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ABSTRACT

In 1987 the Ohio State Board of Education adopted new requirements for teacher education and teacher certification. This included the implementation of competency testing in Ohio, using the National Teacher Examination (NTE) as the certification examination. Correlation and regression analyses were performed on data collected between 1982 and 1989 on Ohio State University (OSU) teacher education graduates. Grade point average (GPA) and American College Testing (ACT) composite scores, and NTE results were correlated. In general, the high correlations were among the NTE measures and between these measures and the ACT scores. Regression analyses of the data indicated that ACT proved to be a better predictor of the NTE scores than GPA. The data suggest that efforts to improve the quality of OSU teacher education students should focus on students with higher ACT scores. Many educators advocate the development of a more comprehensive student assessment program that more accurately reflects the complexity and richness of teaching. Appendixes include seven tables displaying the data. (IAH)

The NTE as a Measure of General Academic Ability: Implications for Teacher Education

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Introduction

Teacher competency testing is not a new phenomenon nor is it a new controversy in the field of teacher education (Vold, 1985). In the 1920s and '30s teacher competency testing was the rule. With the demand for accountability and reform since the mid-1970s policy makers and state legislatures across the country have once again turned to teacher testing in order to show the public that action is being taken to improve the educational system and the problem of poorly trained teachers (Flippo, 1986).

A recent survey of the American Association of Colleges for Teacher Education (1988) indicates that almost every state has some form of certification test as a condition for state licensure. Effective July 1, 1987, the Ohio State Board of Education adopted new requirements for teacher education and teacher certification (Ohio SBE, 1989). This included the implementation of competency testing in Ohio. The certification examination selected by the Ohio State Board of Education is the NTE, formerly the National Teacher Examination from the Educational Testing Service (ETS), a test that was first developed in 1940 by the American Council on Education (Vold) and first used for certification purposes in 1945 by South Carolina (McDonough and Wolf, 1988).

The NTE is the most widely used of the standardized tests for prospective teachers and is used in 21 states at this time

(AACTE). It consists of a Core Battery test and a Specialty Area test (ETS, 1983). The Core Battery contains three separate tests, each two hours in length: Communication Skills (CS), Professional Knowledge (PK), and General Knowledge (GK). Each of these separate tests contain four, 30-minute sections. The CS test measures listening, reading, and writing skills. The GK test contains a literature and fine arts section, along with sections on mathematics, science, and social studies. The PK test examines the teacher candidate's knowledge of teaching principles and techniques. The Specialty Area is also two hours long and focuses on specific content material and on pedagogical knowledge. NTE has 42 different Specialty Area examinations.

Ohio requires only the PK and GK tests from the Core Battery and the Specialty Area test for its teacher candidates. The cutoff scores for the PK and GK tests have been set at 642, which is at approximately the 10th percentile nationally. The respective cutoff scores for the Specialty Area tests vary a great deal. The process of determining the cutoff scores in Ohio was rather arbitrary. Policy makers looked at the scores in other Midwestern states using the NTE and arrived at a mean cutoff score.

The NTE Policy Council claims that the exams measure "knowledge and skills developed in academic programs for the preparation of teachers and other professionals" (ETS). They state that neither states nor schools should use the NTE as a

single criterion to assess teacher candidates. The test is primarily a measure of academic skills that have supposedly been acquired in the teacher training program and not a measure of how well those skills are applied in the classroom. Such a paper and pencil test cannot possibly capture the complex process of teaching; such a test is limited in what it can measure and may, in fact, be counterproductive to the complex process of classroom teaching (Shepard, 1989).

NTE Results at Ohio State

Ohio State University (OSU) first began using the NTE during the 1981-82 academic year and has been gathering information on it ever since. NTE also began providing institutional summary reports in 1986 to the different colleges and universities for which teacher candidates reported having had received their teacher training at these institutions. These reports provide only aggregated information but allow us to compare how OSU students perform on the NTE relative to other schools.

In the aggregated institutional reports which NTE provides, OSU students consistently score in the highest fifth of institutional scores (Loadman and Deville, 1990). NTE categorizes school means according to the highest fifth, middle 3/5 and bottom fifth of institutional mean scores.

As mentioned before, the state of Ohio recently mandated the NTE for teacher certification. The state established cutoff scores of 642 for the two tests, Professional Knowledge and

General Knowledge. Had this cutoff score been in effect last year, i.e., for 1988-89, only one OSU student would have failed to achieve it. However, the results of the two NTE tests so far for 1989-90 show that already three students have failed to achieve a score of 642. The most recent scores that we have received from NTE are from the March 3, 1990, testing date. The institutional summary results of OSU mean scores are: CS=667, GK=666, and PK=666. These scores are well above the mandated cutoff scores for certification in Ohio. Nevertheless, we will need to watch the scores more closely, especially now that the NTE is required for certification.

With regard to the Specialty Area tests, the sample size from Elementary Education (EES) was the only group large enough to provide stable data from aggregated means. The EES scores were consistently in the top fifth of institutional means and well above the Ohio established cutoff score of 510. From last year's group no OSU Elementary Education test-taker failed to attain the cutoff score.

In 1988-89, ninety-one OSU students had their NTE scores sent to the College of Education, meaning that these students could be identified individually. Additional measures such as GPA and ACT scores could be obtained for many of these students. Of these students, 69% of them were female, the lowest percentage since data has been collected on the NTE. Eight graduate students were included in this sample. The mean GPA of the 91

self-reporting students was 3.23, ranging from 2.12 to 4.00. Their mean ACT score was 22.76, ranging from 13 to 31. The mean NTE scores for this group was very similar to the overall institutional summary reports, including the Elementary Education Specialty Area score, again the only group large enough from which to obtain stable data (Table 1).

Table 2 gives a picture of the descriptive make-up of OSU students who have taken the NTE since 1982 and reported their scores to the college. The mean GPA and ACT are consistent across years with last years scores being the highest. This is probably due to yearly fluctuations in the sample data and to the fact that graduate students were included for the first time.

Table 3 summarizes the results of the core battery test across the years. The scores were converted to z-scores to make the comparison possible. Again, the scores are consistent with last year's scores being somewhat higher than scores from previous years. It is clear that as a group the OSU teacher candidates score above the national norms. Nevertheless, eight candidates (1.2% of all students) since 1982 would have failed to score the necessary 642 on the PK and/or the GK Core Battery test. These eight students also had mean GPA's and ACT's below the OSU averages.

Over the years the Elementary Education group was the only one with enough self-reported scores to yield a stable picture of its scoring pattern. The EES scores have also been consistent

since 1985-86, the year when data was first obtained for the group. During that time two students would have failed to score the necessary 510 on the specialty area examination, this being 1% of these students.

It is interesting to see how significantly the different academic measures correlate with one another (Table 4). One can view the measures of academic ability as follows: ACT represents academic ability at the time of entry or before teacher preparation; GPA is the academic performance of the students during their teacher preparation; and the NTE measures academic skills at the time of exit from the college.

It is especially interesting to note that the highest correlation is between General Knowledge section of the NTE and the ACT composite score, .78. In general, the high correlations are among the NTE measures and between these measures and the ACT. This seems to indicate that such tests assess general academic knowledge and test-taking ability.

When regression analyses were performed on the data it was indeed the case that ACT proved to be a better predictor of the NTE scores than GPA. For example, ACT alone produced an R^2 of .62 when regressed on the General Knowledge score (Table 5). This may have implications for student recruitment -- it appears that the NTE reflects that ability students bring to the program (strong relationship to ACT) to a greater extent than it reflects what is learned (weaker relationship to GPA).

Correlation and regression analyses were performed on the data collected since 1982 and similar results were found. The strongest correlation is that between the GK section of the NTE and the ACT composite score at .79 (Table 6). ACT is also the better predictor of NTE performance (Table 7).

Conclusion

With all the critical attention to education in recent years there has been a demand for improvement in the field. One suggestion that is heard again and again is that better teachers are needed. OSU presently has a GPA entrance requirement of 2.25 into its College of Education. The College is considering raising this to 2.50. Our data indicate that a wiser decision would be to attract students with higher ACT scores. The ACT is a better predictor of success on the NTE, a test all of our students now must "pass" for certification. Besides this, those students in the past who have failed to score at or above the Ohio cutoff mark, have had respectable GPA's but low ACT scores. This seems to indicate that recruitment of better students -- as measured by their ACT scores -- might be a more viable way to improve the quality of our teacher candidates.

Although this seems to be a logical conclusion from the data presented, it is based on the assumption that higher ACT scores result in higher NTE scores which then translates into a valid measure of teacher competency. It may very well be the case that, with the NTE and ACT we have little more than two measures

of general academic ability and test taking competency. Much has been written questioning the predictive validity of the NTE (Madaus and Pullin, 1987; Zimpher, 1990). Many in the College of Education at OSU do not approve of the use and interpretation of the NTE and have recommended that a more comprehensive student assessment program be developed, one that better matches the College's needs and philosophy and one that is more valid and ethical for the students (Zimpher, 1990; Shulman, 1987). It is beyond the scope of this paper to discuss the direction these authors propose, but several salient features deserve mention.

Shulman's work on the Teacher Assessment Project attempts to "mirror as accurately as possible the complexity and richness of teaching" (p. 39). Evaluation and assessment programs must reflect this view of teaching. Shulman sees teacher assessment as a formative and summative procedure including: written assessments, exercises from assessment centers, documentation from supervised field experiences, and evidence from direct observations provided by trained observers. Such a portfolio could contain paper and pencil measures of content knowledge and basic skills , but would go well beyond this by describing the context and content of a given learning situation along with the teacher's behavior. Shulman's work is encouraging and at least two states -- California and Connecticut -- are pursuing this avenue of teacher assessment. And despite the Ohio legislature's recent adoption of the NTE teacher certification test, there are

those working for a more comprehensive assessment program in Ohio as well.

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Appendix

Table 1

Description of 1988-89 NTE Sample

Sex	Sample N	%
Female	62	69
Male	28	31
Total	90*	100

* N=91. 1 respondent's sex not reported

Degree Status	Sample N	%
Bach.	82	91
Postdegree	8	9
Total	90*	100

*N=91. 1 respondent's status not reported

Grade Point Average		ACT Composite Score	
N	91	N	57
Mean	3.23	Mean	22.76
Standard Deviation	.44	Standard Deviation	7.69
Minimum	2.12	Minimum	13
Maximum	4.00	Maximum	31

Table 2

Description of Ohio State Students Reporting NTE Scores, 1982 - 1989 Samples

	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89
Sex							
Male	20%	14%	18%	13%	19%	19%	31%
N	16	14	13	12	11	7	28
Female	80%	86%	82%	87%	81%	81%	69%
N	63	85	61	80	48	30	62
GPA							
N	79	76	77	91	59	38	91
Mean	3.19	3.15	3.13	3.13	3.18	3.03	3.23
S.D.	.40	.37	.41	.39	.39	.40	.44
Minimum	2.39	2.39	2.37	2.41	2.43	2.39	2.12
Maximum	3.95	4.00	3.95	3.94	3.96	3.83	4.00
ACT Composite							
N	56	40	54	46	40	27	59
Mean	22.11	20.18	20.76	20.17	21.75	22.00	22.76
S.D.	3.81	4.53	4.27	4.61	3.85	4.79	4.08
Minimum	13	11	10	12	12	14	13
Maximum	31	30	30	29	29	31	31

Table 3

Summary Report of NTE Results, 1982-1989 Samples

Sample Size	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89	Total
Professional Knowledge	79	99	81	83	44	30	76	492
Communication Skills		44	79	85	44	28	80	360
General Knowledge				59	47	29	80	215

Variables	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89	Total
Mean GPA	3.19	3.15	3.13	3.13	3.18	3.03	3.23	3.16
Mean ACT	22.11	20.18	20.76	21.17	21.75	22.00	22.76	21.55
Professional Knowledge Score	665.16	662.96	663.19	664.66	664.20	666.13	667.04	665.39
	72%ile	64%ile	64%ile	72%ile	68%ile	72%ile	73%ile	68%ile
Communication Skills Score		663.18	665.15	667.33	665.07	664.71	668.80	665.54
		56%ile	62%ile	68%ile	62%ile	61%ile	74%ile	63%ile
General Knowledge Score				664.90	663.96	665.00	669.06	666.53
				72%ile	65%ile	66%ile	77%ile	70%ile

Note: Specialty Area tests are not summarized because each test has its own normative distribution.

Table 4

Correlations Among 1988-89 Sample
Academic Performance Variables

	GK	PK	SA	GPA	ACT
CS	.70*	.70*	.43*	.30*	.65*
GK		.64*	.58*	.28*	.78*
PK			.38*	.51*	.44*
SA				.12*	.38*
GPA					.03

* $p \leq .05$
CS = Communication Skills exam
GK = General Knowledge exam
PK = Professional Knowledge exam
SA = Specialty Area exam z score
GPA = grade point average
ACT = American College Test composite score

Number of observations ranged from 50 to 76.

Table 5

Predicting General Knowledge Scores from
ACT Composite Scores, 1988-89 Sample

Source	df	SS	MS	F	p
ACT	1	13.03	13.03	84.85	.0001
Error	53	8.14	.15		
Total	54	21.17			

R^2 = .62

Table 6

Correlations Among Academic Performance Variables,
1982 - 1989 Samples Combined

	GK	PK	SA	GPA	ACT
CS	.73	.68	.54	.39	.72
GK		.66	.58	.43	.79
PK			.10*	.35	.45
SA				.34	.54
GPA					.41

* significant at $p < .05$. All other correlations are significant, $p \leq .0001$.

CS= Communication Skills exam
GK= General Knowledge exam
PK= Professional Knowledge exam
SA= Specialty Area exam z score
GPA= grade point average
ACT= American College Test composite score

Number of observations ranged from 143 to 468.

Table 7

Predicting General Knowledge Scores from ACT Composite Scores
1982 - 1989 Samples Combined

Source	df	SS	MS	F	p
ACT	1	41.26	41.26	239.44	.0001
Error	141	24.29	.17		
Total	142	65.55			

R^2 = .63