ARIZONA BOARD OF REGENTS

ARIZONA VALIDITY AND

STANDARD SETTING STUDY

OF THE

PRE-PROFESSIONAL SKILLS TESTS

by

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INTRODUCTION

BACKGROUND

In 1984 the Arizona Legislature enacted a bill requiring all applicants for admission to teacher education programs at the three state universities to pass a basic skills test in mathematics, reading, and grammar. After considering many alternatives, the Arizona Board of Regents decided to use the Pre-Professional Skills Tests (PPST) developed by the Educational Testing Service (ETS) as part of its National Teacher Examination programs to satisfy the statutory requirement. Although these tests have been validated in and are currently used in a number of other states (Delaware, Kansas, Nevada, Tennessee, Texas, and West Virginia), it was necessary to be sure that each of the three tests is appropriate for use in Arizona. Thus, a content validity and standard setting study was conducted in May, 1985.

DESCRIPTION OF THE PPST

The Pre-Professional Skills Tests assess basic proficiencies in reading, writing, and mathematics. Altogether, they include 125 multiple choice questions and the writing of one short essay, requiring a total of two and one-half hours for all portions of the exam. Separate scores are reported for reading, mathematics, and writing. The performance on the written essay is included in the writing score.

The reading skills tested include literal comprehension, the ability to understand how material is organized and how it conveys the message, as well as the ability to make reasoned qualitative judgments about the nature and merits of a written message. The mathematical competencies tested include knowledge acquired from having studied mathematics from elementary through secondary school. The writing skills tested include an ability to use grammar and language appropriately and to communicate in writing with a specific aim or purpose in mind.

The reading test is composed of 40 multiple choice items and requires 40 minutes. The mathematics test is composed of 40 multiple choice items requiring 50 minutes. The writing test includes 45 multiple choice items requiring 30 minutes and the writing of one essay in 30 minutes. A complete set of test specifications identifying the precise skills sampled in each of the three tests is contained in Appendix A.

OVERVIEW OF THE STUDY

To ascertain the content validity of the three tests and to gather information relevant to the establishment of reasonable passing scores, a representative panel of Arizona teachers and teacher educators was assembled to make certain judgments about each item of each test.

For each of the multiple choice questions, the judgments required the panelists to rate the extent to which the knowledge or academic skill tested was relevant to competent performance, to indicate whether the typical applicant would have had an opportunity to acquire the knowledge or skill required, and to indicate the number out of 100 marginally qualified individuals who would be able to answer the question correctly. For the essay portion of the writing test, the panelists were first asked whether a teacher in Arizona needed to be able to write an acceptable essay and whether applicants had an opportunity to learn to write an acceptable essay. Then the panelists were asked to read twelve essays which had been written by individuals who had taken the test in other states and to select two which represented the minimum level of skill that a new teacher or an applicant for a teacher education program in Arizona should demonstrate. Additionally, panelists were given an opportunity to make written comments about each item and were urged to record specific information about any item that included language that may result in a bias against an ethnic minority.

An analysis of the responses of the panelists as a whole and of subgroups of the panelists based on ethnicity and type of involvement in education indicated that a large majority of the items on each of the multiple choice tests were relevant and that applicants would have had an opportunity to acquire the knowledge or skill required. Similar results were found for the essay question.

The analysis of the judgments about the percent of individuals who would get the item correct and of the judgments about the essays selected as representing the performance of a minimally qualified individual led to an estimation of passing scores appropriate for Arizona. Those scores were within a few points of the scores used in other states.

Finally, a tabulation of the free response comments made about each item revealed that very few questions had any potential for bias. In each case, it would appear that a minor change in the item could avoid the possibility of a problem. The two items that received more than one comment are not included in any subsequent form of the PPST. The objectionable language in the two items would not have led to the selection of an incorrect answer.

PROCEDURES FOLLOWED

OBTAINING THE REVIEW PANELISTS

In selecting panelists to participate in the study, care was taken to ensure that all Arizona constituencies were appropriately represented. A letter requesting nominations (see Appendix B) of possible panelists was sent to the superintendent of every school district in Arizona and to the president of each of the three state universities in Arizona. A request was made in the letter that the nominees be representative of all ethnic groups and of both genders, that the nominees represent a variety of grade levels and subject matter taught, that they include principals as well as classroom teachers, and that the nominees be sensitive to the needs of students from various cultural backgrounds. The superintendent or president was asked to indicate the gender, ethnicity, grade level, and subject taught (or type of position) of each nominee.

The final determination of which nominees to invite to participate was made after carefully considering the results of the 1980 census which described the population of Arizona by racial/ethnic group (see Appendix C). Invitations were sent to nominees who would be representative of ethnic groups, of genders, of school grade level and subject matter taught, and of the location of employment (rural and urban in the case of teachers and principals and each of the three state universities in the case of teacher educators). Whenever the individual originally selected could not accept the invitation, a replacement was found whose characteristics matched the person originally invited as closely as possible.

GATHERING THE JUDGMENTS

The panelists were assembled at Arizona State University on April 25, 1985. After the panelists were given a brief background for the study, Dr. Richard E. Peterson, Senior Research Psychologist from the Berkeley Field Service Office of the Educational Testing Service, described the development of the tests in general and reviewed the procedures followed by ETS to ensure that the test items were free of cultural bias.

Following the orientation, the specific rating scales and response sheets to be used were reviewed with the panelists. They were encouraged to ask questions until they were clear about the required tasks. The panelists were next asked to practice the task by making appropriate judgments about a reading test item used as a sample question in the 1984-1985 Bulletin of Information about the PPST published by ETS.

GATHERING THE JUDGMENTS (CONTINUED)

To be sure that everyone understood the basis for the judgments, several panelists were asked to reveal their judgments about the sample item and to indicate what led them to their conclusion. The ensuing discussion centered primarily around the question of whether the judgments about the proportion of individuals who would get the item correct should be based on what would happen or on what should happen. The validation study consultant indicated that a panelist's judgment about what an idealized conceptual group of marginally qualified individuals would do and a panelist's judgment about what a group of marginally qualified real individuals should do amounted to the same thing. The panelists then proceeded to make their own individual judgments about each multiple choice item.

In the afternoon, the panelists received instructions for reading and judging the twelve essays. Following a short question and answer period to be certain that everyone understood the judgments which were to be made about the essays, the panelists were asked to finish their judgments about the multiple choice items if they had not already done so and then to proceed to complete their work with the essays. Each panelist was allowed to leave after completing all tasks and returning all materials received.

A copy of all written instructions and response sheets used in gathering data is in Appendix D. An outline of the oral instructions presented to the panelists is in Appendix E.

ANALYZING THE DATA

The relevancy of each item of each multiple choice test was identified by calculating the percent of the members of each ethnic subgroup who judged the item as at least slightly relevant. Similar percentages were calculated for each group of panelists categorized according to type of involvement in education (elementary teachers and principals, secondary teachers and principals, or teacher educators). Additionally, the percent of the total group who judged each item as very relevant, as very or moderately relevant, or as very, moderately, or slightly relevant was also determined. To ascertain the content validity of each multiple choice test, the percent of items on each test that was viewed by 50 percent or more, by 67 percent or more, and by 75 percent or more of the panelists as falling in each of the relevancy categories described above was computed.

Similar percentages were calculated for each of the subgroups and for the total group in order to answer the question as to whether applicants would have had an opportunity to acquire the knowledge or skill required by each multiple choice item and by each test as a whole. Similar percentages were also calculated to reveal the proportion of respondents from the various subgroups and for the total group who said that teachers did need to be able to write an essay and that applicants would have had an opportunity to learn to write an essay. This

information was used to assess the validity of the essay section of the writing test. Every free response comment was examined, with particular emphasis on those responses which were relevant to a possible bias.

Estimates of a reasonable passing score were obtained for each multiple choice test by the Tucker/Angoff method. This method involves calculating a passing score for each panelist based on his or her judgment of each item. The passing score recommended by the panel as a whole is obtained by averaging the passing scores calculated for each panelist. The complete frequency distribution of the judges' passing scores for each test was tabulated and examined to be sure that no panelist misunderstood the directions or was making extreme and unwarranted judgments. Estimates of a reasonable passing score were similarly computed for each of the subgroups based on ethnicity and on involvement in education.

The score on the essay portion of the writing test is the sum of the ratings of two trained essay evaluators. The ratings are on a six-point scale. Therefore, the sum of the ratings previously received by the two essays selected by the panelist as representing the minimum level of writing skill a new teacher or an applicant for a teacher education program in Arizona should have was used as that panelist's estimated standard of performance. The average passing score was then computed over all reviewers and for each of the subgroups of panelists previously described.

RESULTS OF THE STUDY

CHARACTERISTICS OF THE PANELISTS

A total of 56 panelists participated in the review process. A complete list of the employing institutions and the number of panelists from each is presented in Table 1. The number and percent of panelists from various subgroups can be found in Table 2. It is apparent from these two tables that the review panel members adequately represented the major Arizona constituencies.

JUDGMENTS ABOUT RELEVANCY AND OPPORTUNITY TO LEARN

Mathematics Test

The percent of the members of different ethnic groups who judged each item of the mathematics test as at least slightly relevant is presented in Table 3. The same information for groups classified according to the type of involvement in education is given in Table 4. An examination of these two tables indicates that a solid majority of every subgroup viewed each item as relevant. It is also apparent that in the vast majority of the cases, the proportion who judged the item as relevant was at or near 100. The average at the bottom of these tables indicates the proportion of items in the test judged as at least slightly relevant by the indicated subgroups.

JUDGMENTS ABOUT RELEVANCY AND OPPORTUNITY TO LEARN (CONTINUED)

Mathematics Test (Continued)

Similar information about the opportunity to acquire the knowledge or skill required by the item is presented in Tables 5 and 6. With two exceptions, 50 percent or more of every subgroup concluded that applicants would have had an opportunity to acquire the knowledge or skill necessary to get the item correct.

The two exceptions are for item 32 where only 43 percent of the Black panelists felt that there would have been an opportunity to learn and item 26 where neither of the two members of the "other ethnic" group felt there would have been an opportunity to acquire the necessary information before taking the test.

More specific information with respect to relevancy and information about opportunity to learn is presented for all panelists combined in Table 7. In every case, 79 percent or more of all panelists saw the item as relevant and 63 percent or more of all panelists felt the applicants would have had an opportunity to acquire the knowledge or skill required by the item.

Reading Test

Information identical to that just described for the mathematics test is presented for the reading test in Tables 8 through 12.

Careful examination of these tables reveals an even greater relevancy and opportunity to learn for the reading test than was found for the mathematics test. The only instances in which the percentage was 50 or smaller for any subgroup occurred in the subgroup composed of only two members. With all groups combined, the percentage that judged the item as relevant was 84 or larger for every item. The percentage of panelists who indicated there would have been an opportunity to acquire the knowledge or skill required was 68 or larger in every case.

Writing Multiple Choice Test

Information about the multiple choice portion of the writing test similar to that presented for the mathematics and the reading tests can be found in Tables 13 through 17. Once again, it is clear that a vast majority of the items are seen as relevant by every subgroup and that when the results for all panelists are combined, the item is seen as relevant by at least 82 percent of the group in every case.

JUDGMENTS ABOUT RELEVANCY AND OPPORTUNITY TO LEARN (CONTINUED)

Summary for Multiple Choice Tests

A summary of the results with respect to relevancy and opportunity to acquire the knowledge or skill required is presented in Table 18 for all three multiple choice tests. It is clear that 68 percent or more of the items on every test were individually judged by 75 percent or more of the panelists as very relevant or moderately relevant, and every item on every test was seen by 75 percent or more of the panelists as at least slightly relevant. It can also be seen that every item on every test was seen by at least a majority of the panelists as requiring knowledge or skills which applicants would have had a chance to learn. Indeed, no fewer than 87 percent of the items on any test were seen this way by 75 percent or more of the reviewers.

Essay Question of the Writing Test

Information about the relevancy of being able to write an essay and about the opportunity to learn to write is presented in Tables 19 and 20. From these tables, it can be seen that at least 82 percent of every ethnic subgroup believes that teachers or students in a teacher education program need to be able to write an acceptable essay and that at least 74 percent of every subgroup based on involvement in education sees it in the same way. For all panelists combined, 86 percent see the skill of writing an essay as relevant. With respect to the opportunity to learn to write an essay, no fewer than 76 percent of any subgroup and 84 percent of all panelists believe that applicants would have had an opportunity to acquire the skill.

JUDGMENTS ABOUT PASSING SCORES

Multiple Choice Tests

The complete frequency distribution of the estimated passing scores obtained by the Tucker/Angoff method for each panelist is presented for each of the three multiple choice tests in Table 21. Although there were a few extreme judgments in the case of the writing test, the overall shape of the distributions was such that it seemed most reasonable to use the arithmetical means of the results from the different panelists to arrive at an overall, estimated, reasonable passing score. The results of averaging the values for all panelists are presented in raw score form for each test and for subgroups as well as for all reviewers combined in Table 22.

JUDGMENTS ABOUT PASSING SCORES (CONTINUED)

Essay Question

A reasonable passing score was estimated from the collective responses of the panelists. The average of these estimates for different subgroups and for all panelists combined is given in Table 23. It is apparent that no subgroup passing score deviated from the average for all panelists by more than one point. The average overall passing score of nine, which represents the sum of the ratings of two trained readers, would set as a reasonable standard an essay which, according to the scoring guidelines, would fall half way between one described as "clearly demonstrates competence in writing, though it may have minor errors" and one described as "demonstrates competence in writing, though it may have occasional errors". A complete scoring guide describing all levels of performance on the essay question is found in Appendix F.

COMMENTS RELATED TO POSSIBLE BIAS

Although many comments were made about the items on the three multiple choice tests reviewed, only 28 comments suggested a possible problem with bias. These 28 comments were made by only 13 different panelists (including at least one panelist from each ethnic group) and referred to 25 different items. Only two items received more than one comment. Four comments were made about item 34 on the writing test and three comments were made about item 13 on the reading test. (ETS has reported that both of these test items have been removed from all forms of the tests currently in use.) In addition, there was one comment about the mathematics test in general, two comments about the reading test in general, and four general comments about the writing multiple choice test. No comments were made about the essay question.

Two of the comments about item 13 on the reading test concerned the definition of the word, "poncho". The third comment pointed out that some Native Americans may never have seen a crossing guard. A review of item 13 revealed that a student did not need to know the definition of "crossing guard" or of "poncho" to answer the question correctly. The general comments about the reading test indicated that certain word choices and the wording of long paragraphs might pose some difficulties for limited English speakers.

All four of the comments about item 34 on the writing test referred to the unnecessary use of the personal pronoun "she" in one of the alternative responses. The four general comments made about the writing test referred again to the possibility that the word choice and sentence structure of some of the items might make the items difficult for non-native speakers of English.

The one comment made about the mathematics test in general indicated that many of the skills may not be retained by a Native American and that Native American students would not complete the test unless they had had three or more years of mathematics in high school.

CONCLUSIONS AND RECOMMENDATIONS

THE VALIDITY OF THE PPST FOR USE IN ARIZONA

There is considerable evidence that a substantial majority of all panelists and of most of the relevant subgroupings of panelists judged the individual items on all the tests as relevant to the performance of students in educational programs and of teachers in Arizona. Thus, it can be said that the PPST has considerable content validity for use as an entrance requirement to any of the three state universities. It is unlikely that any other currently available test would show greater content validity than the PPST.

Another aspect of the validity is whether the test is valid for the different groups with whom it is likely to be used. Once again, the evidence presented here indicates that each of the three tests has considerable validity for the subgroups examined in this study. The conclusion that the tests are valid for use with groups who are likely to have different involvement in education stems from the fact that elementary teachers and principals, secondary teachers and principals, and teacher educators all see the items as relevant to successful performance. On the other hand, evidence that the tests are valid for use with different ethnic groups must depend upon evidence that the tests contain as little bias as possible, as well as evidence that the items are relevant to the task for members of the different ethnic groups. Since no potential bias was identified by any panelist in 80 percent of the items and only two items were called into question by more than one reviewer, it would seem reasonable to conclude that the tests are likely to be as free from bias as current test construction technology would allow.

Although not directly related to the question of the content validity of the tests, an issue of legal and social concern is whether or not those who will be taking the tests would have had an opportunity to acquire the necessary knowledge or skill before they are required to pass the examination. The evidence presented here indicates that most panelists believe that the typical applicant would have had an opportunity to learn the skills necessary to answer most of the items correctly. However, to the extent that some particular individuals may not have had such an opportunity, it would seem reasonable that some form of additional training should be available to those who fail one or more of the tests on the first try.

SETTING A PASSING SCORE

Whenever any test is used for certification or for admission to a program, a passing score must be specified. Because a passing score represents a value judgment as to how much it is worth to be at a certain point on a scale, there is no mathematical way to specify such a point. If the standard is set too low, society is not protected because some unqualified individuals may be allowed to teach; if the standard is set too high, then some individuals who might have the necessary basic skills will not be permitted to teach. Only a human being can judge the relative seriousness of these two types of errors.

SETTING A PASSING SCORE (CONTINUED)

One approach to establishing a reasonable passing score is to have a representative group of individuals familiar with the task indicate the level of performance that they think a minimally qualified practitioner would be able to achieve. Since, however, no two individuals are likely to make exactly the same judgment, it is necessary to aggregate the judgments in the form of an average. That procedure was followed in this study.

The passing scores reported in Tables 22 and 23 represent estimated standards in the form of raw true scores. Before they can be used, they must be translated into scaled scores which are the ones reported to applicants and to the agencies using the scores by ETS. This translation is accomplished by means of NTE Score Conversion Tables PW 4/11/84 provided by ETS. The translation results in only three scores since the writing multiple choice items and the writing essay item are combined into a single composite. The raw composite score is obtained by adding the number of correct answers on the multiple choice section (maximum possible score: 45) to 3.75 times the score on the essay (maximum essay score: 12). This results in approximately 60 percent weighting for the multiple choice section and approximately 40 percent weighting for the essay section. The converted scores for each of the three tests are reported in the first row of Table 24.

In setting passing scores, it is generally considered appropriate to make one additional adjustment. This adjustment takes into consideration the error of measurement inherent in any psychological or educational test. To be sure that candidates are not excluded because of an error of measurement when their true performance is just at the lowest acceptable level, it is common practice to set the actual passing scores one or two standard error units below that judged as appropriate by the reviewing panel. The standard error of the PPST is approximately three points on the scaled score.

Table 24 includes information about the estimated failure rates for each of the three tests for each of three possible sets of passing scores. The first set of passing scores represents the standards of performance judged to be minimal by the panelists. The second set of passing scores represents those which fall three points (approximately one standard error unit) below the minimal level, and the third set represents those which fall six points (approximately two standard error units) below the estimated minimal performance level.

Two estimates of the failure rates are provided. One estimate is based on the administration of the PPST to over 8,000 examinees from February 1983 to February 1984. The second estimate is based on the results of over 4,000 examinees who took the tests in the summer of 1984.

SETTING A PASSING SCORE (CONTINUED)

Because it is also helpful to see how the three possible sets of passing scores compare with those used in other places, Table 25 has been prepared. In this table, the possible passing scores for Arizona are listed along with those currently in use in Texas, in Delaware, in Tennessee, and at the University of Cincinatti.

The final consideration when setting passing scores is whether a single composite score should be used or whether separate passing scores should be used for each of the three tests. Whenever a single passing score is used, candidates who are deficient in one area can compensate for this by doing exceptionally well in one or both of the other areas. Unfortunately, this means that some people will be admitted who fall far below the minimum standard for accepted performance in one of the areas. If every area is judged by the panelists to be relevant to successful performance, such a situation is not tolerable. Therefore, separate passing scores for each of the three tests is recommended. This recommendation is consistent with the requirements of ARS 15-533.

TABLE 1. Number of Panel Members from Each Employing District or University

Employer	Number of Panel Members
Rural and Small Town Districts	
Agua Fria Union High School District #216	1
Bullhead City Elementary District #15	1
Bureau of Indian Affairs School	1
Chino Valley Elementary District #51	1
Dill, Mary E. Elementary District #41	1
Dysart Unified District #89	1
Globe Unified District #1	1
Marana Unified District #6	1
Morenci Unified District #18	1
Nogales Unified District #1	1
Pearce Elementary District #22	1
Quartzsite Elementary District #4	1
Round Valley Unified District #10	1
Santa Cruz Valley Union High School District #840	1
Tuba City Unified District #15	1
Vail Elementary District #20	1
Window Rock Unified District #8	1
Winslow Unified District #1	1
TOTAL, Rural Districts	18
Urban and Suburban Districts	
Amphitheater Unified District #10	1
Deer Valley Unified District #97	2
Flagstaff Unified District #1	2
Flowing Wells Unified District #8	2
Glendale Elementary District #40	2
Kyrene Elementary District #28	1
Litchfield Elementary District #79	1
Mesa Unified District #4	1
Paradise Valley Unified District #69	1
Pendergast Elementary District #92	1
Phoenix Union High School District #210	2
Scottsdale Unified District #48	1
Sunnyside Unified District #12	1
Tanque Verde Unified District #13	1
Tucson Unified District #1	2
Washington Elementary District #6	1
TOTAL, Urban Districts	22
Universities	
Arizona State University	6
Northern Arizona University	5
University of Arizona	5
TOTAL, Universities	16

TABLE 2. Characteristics of Panel Members

Characteristic	Number		Percent	
Gender:				
Female	32		57	
Male	24		43	
Ethnic Group:				
American Indian	5		9	
Black	7		13	
Caucasian	31		55	
Hispanic, Mexican American	11		19	
Other	2		4	
Type of Educator:				
Elementary Teacher	16		28	
Elementary Principal	3		5	
Other Elementary Personnel	2		4	
TOTAL, Elementary		21		38
Secondary Teacher	16		28	
Secondary Principal	2		4	
Other Secondary Personnel	1		2	
TOTAL, Secondary		19		34
TOTAL, Teacher Educator		16		28
Subject Matter Area*				
Science and Mathematics	5		9	
English and Social Science	6		11	
Other/Not Known/Several	5		9	

*For Secondary Teachers only.

TABLE 3. Percent of Members of Different Ethnic Groups Who Saw the Item as at Least Slightly Relevant for the Mathematics Test

Item Number	Group				
	American Indian	Black	Caucasian	Hispanic	Other Ethnic
1	100	100	100	100	100
2	100	100	100	100	100
3	100	100	97	100	100
4	100	100	100	100	100
5	100	100	100	100	100
6	80	100	94	100	100
7	100	100	100	91	100
8	100	100	94	100	100
9	80	100	94	100	100
10	100	100	100	100	100
11	80	100	94	100	100
12	80	86	83	91	100
13	100	100	100	100	100
14	100	100	100	100	100
15	100	100	91	100	100
16	60	100	100	100	100
17	100	100	97	100	100
18	80	86	87	91	100
19	100	100	97	100	100
20	100	100	100	100	100
21	100	87	100	91	100
22	100	100	97	100	100
23	100	100	97	100	100
24	100	86	100	100	100
25	100	86	84	91	100
26	100	86	90	91	100
27	100	100	90	100	100
28	80	86	81	91	100
29	100	100	87	100	100
30	100	100	97	100	100
31	100	86	81	82	100
32	100	71	87	91	100
33	100	86	90	73	100
34	80	100	90	91	100
35	100	100	100	100	100
36	100	57	81	73	100
37	100	100	90	91	100
38	80	100	94	91	100
39	100	71	87	82	100
40	80	100	94	91	100
Average	94.5	92.2	91.1	95.1	100

TABLE 4. Percent of Members with Differing Involvement in Education Who Saw the Item as at Least Slightly Relevant for the Mathematics Test

Item Number	Group: Elementary Teachers & Principals	Secondary Teachers & Principals	All Teachers & Principals	Teacher Educators
1	100	94	97	100
2	100	100	100	100
3	100	95	97	100
4	100	100	100	100
5	95	100	97	100
6	100	84	93	100
7	100	95	97	100
8	100	89	95	100
9	95	89	92	100
10	100	100	100	100
11	100	95	97	87
12	86	79	82	94
13	100	100	100	100
14	100	100	100	100
15	100	95	97	94
16	100	95	94	94
17	100	95	97	100
18	95	68	82	100
19	100	95	97	94
20	100	100	100	100
21	100	95	97	94
22	100	95	98	100
23	100	95	97	100
24	100	95	97	100
25	90	84	87	87
26	100	84	92	87
27	95	89	92	100
28	90	74	82	87
29	90	84	88	100
30	95	100	97	100
31	86	74	80	94
32	86	84	85	94
33	86	95	90	81
34	95	89	92	87
35	100	100	100	100
36	86	68	77	81
37	90	95	92	94
38	90	100	95	87
39	90	79	85	94
40	95	100	97	87
Average	95.9	91.2	93.4	95.4

TABLE 5. Percent of Different Ethnic Groups Who Felt That There Had Been an Opportunity to Learn the Skill Required by the Mathematics Test Item

Item Number	Group: American Indian	Black	Caucasian	Hispanic	Other Ethnic
1	100	100	97	100	100
2	100	100	100	100	100
3	80	100	100	100	100
4	80	100	100	100	100
5	100	100	100	100	100
6	60	86	84	100	50
7	80	86	100	91	100
8	100	100	97	100	100
9	100	71	94	73	50
10	100	100	97	100	100
11	80	100	90	100	100
12	60	71	87	91	100
13	80	71	100	100	100
14	80	100	97	100	100
15	80	86	97	100	100
16	80	100	100	91	100
17	100	100	97	100	100
18	40	71	87	82	50
19	80	86	94	100	100
20	80	100	100	100	100
21	80	57	94	91	100
22	80	100	90	91	100
23	80	86	90	100	100
24	80	100	97	100	100
25	80	86	90	91	100
26	40	86	87	64	0
27	60	71	77	91	50
28	60	57	84	73	50
29	60	86	90	82	100
30	80	71	97	91	100
31	80	71	97	91	100
32	60	43	94	73	100
33	80	57	84	91	50
34	60	86	90	100	100
35	80	100	100	100	100
36	40	57	71	55	50
37	80	86	90	91	100
38	60	100	94	91	100
39	60	71	77	64	50
40	60	86	81	64	100
Average	75.5	84.6	92.3	90.6	87.5

TABLE 6. Percent of Members with Differing Involvement in Education Who Felt That There Had Been an Opportunity to Learn the Skill Required by the Mathematics Test Item

Item Number	Group: Elementary Teachers & Principals	Secondary Teachers & Principals	All Teachers & Principals	Teacher Educators
1	95	95	94	100
2	100	100	100	100
3	100	100	100	94
4	100	100	100	100
5	95	100	98	100
6	100	79	90	69
7	100	84	93	100
8	100	100	100	94
9	81	89	85	88
10	100	95	97	100
11	95	95	95	88
12	95	63	80	94
13	95	95	95	100
14	95	95	94	100
15	100	89	95	94
16	100	95	98	94
17	100	95	98	100
18	90	68	80	75
19	100	89	95	94
20	100	95	98	100
21	95	68	53	94
22	95	89	93	88
23	100	84	93	94
24	100	95	98	94
25	100	79	90	94
26	86	68	78	75
27	86	74	80	75
28	90	74	83	63
29	81	89	85	81
30	90	89	90	94
31	90	95	93	88
32	86	74	80	81
33	86	74	80	69
34	95	89	93	75
35	100	95	98	100
36	76	58	68	50
37	90	79	85	94
38	56	100	93	88
39	71	68	70	75
40	81	79	80	69
Average	92.4	86.0	89.2	88.1

TABLE 7. Judgments of Panel Members with Respect to Relevancy and Opportunity to Learn for Each Item on the Mathematics Test

Item Number	Relevancy: % Very Relevant	Relevancy: % Very or Moderately Relevant	Relevancy: % Very, Moderately, or Slightly Relevant	Opportunity to Learn % Yes
1	79	97	100	98
2	86	99	100	100
3	70	95	99	98
4	88	93	100	98
5	75	95	100	100
6	38	77	95	84
7	52	91	98	95
8	46	78	96	98
9	43	75	95	86
10	61	88	100	98
11	63	83	96	93
12	39	66	86	84
13	68	89	100	95
14	75	95	100	96
15	59	84	95	93
16	61	90	95	96
17	55	85	98	98
18	20	58	88	79
19	54	86	99	93
20	71	96	100	98
21	52	81	97	88
22	43	81	99	91
23	45	86	99	91
24	39	77	98	96
25	38	76	88	89
26	32	73	91	75
27	34	68	95	77
28	14	52	84	75
29	23	59	93	86
30	46	87	98	91
31	29	70	84	91
32	29	72	88	80
33	21	59	88	79
34	33	62	91	88
35	54	93	100	98
36	14	41	79	63
37	20	72	93	88
38	55	80	93	91
39	7	45	86	71
40	30	75	93	77
Average	46.5	78.2	94.4	89.1

TABLE 8. Percent of Members of Different Ethnic Groups Who Saw the Test Item as at Least Slightly Relevant for the Reading Test

Item Number	Group: American Indian	Black	Caucasian	Hispanic	Other Ethnic
1	100	100	96	100	100
2	100	100	100	100	100
3	100	100	100	100	100
4	100	100	100	100	100
5	80	100	100	100	100
6	100	100	100	100	100
7	80	100	100	100	100
8	80	100	100	100	100
9	80	100	100	100	100
10	100	100	100	91	100
11	60	100	100	100	100
12	80	100	93	100	100
13	100	100	94	91	100
14	80	100	97	100	100
15	100	100	100	91	100
16	80	86	100	100	100
17	100	100	97	100	100
18	100	100	97	100	100
19	100	86	84	91	100
20	100	100	97	100	100
21	80	86	100	100	100
22	80	86	87	100	50
23	100	100	97	73	100
24	100	100	100	100	100
25	80	100	97	91	100
26	100	100	97	100	100
27	100	100	97	100	100
28	100	100	100	100	100
29	80	86	87	91	100
30	80	100	100	91	100
31	100	86	100	91	100
32	100	86	87	73	50
33	80	100	100	91	100
34	100	100	100	91	100
35	100	100	87	82	100
36	100	86	100	100	100
37	80	100	100	100	100
38	80	86	100	100	50
39	80	100	100	100	50
40	80	100	100	100	100
Average	90.5	96.9	94.8	96.0	95.0

TABLE 9. Percent of Members with Differing Involvement in Education Who Saw the Item as at Least Slightly Relevant for the Reading Test

Item Number	Group: Elementary Teachers & Principals	Secondary Teachers & Principals	All Teachers & Principals	Teacher Educators
1	100	95	97	100
2	100	100	100	100
3	100	100	100	100
4	100	100	100	100
5	100	100	100	94
6	100	100	100	100
7	100	100	100	94
8	100	100	100	94
9	100	100	100	94
10	100	96	97	94
11	95	95	95	100
12	100	95	97	87
13	100	95	97	87
14	100	95	97	94
15	100	100	100	87
16	95	100	97	94
17	100	100	100	94
18	95	100	98	94
19	95	79	88	75
20	100	100	100	94
21	100	95	97	94
22	95	79	87	87
23	100	89	95	87
24	100	100	100	100
25	100	95	97	87
26	100	100	100	94
27	100	100	100	92
28	100	100	100	100
29	95	89	92	75
30	100	95	97	100
31	100	95	97	100
32	100	79	90	69
33	100	95	97	94
34	100	95	97	94
35	95	84	90	87
36	100	100	100	100
37	100	100	100	94
38	100	95	97	87
39	100	100	100	87
40	100	95	97	96
Average	99.1	95.8	97.3	92.5

TABLE 10. Percent of Different Ethnic Groups Who Felt That There Had Been an Opportunity to Learn the Skill Required by the Reading Test Item

Item Number	Group: American Indian	Black	Caucasian	Hispanic	Other Ethnic
1	80	100	90	100	100
2	80	100	100	100	100
3	100	86	100	100	100
4	100	100	94	100	100
5	80	100	97	91	100
6	80	100	100	91	100
7	60	71	94	100	100
8	80	81	87	100	100
9	40	86	97	82	100
10	80	71	94	73	100
11	100	86	90	100	100
12	80	86	90	82	50
13	80	71	90	91	100
14	80	71	94	100	100
15	40	71	97	91	100
16	40	71	94	100	100
17	100	100	97	100	50
18	100	100	97	100	100
19	80	71	68	82	50
20	100	100	97	91	100
21	60	100	84	91	50
22	80	86	81	100	0
23	80	57	87	73	0
24	60	100	94	73	100
25	60	100	94	73	100
26	100	86	84	91	50
27	80	100	97	91	50
28	100	100	100	91	50
29	100	86	78	73	100
30	80	86	100	91	50
31	80	86	94	91	100
32	80	86	74	64	0
33	80	71	87	64	50
34	100	71	94	91	50
35	80	71	84	82	0
36	100	100	97	100	100
37	60	86	87	91	50
38	60	86	87	91	0
39	80	86	94	100	50
40	80	100	100	100	50
Average	79.5	86.7	91.6	89.9	71.3

TABLE 11. Percent of Members with Differing Involvement in Education Who Felt That There Had Been an Opportunity to Learn the Skill Required by the Reading Test Item

Item Number	Group: Elementary Teachers & Principals	Secondary Teachers & Principals	All Teachers & Principals	Teacher Educators
1	100	89	95	94
2	100	100	100	100
3	100	100	100	100
4	95	89	93	94
5	90	100	95	100
6	95	95	95	100
7	95	84	90	88
8	95	79	88	94
9	90	84	88	81
10	90	68	80	69
11	95	90	93	94
12	100	84	93	75
13	90	89	90	81
14	95	89	93	88
15	90	84	88	81
16	90	74	83	94
17	100	100	100	88
18	95	100	98	94
19	90	74	83	56
20	100	95	98	94
21	90	79	85	75
22	86	79	83	81
23	90	68	80	69
24	90	79	85	94
25	95	84	90	75
26	100	84	93	69
27	100	89	95	88
28	95	100	98	88
29	95	84	90	56
30	95	95	95	88
31	95	84	90	94
32	86	74	80	69
33	90	79	85	63
34	90	89	90	88
35	86	74	80	69
36	95	100	98	100
37	86	79	83	88
38	86	89	88	63
39	100	89	95	75
40	100	95	98	88
Average	93.6	86.5	90.6	83.6

TABLE 12. Judgments of All Panel Members Combined with Respect to Relevancy and Opportunity to Learn for Each Item on the Reading Test

Item Number	Relevancy			Opportunity to Learn
	% Very Relevant	% Very or Moderately Relevant	% Very, Moderately, or Slightly Relevant	% Yes
1	75	94	98	93
2	75	98	100	98
3	71	96	100	98
4	80	96	100	93
5	70	91	98	95
6	68	96	100	96
7	50	85	98	88
8	68	93	98	88
9	53	91	98	88
10	44	80	96	85
11	55	85	96	93
12	46	84	95	88
13	61	84	95	89
14	71	91	96	91
15	69	96	98	88
16	67	94	96	88
17	80	98	98	96
18	82	98	98	98
19	36	66	87	71
20	74	94	98	96
21	52	82	96	83
22	39	71	87	84
23	43	79	93	77
24	64	89	100	88
25	63	88	95	88
26	58	87	98	68
27	71	89	98	93
28	64	89	100	96
29	36	70	88	80
30	69	87	98	93
31	48	80	96	91
32	36	70	84	71
33	46	73	96	79
34	41	77	98	89
35	32	69	89	79
36	50	84	98	98
37	53	85	98	84
38	47	88	95	82
39	69	87	96	91
40	76	94	98	96
Average	58.8	86.2	96.1	88.3

TABLE 13. Percent of Members of Different Ethnic Groups Who Saw the Item as at Least Slightly Relevant for the Writing Multiple Choice Test

Item Number	Group: American Indian	Black	Caucasian	Hispanic	Other Ethnic
1	100	100	97	91	100
2	100	100	94	100	100
3	100	100	97	100	100
4	100	100	87	100	100
5	100	100	100	91	100
6	100	100	100	100	100
7	100	100	100	100	100
8	100	100	94	82	100
9	100	100	97	100	100
10	100	100	97	91	50
11	100	100	97	100	100
12	80	100	100	100	50
13	80	100	97	91	100
14	100	100	97	91	100
15	80	100	100	100	50
16	80	100	100	100	100
17	80	100	97	100	100
18	80	100	100	100	100
19	100	100	100	91	100
20	80	100	94	91	100
21	80	86	97	91	100
22	60	100	100	100	100
23	80	100	94	82	100
24	60	86	90	64	100
25	100	86	81	91	100
26	100	86	100	100	100
27	100	100	90	91	100
28	100	100	100	100	100
29	80	100	100	100	100
30	80	100	100	91	100
31	100	100	100	100	100
32	100	100	100	100	100
33	100	100	100	100	100
34	100	100	97	91	100
35	80	100	94	100	100
36	80	100	94	100	100
37	100	86	90	90	100
38	100	86	84	91	100
39	100	86	90	100	100
40	100	100	94	100	100
41	100	100	94	100	100
42	100	100	97	100	100
43	100	100	90	100	100
44	100	100	97	91	100
45	100	100	90	91	100
Average	92.4	97.8	95.7	95.2	96.7

TABLE 14. Percent of Members with Differing Involvement in Education Who Saw the Item as at Least Slightly Relevant for the Writing Multiple Choice Test

Item Number	Group: Elementary Teachers & Principals	Secondary Teachers & Principals	All Teachers & Principals	Teacher Educators
1	95	89	93	100
2	100	95	97	100
3	100	95	97	100
4	95	100	97	94
5	100	100	100	94
6	100	100	100	100
7	100	100	100	100
8	95	95	95	88
9	100	100	100	94
10	100	95	97	87
11	100	100	100	94
12	100	100	100	94
13	100	89	95	94
14	100	95	97	94
15	100	100	100	87
16	100	100	100	94
17	100	95	97	94
18	100	95	97	100
19	100	100	100	94
20	100	89	95	87
21	100	100	100	75
22	95	95	95	100
23	100	89	95	81
24	95	74	85	75
25	90	84	87	81
26	100	100	100	100
27	100	95	97	81
28	100	100	100	100
29	100	95	97	100
30	100	95	97	94
31	100	100	100	100
32	100	100	100	100
33	100	100	100	100
34	100	100	100	87
35	100	95	97	87
36	100	95	98	87
37	100	100	100	69
38	100	89	95	69
39	100	95	97	81
40	100	95	97	94
41	100	95	98	94
42	100	95	97	100
43	100	95	97	87
44	100	95	97	94
45	95	95	95	87
Average	99.1	95.6	97.3	91.4

TABLE 15. Percent of Different Ethnic Groups Who Felt That There Had Been an Opportunity to Learn the Skill Required by the Writing Multiple Choice Test Item

Item Number	Group: American Indian	Black	Caucasian	Hispanic	Other Ethnic
1	100	100	90	100	100
2	100	100	87	100	100
3	80	100	90	100	100
4	60	86	84	91	50
5	80	100	100	91	100
6	100	100	97	100	100
7	100	100	94	100	100
8	100	71	94	91	100
9	100	86	97	100	50
10	80	100	81	91	0
11	100	100	100	100	100
12	80	100	94	100	50
13	80	100	87	82	100
14	40	100	87	73	100
15	80	100	90	100	50
16	80	100	100	100	100
17	100	86	94	100	50
18	80	71	84	100	100
19	100	100	100	91	50
20	80	86	81	91	100
21	60	86	81	64	100
22	40	100	90	82	50
23	20	86	74	73	100
24	60	86	65	73	100
25	60	86	77	64	100
26	80	100	97	100	100
27	60	86	84	91	100
28	80	100	100	91	100
29	60	100	97	91	100
30	40	100	97	91	100
31	80	100	90	100	100
32	80	100	90	100	100
33	80	100	90	100	100
34	80	86	81	82	50
35	60	100	84	100	100
36	60	71	81	91	50
37	40	100	74	73	50
38	40	86	61	64	0
39	80	100	68	64	0
40	80	100	68	91	50
41	80	100	87	91	50
42	50	100	90	100	50
43	60	71	74	82	0
44	60	71	81	82	0
45	60	71	84	82	0
Average	72.7	92.7	86.6	89.4	72.2

TABLE 16. Percent of Members with Differing Involvement in Education Who Felt That There Had Been an Opportunity to Learn the Skill Required by the Writing Multiple Choice Test Item

Item Number	Group: Elementary Teachers & Principals	Secondary Teachers & Principals	All Teachers & Principals	Teacher Educators
1	95	89	93	94
2	100	89	95	88
3	95	84	90	94
4	90	84	88	81
5	95	100	97	94
6	100	100	100	94
7	100	95	97	100
8	100	89	95	81
9	100	95	97	94
10	95	84	90	69
11	100	100	100	94
12	100	89	95	88
13	100	84	93	69
14	95	79	88	88
15	95	74	85	94
16	100	89	95	100
17	95	89	93	88
18	90	79	85	94
19	100	100	100	88
20	100	79	90	69
21	90	79	85	69
22	90	79	85	81
23	86	58	73	63
24	100	63	83	50
25	86	74	80	69
26	100	89	95	100
27	100	68	85	75
28	100	89	95	100
29	100	79	90	100
30	100	84	93	88
31	100	89	95	88
32	100	89	95	88
33	100	89	95	94
34	90	68	80	81
35	95	84	90	88
36	86	84	85	88
37	90	74	83	56
38	81	58	70	44
39	81	74	77	50
40	90	79	85	88
41	95	74	85	94
42	95	84	90	94
43	81	58	70	75
44	81	74	77	69
45	90	74	83	69
Average	94.5	81.9	88.7	82.7

TABLE 17. Judgments of Panel Members with Respect to Relevancy and Opportunity to Learn for Each Item on the Writing Multiple Choice Test

Item Number	Relevancy: % Very Relevant	Relevancy: % Very or Moderately Relevant	Relevancy: % Very, Moderately, or Slightly Relevant	Opportunity to Learn % Yes
1	51	85	96	95
2	56	83	96	93
3	73	87	98	93
4	48	86	93	82
5	71	87	98	96
6	68	95	100	98
7	68	95	100	96
8	48	82	93	91
9	73	91	98	94
10	49	79	95	82
11	71	92	97	100
12	62	89	96	93
13	59	91	95	88
14	43	82	96	82
15	53	87	96	91
16	80	94	98	98
17	53	87	96	93
18	46	82	98	86
19	74	87	98	96
20	41	75	93	82
21	30	73	93	77
22	47	83	96	84
23	34	70	91	71
24	23	64	82	70
25	42	65	96	75
26	71	94	98	96
27	47	77	93	84
28	89	98	100	96
29	69	94	98	93
30	66	91	96	91
31	74	95	100	93
32	60	87	98	93
33	75	93	100	93
34	50	80	94	80
35	50	82	95	88
36	43	82	95	79
37	26	64	91	73
38	19	58	87	61
39	36	63	93	70
40	35	83	96	77
41	45	83	96	88
42	60	94	98	91
43	34	72	95	71
44	46	76	96	75
45	32	70	93	77
Average	53.1	82.8	95.5	86.1

TABLE 18. Percent of Items Viewed by Specific Percentages of Panel Members in Different Categories with Respect to Relevancy and Opportunity to Learn

Test	Percent of Judges	Relevancy: Very Relevant	Relevancy: Very or Moderately Relevant	Relevancy: Very, Moderately or Slightly Relevant	Opportunity to Learn
Mathematics	50% or more	45	95	100	100
	67% or more	20	80	100	98
	75% or more	13	68	100	95
Reading	50% or more	73	100	100	100
	67% or more	43	98	100	100
	75% or more	15	85	100	93
Writing Multiple Choice	50% or more	53	100	100	100
	67% or more	29	89	100	98
	75% or more	4	80	100	87

TABLE 19. Percent of Panelists in Various Ethnic Groups Who Feel Teachers or Students in a Teacher Education Program Need to Be Able to Write an Acceptable Essay and Who Feel They Have Had an Opportunity to Learn to Write

Group	Need to Be Able to Write	Had an Opportunity to Learn to Write
American Indian	80	100
Black	86	86
Caucasian	87	80
Hispanic	82	82
Other	100	100
All Panelists	86	84

TABLE 20. Percent of Panelists with Different Involvement in Education Who Feel Teachers or Students in a Teacher Education Program Need to Be Able to Write an Acceptable Essay and Who Feel They Have Had an Opportunity to Learn to Write

Group	Need to Be Able to Write	Had an Opportunity to Learn to Write
Elementary Teachers and Principals	86	76
Secondary Teachers and Principals	74	79
All Teachers and Principals	80	78
Teacher Educators	100	94
All Panelists	86	84

TABLE 21. Frequency Distribution of the Passing Scores for All Three Multiple Choice Tests

Score	Number of Panelists		
	Mathematics	Reading	Writing
40			1
39			0
38			0
37			1
36			0
35		1	6
34		2	2
33	1	1	2
32	5	4	4
31	1	4	2
30	6	4	1
29	6	3	5
28	3	5	4
27	5	5	2
26	4	2	4
25	4	7	4
24	2	1	1
23	2	5	2
22	4	0	1
21	3	1	4
20	1	0	2
19	2	4	2
18	0	3	0
17	3	1	1
16	1	0	1
15	1	2	1
14	0	0	0
13	1	1	2
12	1		0
11			0
10			1

TABLE 22. Average Passing Scores on the Multiple Choice Tests for Various Groups

Group	Mathematics	Reading	Writing
American Indian	20	21	24
Black	27	28	31
Caucasian	25	26	26
Hispanic	26	26	28
Other Ethnic	26	24	25
Elementary Teachers and Principals	26	27	29
Secondary Teachers and Principals	23	25	24
All Teachers and Principals	25	26	27
Teacher Educators	26	25	27
All Panelists	25	26	27

TABLE 23. Average Passing Score on the Writing Essay Question for Various Groups

Group	Passing Score
American Indian	10
Black	8
Caucasian	9
Hispanic	10
Other Ethnic	10
Elementary Teachers and Principals	9
Secondary Teachers and Principals	8
All Teachers and Principals	9
Teacher Educators	9
All Panelists	9

TABLE 24. Estimated Failure Rates for Three Sets of Possible Passing Scores

Possible Passing Scores	Information in the Row	Test		
		Reading	Mathematics	Writing
Panel judgment about the minimum standard	Scaled Score	176	175	177
	Failure from '83 data	52%	45%	55%
	Failure from '84 data	55%	49%	59%
One error unit below standard	Scaled Score	173	172	174
	Failure from '83 data	39%	34%	35%
	Failure from '84 data	40%	36%	34%
Two error units below standard	Scaled Score	170	169	171
	Failure from '83 data	27%	25%	24%
	Failure from '84 data	25%	21%	17%

TABLE 25. Possible Arizona Passing Scores and Passing Scores Used in Other Places

Place	Test		
	Reading	Mathematics	Writing
Arizona			
Judged Standard	176	175	177
Standard less one error unit	173	172	174
Standard less two error units	170	169	171
Texas	172	171	173
Delaware	175	175	172
Tennessee	169	169	172
University of Cincinatti	170	172	173

APPENDIX A

Test Specifications
NTE Pre-Professional Skills Tests

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READING TEST SPECIFICATIONS

This test measures a wide variety of skills and ranges over a wide variety of materials. The materials do not call on outside information but reflect many sources, issues, and levels of seriousness. In summary, the sources for reading passages and questions are what teachers read and are exposed to.

The three major skill areas, together with interpretive subskills*, are as follows:

A. Comprehension approx. 50% (17 to 20 items)

The ability to understand accurately and completely the explicit content of a written message.

1. Main Idea
2. Detail
   e.g., Definition - word, phrase, etc.
   Supporting Ideas
3. Relationships
   e.g., Sequence
   Cause and Effect
4. Paraphrase/Summary of elements in the message

B. Analysis approx. 35% (13 to 14 items)

The ability to clarify a written message and understand how it is organized and conveys its message.

1. The writer's purpose
2. The writer's assumptions
3. The writer's attitude or tone
4. Implications of the message
   Inferences from the message
5. Fact vs. opinion in the message
6. Organization of the message
7. Use of langauge in the message
8. Application of elements in the message

C. Evaluation approx. 15% (7 to 8 items)

The ability to make reasoned qualitative judgments about the nature and merits of a written message.

1. Emotional or manipulative aspects of the message
2. Strengths and/or weaknesses of the argument
3. Relevance and/or appropriateness of supporting evidence, arguments
4. Relation of the message to the audience and/or to the general universe of the topic

There are three types of items included:

I. a long passage (200 words) with a set of 5-7 items

II. a short passage (100 words) with a set of 2-3 items

III. discrete items with a brief stimulus

*These subskills are sampled for purposes of test construction.

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These types are distributed in each test form as follows:

	Type I	Type II	Type III
Number of passages:	2-3	4-5	—
Total Number of questions:	14-17	11-13	11-13
Percentage of test:	approx. 40%	approx. 30%	approx. 30%

Items will explore understanding of a range of units of discourse (words, phrases, clauses, sentences, idea clusters, paragraphs, etc.). The passage formats obviously permit testing of a broader range of units of discourse than does the discrete item format.

Items in each of the three formats may pose questions of varying difficulty and test any of the skills.

The content of each form of the test is to be as follows:

Subject Matter:

1. Teacher-related approx. 60%

   Professional Conduct

   Classroom
   Interpersonal

   Policy Issues
   Philosophical concerns

2. General Interest approx. 40%

Representativeness:

1. Two passages in each test should deal with special concerns: one with minority-related issues and one with issues of concern to women.

Passages:

1. At least one long passage will present material that is explicit or easily understood; the other(s) will present a more complex discussion.

2. Passages should exemplify a variety of modes of prose writing, e.g., discursive, descriptive, narrative. At least one passage should be of a technical or scientific nature.

Total number of items: 40.

WRITING

WRITING TEST SPECIFICATIONS

This test assumes that teachers are informed citizens of the world who have a variety of concerns and interests. Therefore, this test is not limited to matters dealing with the routine activities of the school day, although substantial and serious educational issues are included.

The test assumes that an effective writer should be able to do the following.

1. Provide and sustain a focus or thesis.

2. Attain in different papers the varied aims or purposes (e.g., explanatory, persuasive, expressive) of discourse.

3. Decide which of these aims or purposes is appropriate in a given writing situation.

4. Select and sustain an appropriate persona or voice.

5. Produce and develop adequate and appropriate material to accomplish the purpose for writing, identifying and supporting, as appropriate, important assumptions.

6. Choose and use a mode of organization consistently.

7. Preserve coherence in an extended piece of writing.

8. Choose an appropriate mode or organization (chronological, enumerative, etc.).

9. Construct sentences in standard written English, adjusting choice of sentence structure and word choice to suit purposes and aims.

10. Use sentences and vocabulary which are appropriate to the purpose of the writing.

11. Use words and sentences which are appropriate for the intended readers.

12. Construct sentences in standard written English and identify sentences that do not observe the conventions of standard written English, such as grammar, usage, and punctuation.

The first part of the test contains 45 multiple-choice items of two types:

25 usage items
20 sentence correction items

The usage item type asks for the correction that must be made to a sentence if it is to meet the demands of Standard/Edited American English. The sentence correction item type asks the examinee to choose the most effective way to restate a given phrase or sentence. Both item types include "no error" options; there are 7-9 items keyed "no error" in each test form.

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The following points are measured with both item types:

A. Structure (Grammar and Logical Relationships)

1. Noun, Pronoun, Verb, Adjective and Adverb Problems - 8 to 11 items

2. Coordination, Subordination, Correlation, Comparison, Parallelism, and Negation Structures - 15 to 21 items

B. Diction, Idiom, and Mechanics (Redundancy, Word Choice, Punctuation, and Capitalization) - 8 to 14 items

The second part of the test consists of one separately timed twenty-minute writing sample. The stimulus for this is to be both credible and substantial, but not necessarily limited to the field of education. The assignment could be very structured or open.

Total number of items: 46 (45 multiple-choice and 1 essay)

MATHEMATICS

MATHEMATICS TEST SPECIFICATIONS

The competencies measured are believed to be developmental in nature, accruing not by an individual having taken one or more specific courses, but rather through the cumulative effect of the total mathematics curriculum. There is, of course, an assumption here that certain commonalities exist in all mathematics curricula, and that all candidates will have had certain "basics"; for example, it is assumed that all candidates will have studied fractions, regardless of the city or state in which they went to school, or the textbook or methodology used in the school(s). Therefore, these competencies are considered to be neither content specific nor content free.

The six competencies, together with interpretive subskills*, are as follows:

A. Has good number sense, that is, understands how numbers behave. (8 to 10 items)

1. Has a sense of order among numbers—e.g., knows that $\frac{1}{2}$ is between $\frac{1}{3}$ and $\frac{2}{3}$, that $-3 < -2$, that 1.9 is closer to 2 than $2\frac{1}{4}$ is, that 75% is less than 1, and that 600% is more than 1.

2. Has a meaningful understanding of the way numbers are named, (i.e., place value); understands that a number has many names, and has facility in translating from one to another as needed; e.g., can use 50% or .5 or $\frac{1}{2}$ — whichever simplifies computation or aids flexibility of thinking.

3. Has a sense of the order of magnitude of number as it relates to place value or scientific notation; e.g., recognizes that 100 is 1,000 times as great as 0.1, or that 2.57×10^3 is $\frac{1}{100}$ as great as 2.57×10^5.

4. Estimates, or otherwise predicts, the outcome of computation.

B. Understands and uses numbers in an appropriate way to quantify thinking. (8 to 10 items)

1. Recognizes an appropriate match between mathematics and real life; e.g., can establish a correct ratio or percent, or select an appropriate operation for a real life problem.

2. Recognizes necessary and sufficient conditions for the solution of real life problems; e.g., for a real life problem, knows what numbers are needed and how to obtain them (what measurements are needed, e.g.)

3. Solves real life problems by estimating answers and doing the necessary computation.

4. Recognizes and chooses multiple ways to find answers and equivalent computational procedures.

---

*These subskills are sampled for purposes of test construction.

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5. Recognizes an appropriate number that can be used as an answer to a problem and adjusts and interprets answers to fit the context of the problem; e.g., the answer, $5\frac{1}{3}$ would be recorded as 6 if it represents the number of cars needed to transport people, but recorded as 5 if it represents the number of passengers per car.

6. Correctly predicts the outcome of changing some number or condition in a problem in an "if-then" sense--e.g., if N + 5 = Q, what is the value of N + 10?

7. Interprets numbers when used to express probability.

C. Recognizes and uses mathematical relationships. (8 to 10 items)

1. Distinguishes among direct, inverse and other kinds of variation without necessarily knowing the correct term for the relationship.

2. Recognizes spatial relationships in everyday life--e.g., identifies and predicts possible relationships among lines in space.

3. States and uses relationships for the measures of common two- and-three dimensional geometric figures.

4. Symbolizes a relationship appropriately; conversely, interprets a relationship expressed in symbols; understands the use of a formula as a way to solve a class of similar problems.

5. Recognizes equivalent relationships having a different form--e.g., $d = rt \leftrightarrow t = d \div r$.

6. Solves problems involving ratio and proportion and percent.

7. Recognizes relationships evident in data and makes appropriate predictions and/or extrapolations from that data.

D. Understands the mathematical basis of measurement. (4 to 6 items)

1. Understands that numbers are used to quantify attributes (e.g., length, temperature, area) of objects, not the objects themselves.

2. Recognizes and uses appropriate units for making everyday measurements.

3. Recognizes and uses geometric concepts in making linear, area, and volume measurements.

4. Understands the relationship between the size of the unit and the number of units--e.g., the shorter the unit used to measure length, the larger the number of those units in a specific measurement.

5. Knows in a general way how to convert from one unit to another in the same system--i.e., whether to multiply or divide.

6. Determines the measurements needed in order to solve a problem; can solve measurement problems.

7. Is literate about the metric (SI) system.

8. Reads a calibrated scale correctly, whether the calibration is in multiples of whole numbers or fractional division; estimates readings between tic marks.

E. Understands deductive reasoning. (4 to 6 items)

1. Correctly interprets sentences which incorporate the logical connectives, "and", "or", and "if-then" as well as the quantifiers, "some", "all", and "none".

2. Uses deductive reasoning to determine whether a conclusion based on a series of statements about everyday situations is valid or invalid.

3. Sees the need for basic definitions and assumptions and recognizes hidden assumptions--e.g., in advertisements or political slogans.

4. Makes appropriate generalizations; identifies counterexamples to inappropriate generalizations.

F. Can interpret graphic, symbolic and verbal material. (4 to 6 items)

1. Makes reasonable visual comparisons of the size of two or more objects.

2. Reads and interprets bar, line and circle graphs and pictographs.

3. Chooses a mathematically appropriate graph to represent a given set of data.

4. Interprets a schematic diagram--e.g., a flow-chart, electrical wiring diagram or diagram of the circulatory system of a frog.

Total number of items: 40.

APPENDIX B

ARIZONA BOARD OF REGENTS

EDUCATION BUILDING (602) 255-4082
1535 WEST JEFFERSON, PHOENIX, ARIZONA 85007

March 26, 1985

LETTER MAILED TO EACH DISTRICT SUPERINTENDENT

Dear

In 1984 the Arizona Legislature enacted a bill requiring applicants for admission to teacher education degree programs at the universities to pass a basic skills test in mathematics, reading, and grammar. The Board of Regents has decided to use the Pre-Professional Skills Tests (PPST) developed by the Educational Testing Service to satisfy the statutory requirement. However, before the tests can be used, they must be properly validated for use in Arizona.

The Board is forming an Arizona Validation Panel that will be comprised of approximately 40-50 members, including elementary and secondary teachers and principals from Arizona schools and teacher educators from the universities. Superintendents of Arizona school districts are being requested to nominate master teachers and principals to serve on the Panel. From the list of nominees, a group of teachers and principals representative of the Arizona population will be invited to serve on the Panel.

The Panel will meet in Phoenix on Friday, April 26, for a full day. The purpose of the meeting will be to review the PPST to determine whether it measures basic skills needed by teachers and to assist in setting the minimum passing score. The judgments that will be made by the Panel will be crucial to the accomplishment of the objective of ensuring that all students preparing to enter the teaching profession have mastered the relevant basic skills.

Would you please assist us in this project by nominating master teachers and principals from your district who have demonstrated a high level of ability. It is our hope that the nominee pool will include both men and women and individuals from various ethnic groups. They should be sensitive to the needs of students from all cultural backgrounds. We would also like to have representatives from various grade levels and from various teaching fields.

The Board of Regents will provide funds to cover the travel expenses of the participants from outside Maricopa County and the meal expenses for all participants. We hope the school districts will be willing to provide release time for any of their teachers selected to serve on the Panel.

Enclosed is a form on which the nominees from your district should be identified. Each elementary and each secondary district is invited to submit the names of up to 10 teachers and 3 principals. Unified districts are invited to submit the names of up to 10 elementary teachers, 10 secondary teachers, and 6 principals. The number of names submitted will vary according to the size of the district. In order to ensure that the Panel is representative of the Arizona population, it is important that we have all of the information requested for each nominee. Please return the completed forms no later than April 8 to the following address:

Arizona Board of Regents
1535 West Jefferson, Suite 121
Phoenix, AZ 85007

Your assistance in identifying outstanding teachers and principals to help set the standards for future teachers will be appreciated.

Sincerely,

Robert A. Huff
Executive Director

Esther N. Capin
Regent

mbb

Enclosure

ARIZONA BOARD OF REGENTS

EDUCATION BUILDING (602) 255-4082
1535 WEST JEFFERSON, PHOENIX, ARIZONA 85007

March 28, 1985

LETTER MAILED TO EACH UNIVERSITY PRESIDENT

Dear

As we prepare for the implementation of the Pre-Professional Skills Test (PPST) developed by ETS for the assessment of basic skills of candidates for teacher education programs on the three campuses, we need to form a panel including teacher educators from our three faculties. The guidelines from ETS suggest that our panel should represent the demographics of the State of Arizona. Thus, we will need to include both men and women as well as representatives from each of the ethnic minority groups in the state. I am asking you to nominate ten individuals from your teacher education faculty and include with their names the following information: sex, ethnic origin, subjects taught, and years of service at the university. From the list of nominees, we expect to select approximately five faculty members from each university.

We will need your list of nominees in the central office not later than April 5, 1985. Should you have any questions about the validation process or the use of the PPST, please feel free to call me or Dr. Elliott.

Thank you for your assistance with this important matter. We will keep you informed as the content validation process proceeds.

Sincerely,

Bob

Robert A. Huff
Executive Director

vb

APPENDIX C

Population of Arizona, By Racial/Ethnic Group

Racial/Ethnic Group	Population of Racial/Ethnic Group	Percentage of State Population
White	2,240,761	82.4
Black	74,977	2.8
American Indian, Eskimo, and Aleut	152,745	5.6
Asian and Pacific Islander	22,032	.8
Spanish Origin	440,701	16.2
Other[a]	227,700	8.4
Total	2,718,215	

[a]Because individuals included in the "Other" category of the 1980 Census are not identified as minorities, the above percentages underestimate the minority population.

Source: U.S. Department of Commerce, Bureau of Census, 1980 Census of Population, "General Population Characteristics," pp. 4-122.

APPENDIX D

ARIZONA BOARD OF REGENTS

PRE-PROFESSIONAL SKILLS TESTS
VALIDATION STUDY

Identification Information and General Instructions
for
Teachers and Principals

I.D. Number (office use only)

1. Name _____

2. Gender (Check one) F_____ M _____

3. Ethnicity (Check one)

   American Indian _____; Black _____; Caucasian _____; Hispanic _____;

   Other (Specify) _____

4. Place of Employment

   School Name _____; District Name _____

5. Type of School Involvement (Check one)

   Teacher _____; Principal _____; Other (Specify) _____

6. Grade Level of Primary Involvement (Check one)

   K-6 _____; 7-12 _____; Other (Specify) _____

7. Subject Matter Taught (if applicable)

   _____

ARIZONA BOARD OF REGENTS

PRE-PROFESSIONAL SKILLS TESTS
VALIDATION STUDY

General Instructions for Multiple Choice Tests
for
Teachers and Principals

For each item in this test you will need to make three (3) separate judgments:

1. The extent to which the knowledge or academic skill tested in the question is relevant to competent performance as a teacher in Arizona;

2. Whether a typical applicant who graduated from an Arizona high school and/or who has met the course prerequisites for admission to a teacher education program had an opportunity to acquire the knowledge or skill which is required to answer the test question;

3. The proportion of marginally qualified applicants for a teacher education program whom you would expect to answer the test questions correctly.

In addition, each panel member should identify any questions that include language that would result in a bias against a member of an ethnic minority. The question should be identified in the comments section and a detailed explanation of the bias problem should be provided.

The specific scales and responses to be used are described on the next page.

ARIZONA BOARD OF REGENTS

PRE-PROFESSIONAL SKILLS TESTS
VALIDATION STUDY

Description of Rating Scale & Responses
for
Teachers and Principals

---

1. In making the first judgment, rate each item on the test on the following scale:

   You are to judge the extent to which the knowledge or academic skill tested in the question is relevant to competent performance as a teacher in the schools of Arizona.

   Mark your answer according to the following scale:

VERY RELEVANT	Needed by 50% or more of the teachers or by some teachers 50% or more of the time, and is usually important to successful performance.
MODERATELY RELEVANT	Needed by 25 to 49% of the teachers or by some teachers between 25 and 49% of the time, and often is important to successful performance.
SLIGHTLY RELEVANT	Needed by 10 to 24% of the teachers or by some teachers between 10 and 24% of the time; and when used is, at best, only occasionally important to successful performance.
NOT RELEVANT	Needed for fewer than 10% of the teachers or by some teachers less than 10% of the time; and when used, is not important even though sometimes helpful to successful performance

2. In making the second judgment you will need to make one of the following responses for each item:

   Yes, the typical applicant has had an opportunity to learn the knowledge or skill required,

   No, the typical applicant has NOT had an opportunity to learn the knowledge or skill required,

3. In making the third judgment, record how many, out of 100 marginally qualified applicants for a teacher education program you think would be able to answer the question correctly.

ARIZONA BOARD OF REGENTS

PRE-PROFESSIONAL SKILLS TESTS
VALIDATION STUDY

Identification Information and General Instructions
for
Teacher Educators

	I.D. Number (office use only)

1. Name _____

2. Gender (Check one) F_____ M _____

3. Ethnicity (Check one)

   American Indian _____; Black _____; Caucasian _____; Hispanic _____;

   Other (Specify) _____

4. Institute of Employment _____

5. Title of Position (Check one)

   Professor ____; Associate Professor____; Assistant Professor ____;

   Other (Specify) _____

7. Courses Taught (if applicable)

   _____

ARIZONA BOARD OF REGENTS

PRE-PROFESSIONAL SKILLS TESTS
VALIDATION STUDY

General Instructions for Multiple Choice Tests
for
Teacher Educators

For each item in this test you will need to make three (3) separate judgments:

1. The extent to which the knowledge or academic skill tested in the question is relevant to competent performance as a student in a teacher education program at your institution.

2. Whether a typical applicant who graduated from an Arizona high school and/or who has met the course prerequisites for admission to a teacher education program had an opportunity to acquire the knowledge or academic skill which is required to answer the test question;

3. The proportion of marginally qualified applicants for a teacher education program whom you would expect to answer the test questions correctly.

In addition, each panel member should identify any questions that may include language that would result in a bias against a member of an ethnic minority. The question should be identified in the comments section and a detailed explanation of the bias problem should be provided.

The specific scales and responses to be used are described on the next page.

ARIZONA BOARD OF REGENTS

PRE-PROFESSIONAL SKILLS TESTS
VALIDATION STUDY

Description of Rating Scale & Responses
for
Teacher Educators

---

1. In making the first judgment, rate each item on the test on the following scale:

   You are to judge the extent to which the knowledge or academic skill tested in the question is relevant to competent performance as a student in a teacher education degree program offered by your University.

   Mark your answer according to the following scale:

VERY RELEVANT	Needed by 50% or more of the students or by some students 50% or more of the time, and is usually important to successful performance.
MODERATELY RELEVANT	Needed by 25 to 49% of the students or by some students between 25 and 49% of the time, and often is important to successful performance.
SLIGHTLY RELEVANT	Needed by 10 to 24% of the students or by some students between 10 and 24% of the time; and when used is, at best, only occasionally important to successful performance.
NOT RELEVANT	Needed for fewer than 10% of the students or by some students less than 10% of the time; and when used, is not important even though sometimes helpful to successful performance.

2. In making the second judgment you will need to make one of the following responses for each item:

   Yes, the typical applicant has had an opportunity to learn the knowledge or skill required,

   No, the typical applicant has NOT had an opportunity to learn the knowledge or skill required,

3. In making the third judgment, record how many, out of 100 marginally qualified applicants for a teacher education program you think would be able to answer the question correctly.

ARIZONA BOARD OF REGENTS

PRE-PROFESSIONAL SKILLS TESTS
VALIDATION STUDY

RESPONSE SHEET
FOR
MATHEMATICS TEST JUDGMENTS

I.D. Number (office use only)

Question Number	Relevancy to Competent Performance				Opportunity to Learn		Difficulty Level*	Number Out of 100 MARGINALLY Qualified Applicants You Think Will Answer the Item Correctly
	NOT RELEVANT Less than 10% use	SLIGHTLY RELEVANT 10 to 24% use	MODERATELY RELEVANT 25 to 49% use	VERY RELEVANT Over 50% use	Yes	No		
SAMPLE								
1							Average	
2							Easy	
3							Average	
4							Easy	
5							Easy	
6							Average	
7							Average	
8							Average	
9							Very Difficult	
10							Average	
11							Easy	
12							Easy	
13							Easy	
14							Average	
15							Average	
16							Average	

RESPONSE SHEET
FOR
MATHEMATICS TEST JUDGMENTS
(Continued)

I.D. Number (office use only)

Question Number	Relevancy to Competent Performance				Opportunity to Learn		Difficulty Level*	Number Out of 100 MARGINALLY Qualified Applicants You Think Will Answer the Item Correctly
	NOT RELEVANT Less than 10% use	SLIGHTLY RELEVANT 10 to 24% use	MODERATELY RELEVANT 25 to 49% use	VERY RELEVANT Over 50% use	Yes	No		
17							Easy	
18							Difficult	
19							Easy	
20							Average	
21							Average	
22							Average	
23							Average	
24							Average	
25							Average	
26							Very Difficult	
27							Average	
28							Difficult	
29							Difficult	
30							Difficult	
31							Average	
32							Average	
33							Difficult	
34							Difficult	

RESPONSE SHEET
FOR
MATHEMATICS TEST JUDGMENTS
(Continued)

I.D. Number (office use only)

Question Number	Relevancy to Competent Performance				Opportunity to Learn		Difficulty Level*	Number Out of 100 MARGINALLY Qualified Applicants You Think Will Answer the Item Correctly
	NOT RELEVANT Less than 10% use	SLIGHTLY RELEVANT 10 to 24% use	MODERATELY RELEVANT 25 to 49% use	VERY RELEVANT Over 50% use	Yes	No		
35							Average	
36							Very Difficult	
37							Difficult	
38							Very Difficult	
39							Difficult	
40							Difficult	

COMMENTS:

*Difficulty Level: Easy — P-Values range from 94.49 - 74.50
Average — P-Values range from 74.49 - 54.50
Difficult — P-Values range from 54.49 - 34.50
Very Difficult — P-Values range from 34.49 - 14.50

ARIZONA BOARD OF REGENTS

PRE-PROFESSIONAL SKILLS TESTS
VALIDATION STUDY

RESPONSE SHEET
FOR
READING TEST JUDGMENTS

I.D. Number (office use only)

Question Number	Relevancy to Competent Performance				Opportunity to Learn		Difficulty Level*	Number Out of 100 MARGINALLY Qualified Applicants You Think Will Answer the Item Correctly
	NOT RELEVANT Less than 10% use	SLIGHTLY RELEVANT 10 to 24% use	MODERATELY RELEVANT 25 to 49% use	VERY RELEVANT Over 50% use	Yes	No		
SAMPLE								
1							Easy	
2							Easy	
3							Easy	
4							Easy	
5							Average	
6							Easy	
7							Average	
8							Average	
9							Average	
10							Difficult	
11							Average	
12							Average	
13							Difficult	
14							Average	
15							Average	
16							Average	

RESPONSE SHEET
FOR
READING TEST JUDGMENTS
(Continued)

I.D. Number (office use only)

Question Number	Relevancy to Competent Performance				Opportunity to Learn		Difficulty Level*	Number Out of 100 MARGINALLY Qualified Applicants You Think Will Answer the Item Correctly
	NOT RELEVANT Less than 10% use	SLIGHTLY RELEVANT 10 to 24% use	MODERATELY RELEVANT 25 to 49% use	VERY RELEVANT Over 50% use	Yes	No		
17							Easy	
18							Easy	
19							Difficult	
20							Easy	
21							Difficult	
22							Very Difficult	
23							Difficult	
24							Average	
25							Average	
26							Difficult	
27							Easy	
28							Difficult	
29							Average	
30							Average	
31							Average	
32							Very Difficult	
33							Difficult	
34							Difficult	

RESPONSE SHEET
FOR
READING TEST JUDGMENTS
(Continued)

I.D. Number (office use only)

Question Number	Relevancy to Competent Performance				Opportunity to Learn		Difficulty Level*	Number Out of 100 MARGINALLY Qualified Applicants You Think Will Answer the Item Correctly
	NOT RELEVANT Less than 10% use	SLIGHTLY RELEVANT 10 to 24% use	MODERATELY RELEVANT 25 to 49% use	VERY RELEVANT Over 50% use	Yes	No		
35							Difficult	
36							Average	
37							Average	
38							Difficult	
39							Difficult	
40							Average	

COMMENTS:

*Difficulty Level: Easy — P-Values range from 94.49 - 74.50
Average — P-Values range from 74.49 - 54.50
Difficult — P-Values range from 54.49 - 34.50
Very Difficult — P-Values range from 34.49 - 14.50

ARIZONA BOARD OF REGENTS

PRE-PROFESSIONAL SKILLS TESTS
VALIDATION STUDY

RESPONSE SHEET
FOR
WRITING MULTIPLE CHOICE TEST JUDGMENTS

I.D. Number (office use only)

Question Number	Relevancy to Competent Performance				Opportunity to Learn		Difficulty Level*	Number Out of 100 MARGINALLY Qualified Applicants You Think Will Answer the Item Correctly
	NOT RELEVANT Less than 10% use	SLIGHTLY RELEVANT 10 to 24% use	MODERATELY RELEVANT 25 to 49% use	VERY RELEVANT Over 50% use	Yes	No		
SAMPLE								
1							Average	
2							Average	
3							Difficult	
4							Difficult	
5							Average	
6							Average	
7							Easy	
8							Average	
9							Easy	
10							Difficult	
11							Easy	
12							Average	
13							Difficult	
14							Difficult	
15							Difficult	
16							Easy	

RESPONSE SHEET
FOR
WRITING MULTIPLE CHOICE TEST JUDGMENTS
(Continued)

I.D. Number (office use only)

Question Number	Relevancy to Competent Performance				Opportunity to Learn		Difficulty Level*	Number Out of 100 MARGINALLY Qualified Applicants You Think Will Answer the Item Correctly
	NOT RELEVANT Less than 10% use	SLIGHTLY RELEVANT 10 to 24% use	MODERATELY RELEVANT 25 to 49% use	VERY RELEVANT Over 50% use	Yes	No		
17							Difficult	
18							Easy	
19							Average	
20							Difficult	
21							Very Difficult	
22							Difficult	
23							Very Difficult	
24							Very Difficult	
25							Very Difficult	
26							Easy	
27							Average	
28							Easy	
29							Easy	
30							Average	
31							Easy	
32							Average	
33							Easy	
34							Difficult	

RESPONSE SHEET
FOR
WRITING MULTIPLE CHOICE TEST JUDGMENTS
(Continued)

I.D. Number (office use only)

Question Number	Relevancy to Competent Performance				Opportunity to Learn		Difficulty Level*	Number Out of 100 MARGINALLY Qualified Applicants You Think Will Answer the Item Correctly
	NOT RELEVANT Less than 10% use	SLIGHTLY RELEVANT 10 to 24% use	MODERATELY RELEVANT 25 to 49% use	VERY RELEVANT Over 50% use	Yes	No		
35							Average	
36							Average	
37							Difficult	
38							Very Difficult	
39							Very Difficult	
40							Average	
41							Average	
42							Easy	
43							Difficult	
44							Very Difficult	
45							Difficult	

COMMENTS:

*Difficulty Level: Easy — P-Values range from 94.49 - 74.50
Average — P-Values range from 74.49 - 54.50
Difficult — P-Values range from 54.49 - 34.50
Very Difficult — P-Values range from 34.49 - 14.50

ARIZONA BOARD OF REGENTS

PRE-PROFESSIONAL SKILLS TESTS
VALIDATION STUDY

Response Sheet for Judgments about

WRITING TEST ESSAY QUESTIONS
for
Teachers and Principals

I.D. Number (office use only)

1. Does a teacher in Arizona need to be able to write an acceptable essay in order to perform successfully as a teacher? (Check one)

   ☐ Yes ☐ No

2. Have the applicants who graduated from an Arizona high school and/or who have completed the course prerequisites for admission to a teacher education program had an opportunity to learn to write an acceptable essay? (Check one).

   ☐ Yes ☐ No

3. From among the twelve (12) essays you read select two which you think represent the minimum level of skill that a new teacher in Arizona should demonstrate. Check the numbers of the two essays in the box below.

   Check two and only two

ESSAY NUMBER											
P 127	P 141	P 128	P 142	P 129	P 138	P 130	P 134	P 131	P 146	P 132	P 137

ARIZONA BOARD OF REGENTS

PRE-PROFESSIONAL SKILLS TESTS
VALIDATION STUDY

Response Sheet for Judgements about

WRITING TEST ESSAY QUESTIONS
for
Teacher Educators

I.D. Number (office use only)

1. Does a student in a teacher education program at your university need to be able to write an acceptable essay in order to perform successfully in the program? (Check one)

☐ Yes ☐ No

2. Have the applicants who graduated from an Arizona high school and/or who have completed the course prerequisites for admission to a teacher education degree program had an opportunity to learn to write an acceptable essay? (Check one)

☐ Yes ☐ No

3. From among the twelve (12) essays you read select two which you think represent the minimum level of skill that an applicant for admission to a teacher education program should demonstrate. Check the numbers of the two essays in the box below.

Check two and only two

ESSAY NUMBER											
P 127	P 141	P 128	P 142	P 129	P 138	P 130	P 134	P 131	P 146	P 132	P 137

APPENDIX E

PPST VALIDATION PANEL, 25 APRIL 1985

A. Introduction

1. Thank you for coming to do a difficult but absolutely essential task.

   a. You may or may not be aware that last year the Arizona Legislature enacted a bill requiring applicants for admission to teacher education programs at the three state universities to pass a basic skills test in mathematics, reading, and grammar.

   b. After considering many alternatives, the Board of Regents decided to use the Pre-Professional Skills Tests developed by the Educational Testing Service to satisfy the statutory requirement.

   c. Although this test has been validated in, and is currently used in, a number of other states, we want to be sure that each of the three tests is appropriate for use in Arizona.

2. Consequently, you have been assembled to help us accomplish this by making certain judgments about each item of each test.

   a. In inviting you to participate, we have worked very hard to be sure that all Arizona constituencies are appropriately represented.

   b. As a group, you represent:

      - both genders;
      - all major ethnic groups;
      - rural, suburban, and urban schools;
      - elementary educators, secondary educators, and teacher educators;
      - and, a variety of subject matter fields.

   c. Thus, we are counting on you, as members of a respected panel, to make judgments (and they are NOT easy ones) in a careful and professional manner.

PPST VALIDATION PANEL (CONTINUED)

3. Plan for the Day

   a. First, Dr. Richard Peterson, Senior Research Psychologist at ETS, will give you some background on the tests and their development.

   b. Next, I will go over the scales and rating forms to be used in recording your judgments so that everyone understands clearly what is to be done.

   c. Following that, we will, as a group, practice the task on a sample item and discuss the outcome to be sure that the basis for the judgment is clear to everyone.

   d. Once everyone knows what they are to do, you will be asked to make and record your individual judgments about each multiple choice item on every test.

   e. At about 12:15 p.m., we will adjourn for lunch in the Alumni Lounge on the second floor of the Memorial Union Building.

   f. We need to be reassembled here no later than 1:15 p.m. to continue with the next stage.

   g. At that time, we will discuss procedures for judging the sample of responses to the essay question on the writing test.

   h. Finally, you will make and record your judgments about the essays.

   i. Then, when all materials have been turned in and checked, you may leave.

B. Training for Judgments on Multiple Choice Tests

   1. First, we need to make sure the packet you received when you came in is complete. It should contain:

      a. Identification information and general instructions:

         - for teachers and principals; or,

         - for teacher educators.

PPST VALIDATION PANEL (CONTINUED)

b. This three-page document should contain:

(1) an information blank for you to fill out;

(2) a set of general instructions; and,

(3) a description of the specific rating scale and responses.

c. If you are missing anything, raise your hand and we will be sure you get what is needed.

d. Next, the packet should contain response sheets (color coded for each multiple choice test) on which you will record your judgments about each item.

You should have one for:

- Reading - blue;
- Writing - green;
- Math - yellow.

e. Finally, there should be a response sheet for your judgments related to the essay writing question which we will work on after lunch, and which, again, is slightly different for teachers and principals than for teacher educators.

3. If everyone has everything, we are now ready to fill out the I.D. information sheet.

a. Please print your name so that it can be read easily.

(1) While your name is NOT to be written on the response sheets, we have put in a pre-assigned I.D. number.

(2) This number is on each response sheet so that all response sheets can later be matched.

b. Fill out the rest of the information very carefully.

(1) We need this information because it is very important to the process.

(2) It is important because we need to know whether an item is seen one way by panelists in general but in a different way by any particular subgroup of you.

PPST VALIDATION PANEL (CONTINUED)

(3) For example, we need to know whether elementary teachers view an item differently from secondary teachers or whether panelists from urban schools see an item in a different light than those from rural schools.

4. Now, please read the general instructions about the three judgments you will make for each multiple choice item, and then review the specific rating scale and responses to be used.

   a. Please look at me when you have finished because I would like to make a few comments about the interpretation of the scales before we work on the sample item.

   b. [After everyone has a chance to review the material.]

      (1) Is there anyone who needs more time to complete their reading?

      (2) [When all are done, go on.]

   c. The first comment I want to make is that, in making your judgment, you are to view the teaching task in its broadest sense.

      (1) That is, a teacher is NOT just a person in a classroom in charge of children and students,

      (2) But rather, a true professional who not only must guide instruction according to the latest research results,

      (3) But who also must communicate with colleagues, administrators, and parents,

      (4) And who, additionally, must represent their profession to the public at large.

   d. The second comment refers to the way relevancy is to be viewed. It is seen as having three components:

      (1) How many teachers might need the knowledge or skill;

      (2) How often they need the skill, and

      (3) How important the skill is when needed and used.

PPST VALIDATION PANEL (CONTINUED)

e. While you will want to keep all three things in mind,

(1) How important the skill is when needed is of primary concern.

(2) Of secondary concern is the number of teachers (or students in teacher education) who will be required to use the skill.

(3) And of least concern is the frequency with which the skill is likely to be used.

(4) Because, even though not used often, a skill may be critical when it is needed.

f. My third comment relates to the judgment you have to make and record in the last column of the multiple choice response sheet.

(1) Here, you will need to specify the number out of 100 marginally qualified applicants you think will answer the item correctly.

(2) In making this judgment, you are helping to set a minimum standard. A score which a marginally qualified teacher, as a professional, will meet.

(3) It is important to note that we are NOT talking about marginal applicants who may or may not make it,

(4) But about someone who will be in the profession as a teacher.

g. Finally, you will note that at the end of each multiple choice test response sheet form there is a place for comments.

(1) It is here that you are to identify any test item that may include language that would result in a bias against a member of an ethnic minority.

(2) To be helpful, we must know both the item number and exactly what wording is likely to produce the bias. It would also be helpful if you can suggest a change in wording which would eliminate the problem.

h. So, the judgments are complex:

(1) View teachers as true professionals in the broadest sense, and

(2) View relevancy as, primarily, how important the skill is when needed and, secondarily, on how many are likely to use the skill.

PPST VALIDATION PANEL (CONTINUED)

(3) And, in specifying the number out of 100 who will get the item correct, you are to consider a hypothetical group of marginal, but qualified, professionals.

(4) Any questions now before we try the sample item?

5. Now, look at the response sheet for the Reading multiple choice test.

a. We will work one sample item on this test and discuss it before going on.

b. Now we will pass out the sample item. Please read it, make your judgments, and record them in the row marked SAMPLE.

c. [Project sample on screen once everyone has a chance to read, judge, and record.]

d. Ask: How did it go?

(1) Let's see how much agreement we have on this sample.

(2) How many saw it as:

- Very Relevant _____?
- Moderately Relevant _____?
- Slightly Relevant _____?
- Not Relevant _____?

(3) If [there are] widely discrepant results:

- Ask someone who said very relevant why they chose that.
- Then ask someone who selected not relevant why.

e. Ask about the opportunity to learn.

(1) How many:

- Yes _____?
- No _____?

(2) If discrepant, discuss reasons.

Directions: Each statement or passage in this test is followed by a question or questions based on its content. After reading a statement or passage, choose the best answer to each question from among the five choices given. Answer all questions following a statement or passage on the basis of what is stated or implied in that statement or passage.

Questions 1-4

The new hand-held "talking" spelling computer asks the user to spell a word, which it clearly pronounces. To the user's typed response, it then either gives praise or suggests another try. For spelling practice there may be nothing better. For teaching spelling there may be nothing worse, since few, if any, of the programs for this device provide instruction in an order that exposes the patterns in English spelling.

Left to learn spelling by rote, children will be unable to detect or predict the regularities that characterize their written language. They will be ill-prepared to reason about and choose correctly among the many options available for translating speech sounds into written representation.

Admittedly, spelling instruction isolated from the logic of the language still takes place in some classrooms. And something can be said for electronic evaluations that urge a second trial before they correct and fade, unlike single, written trials graded in the permanence of red ink. But for all their mechanized patience, feedback, and reinforcement, spelling computers cannot replace the teacher. For mastery in spelling comes not only from learning which spellings are right and which are wrong; it also comes from learning why they are so.

1. The main idea of the passage is that

   (A) a child can perfect spelling skills only through practice

   (B) the new spelling computers are limited in their ability to teach children to spell correctly

   (C) classroom methods for spelling instruction need to be improved

   (D) patience, feedback, and reinforcement are the key to effective teaching

   (E) the new spelling computers provide one of the best possible forms of spelling practice

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PPST VALIDATION PANEL (CONTINUED)

f. Ask about the number in 100 marginally qualified professionals who would get correct:

(1) If discrepant, discuss.

(2) Remember, we are setting a minimum standard for marginally qualified professionals.

g. Any further comments or questions?

(1) Okay. We are ready to make individual judgments for all multiple choice items on all three multiple choice tests.

(2) We will NOT go through a sample for the other tests.

(3) However, we ask that you work through them in order: Reading, Writing, and Mathematics.

(a) You may find it easier to make all judgments on one item as you did with the sample.

(b) It requires less time because you don't have to reread the item for every judgment.

(4) Then, after lunch, we will go through directions for the essay questions.

h. We will pass out all multiple choice tests now. Be sure you get one copy of each.

(1) Since these tests are those used with actual candidates, the security of the items is very, very important.

(2) Consequently, we must ask that:

- You take NO NOTES.

- You NOT remove the booklets from this room.

(3) We will need to collect and account for them before anyone goes to lunch.

(4) And, similarly, we will need to have you check them in with us before you leave for the day if you need one back after lunch.

PPST VALIDATION PANEL (CONTINUED)

C. Training for Judgments on the Writing Essay Question

1. Hello again. I hope everyone enjoyed their lunch and is now ready to get right to the next judgment task.

2. Please take out and review the response sheet for judgments about the writing test essay question.

3. The first two questions:

   a. About the relevancy of writing,

   b. And about the opportunity to learn to write,

   c. Are straightforward and similar to what you did on the multiple choice test.

4. So, it's the third that I need to discuss a little.

   a. As you probably surmised, you are asked to read twelve essays written by real examinees in response to the writing essay question.

   b. Note that each essay has its own code number.

   c. After you have read all twelve, please select the two which you think represent the minimal level of skill you think appropriate for a new teacher in Arizona.

   d. And put an "X" in the two boxes labeled with the code number of those two essays you have selected.

   e. Note the boxes are labeled in the same order as the essays in your packet, which will be passed out now.

   f. Again, remember your judgments are to be made in viewing the teacher's task in the broadest sense — as a professional who guides students, who communicates with colleagues and parents, and who represents the profession to the public.

5. Any questions about the judgments regarding the essays?

   a. Okay. Those finished with the three multiple choice tests go right ahead and complete your work for today.

PPST VALIDATION PANEL (CONTINUED)

b. You may leave when:

(1) All task have been completed.

(2) All materials given to you have been returned.

c. If you did not finish the multiple choice tests before lunch, please

(1) Come forward to pick up and sign out for the booklet(s) you need.

(2) Remember, we want you to complete that task before you start reading the essays.

6. To all of you:

Thanks once more for participating in this very important validation process.

APPENDIX F

Guidelines Used to Score PPST Essays

Trained readers assign scores based on the following scoring guide. The ratings of two readers are summed to produce the essay score. If the two ratings disagree by more than one point, the essay is read by a third reader. All discrepancies in rating essays are resolved before PPST score reports are released. There is no rescore service available for the essay section of the PPST Writing Test.

Rating

6 A 6 essay demonstrates a high degree of competence in writing, though it may have minor errors. A paper in this category:

- is well organized and well developed;
- uses appropriate details to support a thesis or illustrate ideas;
- shows unity, coherence, and progression;
- demonstrates syntactic variety; and
- displays clear facility in the use of language.

5 A 5 essay clearly demonstrates competence in writing, though it may have minor errors. A paper in this category:

- is well organized and well developed, though it may have fewer details than does a 6 paper;
- shows unity, coherence, and progression;
- demonstrates some syntactic variety; and
- displays facility in language, though it may not be as fluent as a 6 paper.

4 A 4 essay demonstrates competence in writing, though it may have occasional errors. A paper in this category:

- is adequately organized and developed;
- uses some details to support a thesis or illustrate ideas;
- demonstrates adequate facility with language; and
- may contain occasional writing errors, but they are neither serious nor frequent.

3 A 3 essay may demonstrate some competence in writing, but it is clearly flawed. A paper in this category reveals one or more of the following weaknesses:

- inadequate organization or development;
- failure to support a thesis or illustrate generalizations with appropriate detail;
- lack of variety in sentence structure;
- limited or inappropriate word choice; and/or
- a pattern or accumulation of errors in mechanics, usage, or sentence structure.

2 A 2 essay suggests incompetence in writing. A paper in this category is marked by one or more of the following weaknesses:

- disorganization or very little development;
- little or no detail or irrelevant specifics; and/or
- serious errors in mechanics, usage, or sentence structure.

1 A 1 essay demonstrates incompetence in writing. A paper in this category:

- contains serious and persistent writing errors; and
- may also be illogical, incoherent, or severely underdeveloped.

0 A paper in this category is written on a topic other than the one specified.

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