*Data Sources and Analysis Procedures*

Statewide PPST data are made available for research purposes, usually within a year, by the Educational Testing Service. Data for the five years were summarized to produce counts and percentages of students who took, passed, and failed the PPST. The data were summarized for all students, as well as by sex, ethnicity, and how many times students took the test.

*Part II: PPST Scores and Subsequent Performance*

*Participants*

One hundred students were chosen at random from those who met the following criteria:
1) the student graduated from a regular undergraduate teacher preparation program at Arizona State University (ASU) no earlier than Fall 1989,
2) the student had completed student teaching, and
3) the student had a recorded PPST score and a recorded Teacher Preparation Assessment System (TPAS) inventory score.

Eighty-one of the 100 students in the sample were females and 19 were males. Eighty-nine of the students were white and 11 were from ethnic minorities. Eighty-two of the students passed the PPST on their first try while 18 required more than one try to pass all three sections.

Data Sources and Analysis Procedures

PPST Scores. Scaled scores from the three sections of the test (reading, math, and writing) were summed to form a combined PPST score. Because each section was scaled by ETS to a score that ranged from 150 to 190, most students' combined scores were between 520 and 550.

For the 18 students who required more than one try to pass the test, the students' lowest scores were analyzed. The reason for using the lowest scores was to extend the range of correlation and prediction.

College of Education GPA. Grades were used as the first measure of student performance. A Grade Point Average (GPA) comprised exclusively of undergraduate education courses was computed for each student in the sample. Each GPA could range from 0 to 4, where 4 would represent a perfect record of all A grades, 3 would represent a B, and so on. Most students in the study completed between eight and ten education classes.

TPAS Scores. A second measure of student performance was scores from ASU's Teacher Preparation Assessment System (TPAS) inventory. The TPAS inventory consists of 100 multiple choice questions covering six major areas of teacher readiness: classroom management, instructional development, educational assessment, multiculturalism, theories of learning and human development, and professional and legal issues. Although the inventory is a paper-and-pencil instrument, it is principally designed to assess classroom teaching skills. TPAS scores are reported as the number of correct answers out of 100. Students normally respond to the TPAS inventory in their final semester of teacher preparation.

Student Teacher Ratings. The final measure of student performance was student teacher ratings. Upon completing student teaching, ASU student teachers are rated by their supervising teachers on 22 characteristics, each on a scale between 0 and 9. For the purposes of this study, an average student teacher rating was computed for each student.

Means and standard deviations were computed on each measure across the 100 students in the sample. Means and standard deviations were also computed
for each subgroup of students, grouped by sex, ethnicity, and number of tries required to pass the PPST. Correlations between the scores on each measure were computed to measure relationships between PPST scores and each of the three criterion measures.

RESULTS

Part I: Arizona PPST Data

Table 1 shows that a total of 9064 students took the PPST in its first five years. Nearly four-fifths were females and more than four-fifths were white. Males and females were equal in pass/fail rates and in percent taking the test more than once. Between whites and minorities, a higher percentage of minority students took the test more than once (36% versus 22%).

Most notably, the table reveals a difference between whites and minorities with regard to pass/fail rates. Whereas nearly four-fifths of white students passed the PPST, less than one-half of minority students passed. Stated another way, 51% of minority students failed the test compared to 21% of whites.

Part II: PPST Scores and Subsequent Performance

Table 2 summarizes scores on the PPST and on the three performance measures for all participants and for subgroups by sex, ethnicity, and number of tries required to pass the PPST.
### TABLE 2.
Group Means and Standard Deviations on Performance Measures

<table>
<thead>
<tr>
<th>Groups</th>
<th>PPST Mean</th>
<th>GPA Mean</th>
<th>TPAS Mean</th>
<th>St. Tch Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>All (n = 100)</td>
<td>537.6</td>
<td>3.55</td>
<td>58.2</td>
<td>7.37</td>
</tr>
<tr>
<td>Mean</td>
<td>10.8</td>
<td>.33</td>
<td>6.5</td>
<td>.81</td>
</tr>
<tr>
<td>Min</td>
<td>511</td>
<td>2.78</td>
<td>36</td>
<td>4.36</td>
</tr>
<tr>
<td>Max</td>
<td>558</td>
<td>4.00</td>
<td>77</td>
<td>8.32</td>
</tr>
<tr>
<td>Female (n = 81)</td>
<td>536.3</td>
<td>3.60</td>
<td>58.6</td>
<td>7.09</td>
</tr>
<tr>
<td>Mean</td>
<td>11.0</td>
<td>.30</td>
<td>6.0</td>
<td>1.14</td>
</tr>
<tr>
<td>Male (n = 19)</td>
<td>542.9</td>
<td>3.35</td>
<td>56.2</td>
<td>7.43</td>
</tr>
<tr>
<td>Mean</td>
<td>7.9</td>
<td>.36</td>
<td>8.3</td>
<td>.711</td>
</tr>
<tr>
<td>Minority (n = 11)</td>
<td>535.2</td>
<td>3.56</td>
<td>57.5</td>
<td>7.50</td>
</tr>
<tr>
<td>Mean</td>
<td>9.8</td>
<td>.27</td>
<td>4.9</td>
<td>.65</td>
</tr>
<tr>
<td>White (n = 89)</td>
<td>537.8</td>
<td>3.55</td>
<td>58.3</td>
<td>7.35</td>
</tr>
<tr>
<td>Mean</td>
<td>10.9</td>
<td>.33</td>
<td>6.7</td>
<td>.83</td>
</tr>
<tr>
<td>One Try (n = 82)</td>
<td>540.8</td>
<td>3.58</td>
<td>58.6</td>
<td>7.36</td>
</tr>
<tr>
<td>Mean</td>
<td>8.2</td>
<td>.32</td>
<td>6.7</td>
<td>.79</td>
</tr>
<tr>
<td>Multiple Tries (n = 18)</td>
<td>522.6</td>
<td>3.41</td>
<td>56.2</td>
<td>7.39</td>
</tr>
<tr>
<td>Mean</td>
<td>8.1</td>
<td>.33</td>
<td>5.4</td>
<td>.83</td>
</tr>
</tbody>
</table>

Note. St. Tch = Student Teacher Rating

The table shows that College of Education course grades were high: the average GPA was 3.55. The standard deviation indicates that nearly 70% of the students had a GPA between 3.22 and 3.88. The data show that there was virtually no difference in performance between whites and minorities on any of the measures.

Table 2 does show the following statistically significant differences:

1) males scored better, on the average, than females on the PPST,
2) females had higher GPA scores, on the average, than males,
3) people who passed the PPST on the first try scored higher, on the average (on the PPST), than people who took more than one try to pass the test, and
TABLE 3.
Intercorrelations Between Variables

<table>
<thead>
<tr>
<th></th>
<th>GPA</th>
<th>TPAS</th>
<th>St. Tch</th>
</tr>
</thead>
<tbody>
<tr>
<td>PPST</td>
<td>.176</td>
<td>.370*</td>
<td>.056</td>
</tr>
<tr>
<td>GPA</td>
<td></td>
<td>.327*</td>
<td>.110</td>
</tr>
<tr>
<td>TPAS</td>
<td></td>
<td></td>
<td>.159</td>
</tr>
</tbody>
</table>

*Note. St. Tch = Student Teacher Rating
*p < .001.

4) people who passed the PPST on the first try had a higher GPA than people who took more than one try to pass the test.

While these differences are statistically significant, their small magnitude raises the question of whether they are of practical importance.

Table 3 summarizes the one-tail correlations between measures used in the study. The table shows a statistically significant correlation between PPST scores and TPAS scores ($r = .370, p < .001$). Correlations between PPST scores and GPA and between PPST scores and student teacher ratings were not statistically different from zero.

DISCUSSION

It was not surprising that 78% of students who have taken the PPST were women, because education typically attracts more women than men. It was also not surprising that 85% of those who took the test were white, although whites comprise only 74% of Arizona’s general population.

The notable result from the preliminary phase of the analysis was that 51% of minority students failed the PPST (compared to 21% of whites). Thus, the PPST has thwarted more than half of the minority students who have aspired to teach.

This result may trouble some educators because in the past, standardized testing has often not reflected the educational potential of minority groups (Se-row, 1984). Prospective teachers, particularly blacks and Hispanics, have performed better on tests of pedagogy than on tests of general knowledge, reading, and writing (Anrig, Goertz, & Clark, 1986). In an early summary of research in the field, Baird (1979, cited in Mercer, 1984) found that the consensus of studies indicated that information about past accomplishments is the best predictor of later accomplishments. And, of course, no standard test can accurately measure such qualities as dedication, motivation, perseverance, caring, sensitivity, or integrity (Anrig, 1986).
Findings from the second part of the study make it difficult to draw unqualified conclusions regarding whether the PPST does what it is supposed to do: predict future educational performance. If the test does not reflect true teaching potential, then minority aspirants may have been blocked arbitrarily. Unfortunately, an unavoidable imperfection in this study, the fact that no subsequent performance data were available for students who did not pass the PPST (they never entered teacher preparation programs), weakens findings regarding the predictive value of the PPST.

No statistical relationship was found between PPST scores and either GPA or student teacher ratings. However, the small variability, or range restriction, in sample observations of PPST score, GPA, and student teacher ratings, resulted in a lower correlation coefficient than would have resulted had a greater range of values been found in the sample (Glass & Hopkins, 1984). (To help mitigate the restricted range of PPST scores, the study evaluated the lowest test scores of students who took the PPST more than once. The PPST scores used for eight of the 100 students were, in fact, “failing” scores.) Thus, although the findings provide no evidence for a relationship between PPST scores and subsequent GPA or student teacher ratings, they do not preclude such a relationship.

The moderate correlation between PPST scores and TPAS inventory scores may be explained in part by individual test-taking ability, since both are paper-and-pencil instruments. However, it does show that a relationship exists. Whatever the PPST is measuring, that ability is associated with subsequent educational success as measured by the TPAS skill inventory.

Another finding that could be taken to support the predictive validity of the PPST is the fact that students who passed the PPST on the first try had higher GPAs than those who required several tries to pass. Yet, the difference (3.58 for first-try versus 3.41 for multiple-tries) probably has relatively little practical meaning.

What one cannot fail to notice regarding GPA is the rampant grade inflation, a problem recognized by educators (Bloom, 1987, for example). This could suggest, on the one hand, that regardless of PPST score, any student could succeed in a teacher preparation program, or on the other hand, that the PPST has done a great job of culling “A” students. In this study, all groups performed very well once admitted to a teacher preparation program.

The study would have been significantly strengthened had it been possible to evaluate academic performance data for students who failed the PPST. A future study could empirically validate the predictive value of the PPST if it were feasible to temporarily allow students with a full range of scores to enter teacher preparation programs. The success of these students could be tracked using appropriate criterion measures and the predictive value of a full range of PPST scores could be analyzed. It would also be interesting to evaluate the success of minority education students in states that do not require a minimum competency test.
What emerges clearly from the current study is that the PPST has been a major barrier to minority teacher education. While the study found inconclusive evidence to support a relationship between PPST scores and subsequent student performance, neither can such a relationship be dismissed on the basis of these findings.

Yet overall, it seems somewhat disquieting that students have been excluded from teacher preparation programs on the basis of a test that has not been proven to separate students who can succeed from those who cannot. It is especially troubling given the desperate need for minority teachers. Further studies, such as those suggested above, should be undertaken to validate the PPST’s value. No one in education wants to arbitrarily prevent sincere aspirants from reaching their potential as teachers.

REFERENCES


